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CHICAGO, ILLINOIS, OCTOBER 1, 1904.

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Original Articles.

PLEURAL EFFUSION IN HEART DISEASE.*

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Pennsylvania.)
PHILADELPHIA.

In a paper entitled "The Distribution and Etiology of Cardiac Hydrothorax," which was published in 1897, I called attention to the fact that passive pleural effusion may occur in the course of failing compensation of the heart, before there is any tendency to external dropsy, and that this pleural effusion is very often unilateral, with a preference for the right side. That paper contained an analysis of the autopsies of 75 cases of hydrothorax occurring in patients with undoubted disease of the heart muscle. It was shown that in three-fourths of these cases the effusion was greater on one side than on the other, and in one-fifth the effusion was unilateral. The greater amount of fluid was on the right side in three-fourths of the unequal effusions and in 10 of the 13 cases of the unilateral effusions the fluid was found in the right pleural sac.

The material for my table was obtained from the notes of 2,427 autopsies contained in the records of the Philadelphia Hospital, and of the Middlesex Hospital in London. I also published the clinical notes of 4 cases from the wards of Dr. Stengel and Dr. Packard that showed this right-sided hydrothorax. In all of these cases the formation of the effusion preceded the edema, and I called attention to the fact that such effusions may precede external edema.

Dr. Stengel (University of Pennsylvania Medical Bulletin, 1901), took up the subject in a paper published in 1901, and gave an analysis of seventeen instances of hydrothorax which occurred in 100 consecutive cases of cardiac disease. His conclusions are probably of more value than those of my first paper, although mine were obtained from the autopsies of many more cases; because Stengel's analysis was based on clinical notes of living patients, while mine were all fatal cases; for it will be readily understood that in autopsy findings the sequence of events of the morbid state can not be accurately determined. Consequently, it was impossible to tell from autopsy notes whether in double effusion the fluid had been unilateral at the onset or not, and it was usually quite impossible to tell whether or not the pleural effusion had preceded general edema and effusions into other serum cavities.

In the 17 cases of hydrothorax that Stengel gives, the effusion was confined to the right side at some time in the course of the disease in 7 cases; 7 more were bilateral, with greater involvement of the right side, and in 3 cases the effusion was entirely left sided. In 8 of Stengel's 17 cases edema was absent or slight.

The literature of the subject has been fully considered in the papers by Dr. Stengel and myself. It is sufficient to say that several writers of text-books, including Pepper, Osler, Baccelli, and Rosenbach, state that cardiac hydrothorax is apt to occur before general edema, and is then unilateral with preference to the right side. Many observers have reported isolated cases of right-sided cardiac hydrothorax, and a group of Italians, including Piazza-Martini, Villani, Lizzato Cardenelli and Peter, have called attention to the occasional occurrence of right-sided pleural effusion of a non-inflammatory nature in atrophic cirrhosis of the liver. But so far as can be determined there has been no attempt made to consider the distribution or etiology of cardiac hydrothorax by an analysis of a series of cases before the subject was taken up by Dr. Stengel and myself.¹

In endeavoring to obtain another series of observations on the distribution and etiology of the hydrothorax of cardiac disease, I have gone over the records of the Presbyterian Hospital in Philadelphia since 1895. In this period of nine years there have been 31 cases of hydrothorax in patients with well-marked disease of the heart muscle and enlargement of that organ. Fortunately, 4 of these cases have been under my personal observation during the past winter in the wards of the Presbyterian Hospital in the service of Dr. John H. Musser, and I had the opportunity of examining two of these postmortem.

The condition required in selecting these cases and in deciding between cases of cardiac effusion and effusion from other causes was that there should be decided evidence of myocardial disease and enlargement of the heart. It was required also that the cardiac condition should be predominant, or at least a very prominent factor in the patient's condition. Aneurism, tumor or any other cause for effusions was sufficient to throw out the case in question.

With one or two exceptions the patients were free from fever, pain and cough. The exceptions were one case of acute pleurisy occurring in a case of well-marked disease of the heart, and two cases of acute endocarditis with great cardiac enlargement and with much effusion.

1. Beside Dr. Stengel's paper the following communications concerning pleural effusion of heart disease have appeared in current medical literature since 1897: Gerhardt: Pleural Effusion in heart disease. Rosenbach: Localized Congestions and Effusions in Cardiac Disease. Münchener med. Woch., No. 14, 1901. Germani: Right-sided Hydrothorax in Cardiac Disease. Gazz. degli Ospedali, No. 99, 1900. Barle: The Involvement of the Pleura in Heart Disease. Semaine Médicale, 1902, No. 4. Esser: Pleural Effusion in Heart Disease. Münchener med. Woch., No. 4, 1902.

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

As has been said, every case presented distinct signs of degeneration of the myocardium with enlargement of the heart, hypertrophy and dilatation.

Most of the cases had valvular lesions, with or without arterial changes; some had arteriosclerosis and nephritis, and there were two instances of acute endocarditis and cardiac dilatation in children.

In some cases all the chambers of the heart were dilated, in some all the chambers were enlarged, but the right side was mentioned as particularly affected. In others the left side was the only part of the heart enlarged or was the part particularly affected.

In 3 cases one or the other of the pleural sacs was totally obliterated by adhesions, and these have not been included in the tables. As I have said, in one case the effusion is apparently due to acute pleurisy, and occurred entirely on the right side. This gives a total of 27 cases for analysis.

The effusion was at some time during the period of observation confined to the right side in 11 cases, or 40 per cent. The effusion was bilateral, but greater on the right side in 4 cases, or 15 per cent. It was left sided in 5 cases, or 19 per cent., and double, but greater on the left in 6, or 22 per cent. The effusion was double and equal in one case, or 3 per cent.; right sided in 60 per cent., left sided in 40 per cent.

The figures in my first paper based on autopsy findings alone are:

Right-sided hydrothorax, unilateral or greater on the right side, 41 cases, or 77 per cent.; left-sided hydrothorax, unilateral or greater on the left side, 12 cases, or 23 per cent.

Stengel's 17 cases of hydrothorax were practically all right sided, since 2 of the 3 left-sided effusions could be explained by the obliteration of the right sac by adhesions, and the other case was probably due to aneurism. Consequently the figures in the analysis of the Presbyterian Hospital cases are not so conclusive that cardiac hydrothorax in the great majority of cases is right sided as those of Stengel or of my previous article.

The Presbyterian Hospital figures, however, show that the effusion has a decided preference for the right side. The figures indicate very decidedly that the pleural effusions of cardiac origin are usually unilateral or unequal. Moreover, when the etiology of such effusions is considered, it will be seen that the larger percentage of left-sided effusion in the Presbyterian Hospital figures, when taken in connection with the side of the heart affected, is very suggestive and interesting.

The effusion was entirely left sided at some time in 5 cases, or 10 per cent., and was double but greater on the left side in 5 more cases.

That is, the effusion showed a preference for the left side in 10 cases, or 40 per cent. in round numbers, as contrasted with 15 cases, or 60 per cent. that were right sided.

The effusion was double and equal in but one instance, showing very decidedly that these pleural effusions in heart disease are unequal in a great majority of cases.

A very interesting point shown in the table is that, while right-sided effusions occur with enlargement of the right heart, left-sided effusions are usually associated with enlargement of the left heart. This phase of the subject will be considered more in detail in the section on etiology.

It was difficult to ascertain whether the formation of the effusion preceded external edema. Such cases are

usually not admitted to the hospital until the severity of the symptoms are such that external edema is present to a considerable degree. It is then usually impossible to fix the time at which the effusion commenced from the history of the patient.

In 3 of my cases edema was absent or slight on admission, while there was considerable effusion; in 3 other cases the edema disappeared before the effusion.

This small number of cases, however, together with the clinical reports in my first paper, and by the observation of Stengel, Gerhardt and others, demonstrate that such effusions may precede external edema.

Various theories have been advanced to explain the formation of this unilateral or unequal pleural effusion in heart disease.

Wintrich, in an article extensively quoted in my first paper, gave obliteration by adhesions of one of the pleural sacs as the most frequent cause for unilateral hydrothorax. He says, however, that the effusions may rarely be one sided, when both pleura are free.

Buequoy, Saint Philippe and Dequet insisted that the effusion was inflammatory and attributed it to pulmonary infarction on the right side. Their theory, however, is not supported by the researches of Gerhardt and Stengel, or by either of my lists of cases.

Esser, in a recent paper, reported 3 cases of unilateral right-sided effusion without symptoms in patients with cardiac dilatation, in which autopsies showed large bronchial glands in the root of the right lung. He attributed the effusion to the interference with the lymphatic circulation of the right pleura, which was produced by these glands. This effusion occurred in heart disease, because in such cases the general circulation is feeble, and consequently there is a greater tendency to lymphatic stasis. The improbability of this explanation is obvious. Such a condition was not noted in any of the cases cited by any of the other authorities. Unilateral enlargement of the bronchial lymph glands is not a common enough condition to explain a phenomenon of such regularity as the occurrence of these effusions.

As is shown in Stengel's paper, right-sided effusions in dilatation of the heart are not caused by obstruction to the general lymphatic circulation produced by interference with the circulation of the superior vena cava, and hence with that of the right lymphatic duct. The right lymphatic duct is protected by valves, and if general lymphatic obstruction was the cause of the effusion, unilateral swelling of the arms, neck and chest would necessarily be more frequent.

A group of clinicians, mostly Italians, have observed right-sided hydrothorax in cirrhosis of the liver. Villani reports nine such cases of atrophic cirrhosis, with right-sided pleural effusion in two, of which the diagnosis was confirmed by autopsy. He explained the effusion by assuming that in such cases inflammation of the capsule of the liver extending through the diaphragm caused a low grade of inflammation in the right pleura with effusion without symptoms. He extended this theory to right-sided hydrothorax in cardiac disease. He argued that in such cases of heart disease the liver is distended by passive congestion, and its capsule is subacutely inflamed. This inflammation spreads through the diaphragm in the same manner as he assumed it would in cirrhosis of the liver. Peter and Huchard held approximately the same view.

Piazzini-Martini reported several cases of right unilateral hydrothorax in atrophic cirrhosis, and explained the condition by assuming that the dilated veins of the esophageal plexus pressed on the vena azygos and inter-

fered with the return of blood from the right pleura.

The liver was noted as distinctly enlarged in four of the Presbyterian Hospital cases, and in six of Stengel's seventeen cases. Four of the Presbyterian Hospital and three of Stengel's cases had ascites. All of these cases, however, showed much general edema, so that the abdominal effusion may have been merely part of the general anasarca.

The responsibility of the inflammation of the liver capsule in the cases of right-sided effusion is not obvious, and this theory fails entirely to account for the effusion that is confined to the left side, or greater on that side.

The theory that appears to explain most satisfactorily the preference of these pleural effusions for the right side, supposes that enlargement of the right heart and especially of the right auricle can press on the root of the right lung and obstruct the vena azygos major.

The vena azygos major represents the common trunk of the nine or ten right lower intercostal veins. It lies on the right side of the bodies of the dorsal vertebrae extending from the diaphragm as high as the third intercostal space. From that point it arches forward and curves around the root of the right lung and then empties into the superior vena cava just before that vessel enters the pericardium. It receives as tributary the right superior intercostal vein, which is the common trunk of the three upper intercostal veins. The vena azygos major consequently drains the whole of the costal layer of the pleura from the right side. Obstruction of this vein would, therefore, result in congestion and stasis in the whole of the right pleural sac.

The vena azygos major also receives as tributary the vena azygos minor, which is the common trunk of the lower four or five intercostal veins on the left side. It crosses over the body of the eighth dorsal vertebra to join the vena azygos major. Obstruction of the vena major would consequently cause congestion in the lower third of the left pleural sac.

The vena azygos major, as it curves around and partially surrounds the root of the right lung, is in a position which renders it especially liable to compression. As has been said, such obstruction would produce stasis and congestion in the whole of the right pleura and in the lower portion of the left pleura, and consequently the resulting effusion in its early stage would be wholly right-sided, and in its later stage bilateral but greater on the right.

In my former article I advanced the theory that right-sided pleural effusions in heart disease were produced by pressure exerted on the root of the right lung by a dilated right auricle. It has been shown how such pressure would tend to compress the vena azygos major, and hence could cause a passive effusion on the right side, and in case the pressure was long continued would produce a smaller effusion in the left sac.

Dilatation of the right auricle was especially mentioned in sixteen of the thirty-five cases of right unequal hydrothorax tabulated in my first paper. The figures given by the analysis of the Presbyterian Hospital cases strongly support this theory.

In sixteen cases of right unequal hydrothorax in the Presbyterian Hospital list the right side of the heart was much dilated in fourteen. Both sides were dilated in six cases, and the left side alone in two. That is, the right side of the heart was greatly dilated in nine-tenths of the sixteen cases.

The two autopsies which I had the opportunity of making personally on two of the cases in the Presby-

terian Hospital list, showed much dilatation of the right auricle and ventricle. In both the right auricle pressed on the root of the right lung, and in both the vena azygos major was engorged and dilated. There were no adhesions or enlarged bronchial glands or great congestion of the liver which would suggest any theory for the production of the effusion other than that of pressure on the azygos vein.

The report of these two cases in detail, together with the notes on the autopsies, are as follows:

CASE 19.—J. G., male, white, aged 50 years.

Clinical Diagnosis.—Myocarditis, mitral stenosis and insufficiency. Large right-sided pleural effusion which had been tapped once. Specific gravity of fluid 1015, with 4 grams of albumin per liter.

Pathologic Diagnosis.—Double pleural effusion greater on the right side. Mitral stenosis. Thickening of the coronary arteries and myocardial degeneration. Great dilation of the right auricle. The right auricle pressed directly on the root of the right lung. The vena azygos major was dilated and engorged.

History.—The patient had always been a drinking man, but beyond this little concerning his personal or previous history could be obtained. About two years previously he began to suffer from morning vomiting and gradually became short of breath on exertion and lost his usual vigor. He had been under a physician's care for the two months previous for dyspnea and edema of the feet.

Examination.—On admission he had much general edema and some ascites. There were signs of pleural effusion on the right side below the level of the fourth rib. The left side was free. The day after admission 2,000 c.c. of clear fluid was drawn from his right pleura. The specific gravity of the fluid was 1015, and it contained 4 grams of albumin per 1,000 parts, and contained a small amount of blood. After the fluid was withdrawn the left border of the heart was found to extend to the anterior axillary line, the upper border was at the second rib, and the right border was at the right border of the sternum. There was a murmur of mitral insufficiency at the apex preceded by short, rough presystolic murmurs, apparently due to mitral stenosis. There was also a rough systolic murmur in the aortic area transmitted to the carotid. There were no other murmurs. The action of the heart was weak and irregular. The pulse was small and weak, and there was moderate thickening of the radial and temporal arteries. The liver was slightly enlarged, but did not pulsate. There was no pulsation in the veins of the neck.

Course.—The patient was slightly delirious for the next few days. His pulse grew very rapid and irregular and he died suddenly six days after admission.

Autopsy.—Both pleuræ were free from adhesions. There was 1,500 c.c. of clear, slightly blood-stained fluid in the right pleural cavity. The right lung was slightly compressed and somewhat congested, but otherwise normal. There were 200 c.c. of fluid in the left pleura. The left lung was congested.

The left border of the heart extended as far to the left as the anterior axillary line, and the right border, which was formed by the right auricle, extended 4 cm. to the right of the sternum from the third rib to the fifth interspace. All the chambers of the heart were distended. The left ventricle and left auricle were much dilated, and also much hypertrophied. The right ventricle was dilated and hypertrophied. The right auricle was tremendously dilated and as large as a boy's fist. The heart muscle was very pliable and yellow, and evidently much degenerated. The coronary arteries were hard, stiff and calcareous and their caliber was diminished. There was much thickening of the mitral leaflets, and the leaflets themselves were adherent, forming a typical funnel-shaped valve, such as is often seen in mitral stenosis. The aortic valves were thickened and rough, but were competent. The tricuspid orifice was dilated and admitted four fingers, so that there was probably some insufficiency of the tricuspid valves as well. The portion of the heart formed of the right auricle pressed directly on

SUMMARY OF CASES OF PLEURAL EFFUSION IN HEART DISEASE

Number, Age in Yrs., Sex.	Condition of Pleural Sacs.	Pleural Ad- hesion.	Diagnosis.	Cardiac Enlargement.	External Edema.	Liver.	Remarks.
1 37 M	Effusion commenced on left side. Autopsy: both pleurae half full.		Autopsy: Mitral stenosis and insufficiency; aortic regurgitation; tricuspid insufficiency.	Both sides enlarged.	Effusion preceded edema.		
2 53 M	Autopsy: Right pleura . . . 200 c.c. Left pleura . . . Free		Mitral stenosis and insufficiency.	All chambers enlarged, especially left ventricle; weight 625 grms.	None		
3 56 M	Autopsy: Right pleura . . . 270 c.c. Left pleura . . . Free		Mitral insufficiency.	All cavities much distended, especially right auricle; weight 450 grms.			
4 42 M	Right-sided effusion before fourth rib, which increased rapidly; tapped once, 1200 c.c.; left side remained free.		Mitral insufficiency; tricuspid insufficiency.	Enlarged to left and right.	Present	Enlarged and pulsating.	Clear yellow fluid; pulsation in jugular vein and liver.
5 36 M	On admission: Double effusion; the left effusion disappeared first; confirmed by puncture one week after admission; right-sided effusion to first rib; left side free.		Mitral stenosis and insufficiency.	Enlarged to left and right.	Present on admission.	Enlarged and pulsating.	Fluid clear yellow.
6 52 M	Right-sided effusion to third rib; left side free.		Mitral and tricuspid regurgitation.	Enlarged to left.	Present on admission; ascites.		
7 33 F	Left-sided effusion below fourth rib; right-sided effusion below sixth rib; confirmed by autopsy.		Autopsy: Mitral and tricuspid stenosis and insufficiency.	All cavities dilated, especially right auricle.	Present on admission.	Congested	
8 52 F	Clinically and at autopsy, large double effusion.		Mitral stenosis and insufficiency; tricuspid insufficiency.	Bulk of heart made up of greatly dilated auricles; the right auricle was especially dilated.	Present on admission	Congested	
9 52 M	Lower half of right pleura contained one quart of fluid at autopsy.	Both sides obliterated, except lower half of right pleura.	Arterio sclerosis; fatty heart.	Both sides enlarged and dilated.			Pulsation in jugular vein.
10 43 F	Autopsy: Lower half of right pleural sac contained 8 ozs. of fluid.	Both sides obliterated, except lower part of right pleura.	Fatty heart	All chambers dilated, especially right side.			
11 63 M	Clinically: Right-sided effusion; left free. Confirmed by autopsy.	None	Autopsy: Fatty heart; atheroma; mitral stenosis; aortic thickening.	All chambers enlarged, especially the right and left auricles; weight 650 grms.	Present		
12 40 F	On admission: Left side, effusion up to third rib; right side, effusion to fifth rib, three weeks later; double effusion; tapped once. Soon after patient developed fever with development of pus in left pleura and 6000 c.c. pus was removed.		Mitral insufficiency and stenosis; action weak and irregular	Enlarged to left and upward in left.			
13 74 F	Clinically on admission: Acute pleurisy on right side with effusion up to the fourth rib; no effusion in left side. The effusion persisted for some days after subsidence of fever and then disappeared.		Mitral insufficiency; aortic insufficiency and roughening; fatty heart.	Enlarged to left.			Fever on admission which lasted for six days, with pain on right and cough; fever gradually disappeared.
14 41 F	Clinically on admission: Right-sided effusion up to angle of scapula; confirmed by autopsy.	Autopsy: Left side totally obliterated by adhesion.	Autopsy: Mitral stenosis and insufficiency; fatty heart; arterial sclerosis.	Clinically: enlarged, especially toward right.	Present on admission.		History of acute articular rheumatism; 3 weeks of sharp pain in chest; leucocytes 28,900.
15 45 M	Clinically on admission: Double effusion slightly greater on right, which gradually disappeared.		Mitral stenosis and insufficiency; aortic insufficiency.	Enlarged to left and right; left border, anterior axillary line; right border, right parasternal line.	Present on admission; ascites, which gradually disappeared as improvement occurred.		Considerably jaundiced; gradually improved until an attack of cerebral apoplexy caused death.
16 52 M	On admission: Right-sided effusion to third rib; confirmed by puncture; later some left-sided effusion.		Aortic roughening and regurgitation.	Clinically: enlarged to right (right parasternal line) and to the left.	Slight on admission.	Enlarged to within 1 inch of umbilicus.	Recovered slowly and effusion disappeared.
17 40 F	Clinically: Double effusion greater on left; confirmed by puncture. Tapped left twice 500 c.c. Tapped right once 600 c.c.		Clinically and at autopsy: Mitral stenosis and insufficiency; tricuspid insufficiency; fatty heart; atheroma of coronary arteries.	Autopsy: Dilatation of all chambers, but especially of the right auricle; weight 600 grms.	Present on admission; ascites.		Fluid 1020; albumin 45 per 1000. Patient had been in hospital several times for same trouble; gradually grew worse and died; autopsy reported in full in paper.
18 . . M	Admitted twice with pleural effusion. Always on right; left side remained free; right side tapped once 1200 c.c. and filled again rapidly and then disappeared as patient recovered. Persisted longer than external edema.		Mitral insufficiency; aortic insufficiency; deeneration of myocardium.	Enlarged to left and right.	Present on each admission; ascites; edema disappeared before the effusion.		Had been admitted 4 times for cardiac disease; twice with pleural effusion; fluid 1044; albumin 1.5 per cent. by weight; death; no autopsy.

SUMMARY OF CASES OF PLEURAL EFFUSION IN HEART DISEASE.—CONCLUDED.

Number. Age in Yrs. Sex.	Condition of Pleural Sacs.	Pleural Adhesion.	Diagnosis.	Cardiac Enlargement.	External Edema.	Liver.	Remarks.
19 50 M	Clinically on admission: Right-sided effusion up to fourth rib; left side free; right side tapped, 2000 c.c. Autopsy: Right side, 1500 c.c.; left side, 300 c.c.		Autopsy: Fatty heart; atheroma of coronaries; mitral insufficiency. (relative)	Clinically: Left side enormously dilated, left anterior axillary line; right border, right edge. Autopsy: All chambers distended; right auricle enormously dilated.	Present on admission; ascites.	Congested and enlarged.	Fluid 1015; albumin 4 per 1000; autopsy reported elsewhere.
20 53 M	Autopsy: Left pleura . . . 1300 c.c. Right pleura . . . 750 c.c.		Autopsy: Acute pericarditis; chronic interstitial nephritis; arteriosclerosis; no valvular lesions.	Autopsy: Enormous involvement of left ventricle.	Considerable edema; some ascites.		
21 44 M	Left-sided effusion 750 c.c. at autopsy	Some on left side.	Chronic parenchymatous nephritis; no valvular lesions; fatty heart.	Much enlargement of left ventricle.	Present: legs and eyes.	Much congested.	
22 60 M	Left-sided effusion.	Some in right side.	Aortic thickening; fatty heart.	Dilated hypertrophy of left ventricle.	Both legs.		
23 31 F	Autopsy: Left pleura full; right pleura almost empty.	None.	Chronic interstitial nephritis; no valvular lesions.	Hypertrophy of left ventricle; heart weighed 535 grms.	Legs and eyes preceded pleural effusion ascites.	Atrophic; wt. 1420 grms.	
24 47 F	Double effusion greater upon the left.	None.	Chronic interstitial nephritis; no valvular lesion.	Much hypertrophy of left ventricle; weight 740 grms.	Legs and face preceded pleural effusion; some ascites.	Congested and enlarged.	
25 29 M	Autopsy: Right sac contained 1000 c.c.	Left sac obliterated.	Mitral stenosis and insufficiency; general atheroma.	All cavities enlarged, especially left ventricle.	Present on admission.		
26 58 F	Autopsy: Right pleura contained 400 c.c.; left pleura contained 200 c.c.		Mitral, tricuspid and aortic valves all thickened; fatty heart.	All chambers enlarged.			
27 58 F	Autopsy: Double effusion, greater on right.		Mitral stenosis and insufficiency.	Much enlarged, especially right auricle and ventricle which were greatly dilated; weight 690 grms.	Present.		
28 57 F	Autopsy: Left pleura completely filled; right pleura one-half full.		Double aortic disease.	Right side enormously dilated; left ventricle enlarged and made up bulk of heart.	Legs; some ascites.		
29 53 M	Right effusion to 2nd rib, which slowly increased; left remained free.		Aortic roughening and insufficiency; mitral insufficiency.	All chambers enlarged.	Present on admission.		
30 8 F	Double effusion, decidedly greater on right; confirmed by puncture; right to 5th dorsal vertebra; left to 6th dorsal vertebra.		Acute endocarditis of mitral and aortic valves; old mitral insufficiency and stenosis; presystolic thrill at apex.	Enlarged upward to 2nd rib and to right to right parasternal line enlarged slightly to left; probable dilation of left auricle and right side of heart.	Slight of legs; disappeared before effusion.		History of rheumatism and chorea; improved and effusion disappeared; the patient had an irregular fever for the first 2 weeks after admission.
31 12 M	Left-sided effusion up to angle of scapula; disappearing as heart grew stronger and reappearing with relapse of endocarditis.		Acute endocarditis, myocarditis and pericarditis; mitral insufficiency; tricuspid insufficiency; friction rales in pericardium on first admission.	Enormous dilation of left ventricle and left auricle; less degree of dilation in left side.	Present on both admissions, disappearing rapidly.		Sudden onset of acute endocarditis, with fever first week; leucocytosis; gradual improvement and discharge; returned in 8 days with fever and return of all symptoms; systolic pulsation in veins of neck.

the root of the right lung and must have exerted some pressure on it.

The course of the vena azygos major could not be traced around the root of the lung since all the tissues were very edematous, but the vein was dissected out as it ran up along the spine underneath the costal pleura. It was distended by dark blood and was fully one-third of an inch in diameter. The lower intercostal veins were correspondingly dilated. The left azygos, or azygos minor, was small and collapsed, and could not easily be found. The surface of the pleura showed nothing out of the ordinary.

There was some ascites. The liver was rough and hard, and there was a high grade of the cyanotic induration. There was no perihepatitis. The kidneys also showed cyanotic induration and were much congested. There was no enlargement of the esophageal veins.

CASE 17.—A. B., female, colored, aged 40 years. The patient had been admitted twice in six months for the same condition.

Clinical Diagnosis.—Much pleural effusion, greater on the left side. Myocardial degeneration and mitral disease. Tapped twice. Specific gravity of the fluid was 1020, and it contained 4.5 grams of albumin per liter.

Pathologic Diagnosis.—Double pleural effusion, greater on the left. Fatty heart. Great dilatation of all the chambers of

the heart, equally as great on the left as on the right side. The vena azygos major was dilated and engorged.

History.—She had had several attacks of acute articular rheumatism. In December, 1902, she began to suffer from dyspnea, vertigo, cough and fainting attacks. In June, 1903, her feet began to swell for the first time. She was admitted to the hospital July 27.

Examination.—On admission she had much dyspnea and could not lie flat in bed. There was no fever or cough. Examination of her lungs showed evidence of effusion in both pleural sacs, but more on the left than on the right side. The heart was enlarged to the left and to the right, the apex was in the sixth interspace one inch above the mid-clavicular line. There were blowing systolic murmurs at the apex and in the aortic area. The urine was of good specific gravity, averaging 1020. At first it contained albumin, but this disappeared as the patient improved.

Course.—She grew rapidly better under digitalis, strychnin, nitroglycerin and rest in bed and was discharged in a few weeks. At the time of her first discharge there was no evidence of fluid in her pleural cavity. The patient remained fairly well until Nov. 12, 1903, when she was again admitted with symptoms of failing compensation.

Examination.—At that time her condition was as follows:

Thorax: Evidence of effusion in both pleural sacs, greater on the left side. The effusion extended to the level of the fifth rib on the left, and on the right to the level of the seventh rib. Exploratory puncture gave clear yellow fluid on both sides. This fluid had specific gravity of 1020 and contained 4.5 per 1,000 albumin. Respiratory murmur above the effusion was clear with the exception of a few rales.

Heart: The heart was enlarged to the left, to the right and upward. There was a systolic murmur at the apex, which was also heard in the aortic area, but was not transmitted to the vessels of the neck. There was a distinct systolic murmur in the tricuspid area of a different character than that heard at the apex. This murmur apparently originated at the tricuspid valve. There was systolic pulsation in the veins of the neck.

Liver: The liver was somewhat enlarged but did not pulsate. There was some edema of the legs and ascites.

November 14, 600 c.c.m. of clear yellow fluid was drawn from the left pleura and November 17, 450 c.c.m. were drawn from the left side. November 18, the right chest was tapped and 500 c.c.m. of clear yellow fluid was obtained.

Blood: Red cells 72 per cent., hemoglobin 68 per cent., white cells 6,000. There was slight cough and no fever. The urine was scanty and albuminous and contained casts. The patient died suddenly December 3.

Autopsy.—The right pleural cavity showed some firm adhesions posteriorly, probably diminishing the capacity of the right pleural cavity to a considerable extent. The right pleural cavity contained 130 c.c.m. of clear fluid, the left pleural cavity was free and contained 400 c.c.m. of clear fluid. The layers of the pleura on both sides were thickened, but not congested. The vena azygos major could be plainly seen lying against the spinal column on the right side. It was considerably dilated and was approximately the size of a large goose-quill. The vena azygos minor was not dilated and was collapsed so that it could not be satisfactorily studied. There was dilatation of the right and left auricle, about equal in degree. The right auricle extended two inches to the right of the sternum in the fourth interspace. There was dilatation and hypertrophy of the left ventricle and dilatation of the right ventricle. The mitral valves were insufficient, due to the thickening of the valve leaflets and chordae. The tricuspid valves were insufficient, due to a dilatation of the valve orifice. There was atheroma of the aortic valves and the aorta, and great thickening and calcareous infiltration of the coronary arteries. The lumen of these vessels was considerably diminished. The wall of the left ventricle near the apex was very thin. The section of the heart muscles in these areas showed much degeneration. There was hypostatic congestion of both lungs. There was moderate fatty degeneration and fibroid changes in both kidneys. The kidneys each weighed 160 grams. The heart weighed 600 grams.

In my first paper I reported the result of the autopsy on a case of double hydrothorax greater on the right side, increasing as the heart lost strength. There was little ascites and edema, but the thoracic effusion preceded the appearance of the subcutaneous edema.

Autopsy showed chronic fibrous myocarditis and hypertrophy and dilatation of the heart, especially affecting the right auricle. The dilated right auricle pressed directly on the root of the right lung.

The right pleural sac contained 1,600 c.c. of clear blood-stained fluid. The visceral layer of the pleura was somewhat thickened, but there was no sign of acute inflammation. The left pleural sac contained 600 c.c. of clear blood-stained fluid.

The liver was slightly smaller than normal, and there were a few adhesions between it and the diaphragm, which were evidently due to an old perihepatitis, but there was no evidence of any recent inflammatory process. The bronchial glands were not enlarged nor diseased.

Wintrich has reported a case of unilateral right-sided

hydrothorax without external edema. Wintrich remarked that no cause could be found for the effusion except a dilated right auricle, the result of chronic myocarditis from alcoholism. There was no inflammatory change about the liver, nor ascites.

Stengel reports two autopsies in his list, in which there was dilatation of the right ventricles, auricles and vena cava, and marked backward pressure on the root of the right lung and azygos vein. One of these was a case of unilateral right-sided hydrothorax, and the other was one of double hydrothorax greater on the right side.

Dr. Stengel states as his opinion that such pressure on the root of the right lung, causing compression of the vena azygos major, is the cause of the right-sided effusions observed in his cases. In his article he gives a very convincing anatomic diagram prepared by Dr. G. G. Davis, which shows very plainly how dilatation of the right side of the heart may press on the root of the right lung, and compress the vena azygos major.

Dr. Stengel and myself can not claim the entire credit of originating this explanation for such right-sided effusions. Baccelli advanced this theory in a modified form as early as 1863. He assumed that a dilated right heart produced obstruction of the vena azygos major not by direct pressure on the root of the lung, but by a downward displacement of the right side of the heart due to its increased size and gravity. The superior vena cava would then be carried downward and with it the azygos major, consequently this vein from its anatomic position would be drawn tightly around the root of the lung and compressed. Baccelli's idea was supported by Lizzato, Cardinelli and Fusa.

Rosenbach has advanced the theory that such right-sided effusions are explained by the pressure exerted on the azygos vein by dilatation of the right heart. This is aided by congestion of the liver caused by weakness of the heart. The enlargement of the liver hinders the action of the diaphragm, and consequently prevents thorough emptying of the veins of the right side of the pleura, thus favoring an effusion.

Just as the dilatation of the right heart appears to bear some relation to right-sided pleural effusion, so enlargement of the left heart, with or without involvement of the right side, was observed in nearly all the cases of left-sided effusion. In the eleven cases of effusion confined to the left pleura, or greater on that side, the left heart, and especially the left ventricle, was especially mentioned as enlarged in nine cases, that is, in four-fifths of the cases of left-sided effusion. It seems fairly well established that dilatation of the right heart bears some relation to right-sided effusion. The figures just given suggest also that enlargement of the left heart may bear some relation to left-sided effusion. I can give no reason why this should be so. The pressure of a dilated left auricle on the root of the left lung would not obstruct any large venous trunk analogous to the vena azygos major. The venous drainage of the upper part of the left pleura is afforded by two small veins, the upper left azygos vein and the left superior intercostal vein. These are so placed that they are not liable to compression by an enlarged left heart.

Rosenbach explains these left-sided effusions by assuming that the enlarged left ventricle presses on the lower lobe of the left lung and produces atelectasis. Long-continued congestion produced by the collapse of the lung brings about a low-grade inflammation of the pleura, and finally an effusion forms in the pleural sac which is partly transudate and partly inflammatory.

My list of cases gives nothing to confirm or to deny this theory of Rosenbach. I can only call attention to the fact that left-sided cardiac dilatation seems to bear some relation to left-sided pleural effusion.

Signs of acute inflammation of the pleura were not found at autopsy in any of the Presbyterian Hospital cases, or in any of those analyzed in my former paper. Dr. Stengel did not find any such condition in the three autopsies held on the cases he reports. However, the fluid removed in Cases 1, 2 and 3 had too high a specific gravity and too large an amount of albumin for a pure transudate. The fluid did not contain fibrin and was certainly not the result of an acute inflammatory process, but the physical characteristics of this fluid are such that it might have been the result of transudation combined with an exudate of a low-grade inflammation of the pleura, as has been suggested by Rosenbach.

The pleura in Case 17 and in Case 4 of my previous paper were reported as thickened and whitened, although there were no signs of acute inflammation. It may well be that long-continued congestion had set up some subacute inflammation here, which was not active enough to cause fever, cough or pain, but may have aided materially in the production of the effusion.

Stengel suggests that a long-continued congestion produces some trophic change in the vessels of the pleura favoring the passage of the fluid, and also calls attention to the fact that inflammation of the pleura may be latent and without symptoms. He suggests that in some cases an inflammatory element may be present in the production of these cardiac pleural effusions.

Gerhardt mentions a class of cases in which the effusion is very obstinate and recurs with great rapidity and persistence. Some of these cases have been tapped a great number of times, and the clinical picture they present is that of a chronic pleuritis of a low grade, combined with a process of transudation, due to the congestion of the vessels of the pleura.

Certain features of two of my cases suggest that some trophic change takes place in the pleura in cardiac disease that may render the pleura membrane a point of lessened resistance to infection.

Case 13 was an instance of acute pleurisy which occurred on the right side in a case of well-marked heart disease, with cardiac dilatation and symptoms of failing compensation. The pleurisy was accompanied by pain and fever.

In Case 12 the empyema developed in a case of double cardiac hydrothorax, greater on the left side, after both pleural sacs had been emptied by aspiration. The heart was much enlarged toward the left.

These two cases suggest that long-continued congestion may have altered the tissues of the pleura and that the pleural sac had become a *locus minoris resistentiæ*. Two isolated cases of this sort are not very convincing, but they are mentioned because they seemed to have some bearing on the question as to whether the effusion in cardiac disease is purely a transudate, or whether it is partly passive and partly inflammatory.

It seems probable, then, that the mechanism of the formation of fluid in these cases of pleural effusion in heart disease is not that of a simple transudate, but that congestion of the pleura produces a chronic inflammation of low grade, and that the effusion is both a transudate and an exudate. This is supported by the following facts: First, the specific gravity of the fluid and the amount of albumin contained in it is often too high to be consistent with the pure transudate; second, the effusion

may precede, by a considerable length of time, external edema or other serous effusions; third, the two cases reported suggest that the pleural sac particularly affected may undergo some trophic change, making it a point of lesser resistance to infection; fourth, the effusion in certain cases is very obstinate, lasts a long time and returns quickly after aspiration.

Gerhardt mentions the obstinacy and persistence of this effusion as a characteristic of this class of cases. Rosenbach, Brouardel and Liebermeister have called attention to this peculiarity of such pleural effusions.

Rosenbach mentions two cases in which the effusion lasted six and fourteen months respectively.

None of my cases showed this obstinacy of the effusion in any marked degree. Several of the patients were admitted to the hospital more than once for symptoms of failing compensation and pleural effusion, but usually one or two tapplings were sufficient to relieve the dyspnea, and the fluid returned slowly, even when the case was near to a fatal termination.

There was no case in the Presbyterian Hospital list in which the fluid persisted for any great length of time, and which was not relieved by one or, at most, two tapplings. The effusion usually disappeared spontaneously as the patient grew stronger, or else increased slowly until death. Consequently, I can not say that the Presbyterian Hospital list supports the statement of Gerhardt and Rosenbach, that great obstinacy is a characteristic of these pleural effusions in heart disease.

PROLONGED DELIRIUM IN PERICARDITIS AND ENDOCARDITIS.

WITH REPORT OF A CASE.*

EDGAR MOORE GREEN, A.M., M.D.

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I have taken the liberty of bringing to your notice the subject of delirium in certain diseases of the heart, not because it was possible for me to demonstrate any new scientific theory, but rather because from my reading and my own limited personal experience it seemed to me that prolonged delirium in such cases was quite unusual. It is, of course, well known that heart disease is a frequent complication of rheumatism, and endocarditis is much more common in such cases than is pericarditis. According to Whittaker,¹ Bouillaud believed that in every case of acute articular rheumatism the heart was more or less affected. Williams states that 75 are affected in every 100 cases. Leudet fixes the ratio at 22 in 100; Sibson 20 in 100. Wunderlich 19 in 100. Duchek 16 in 100. Bamberger has claimed that 30 per cent. of cases of cardiac trouble arise from rheumatism, and Thompson has placed the figures at 16 and 20 per cent. On the other hand, Latham states that pericarditis only occurs seven times in 136 cases of rheumatism. The latter disease is certainly more apt to occur in severe cases, and is said to be more frequent when the inflammation has a tendency to wander from one joint to another in rapid succession. It is said to occur very infrequently in cases of subacute or chronic rheumatism; in fact, some authorities deny that it ever occurs as a complication of the latter.

Ordinary cases of the disease run a comparatively

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

1. Twentieth Century Practice.

short course, frequently not more than eight or ten days, except where the amount of effusion is great, and these terminate in from three to six weeks. It will not be necessary for me to enumerate the ordinary symptoms and complications of this disease. I may say, however, that the rarer symptoms mentioned by most authorities are aphonia and hoarseness, from pressure on the left recurrent or laryngeal nerve, syncope from anemia of the brain resulting from pressure on the large vessels of the heart or myocarditis, vomiting from pressure on the phrenic nerve. Stupor, delirium and coma are mentioned as occurring from hyperemia due to pressure on the vena cava or to the accumulation of toxins in the blood. All authorities whom I have consulted, however, have stated that the latter signs usually show themselves in the last stages of the disease. Austin Flint has reported cases marked by delirium, but in all the cases of which I have read the delirium has been of comparatively short duration.

It will not be necessary for me to give a detailed report of the symptoms of this case, but a résumé may be given as follows:

History.—Dec. 15, 1902, I was called to visit a man, age 46, whom I found to be suffering from acute rheumatism. His previous health had been good. Early in life he was said to have had an attack of brain fever, but of this I could obtain no detailed history. He had had two attacks of acute rheumatism, each lasting several weeks. In one of these attacks he had been under my care, and although the case was somewhat tedious, there were no complications and he made an uninterrupted recovery. There was no specific history. During the first week of his illness the inflammation was rather migratory in character, at one time an arm would be affected, on another day one knee would be inflamed, or one ankle or possibly both ankles, at another time an elbow or wrist. During this time the temperature ran as high as 103 to 104 degrees. At the end of about one week he was suddenly taken with pain in the left side about the level of the fifth and sixth ribs. This pain was acute in character and accompanied each inspiration, the respiration became more rapid, running up to 37 or 38 per minute, pulse 100 to 108, temperature 100 to 101 degrees.

Examination.—Auscultation at this time revealed symptoms of acute pleurisy, and also a systolic murmur over the precordium, but more intense at the apex. There was also found a to-and-fro friction sound at the fourth and fifth interspaces directly over the heart. The sounds of the heart rapidly diminished in force and loudness. Visible impulse of the heart was practically obliterated. Percussion of the chest revealed great increase in the lateral diameter of the cardiac dullness. The urine was about normal in quantity, but was quite high colored and of high specific gravity. There was no albumin nor sugar, but urates were present in considerable excess.

Symptoms.—In addition to great pain in the region of the heart there was difficulty in swallowing. The latter symptom was so marked that even the swallowing of liquids caused great discomfort and frequently he was unable to take more than one or two swallows in succession. At the same time he became extremely restless, talkative and frequently saw imaginary objects. It was exceedingly difficult to induce sleep. Morphine, $\frac{1}{4}$ gr., with atropin would partially relieve pain, but seldom caused more than one hour's continuous sleep. He was exceedingly restless, frequently trying to get out of bed and almost constantly trying to pick up imaginary objects. His most frequent delusion was that he was traveling in some distant city or foreign country, although he usually recognized those about him. After a number of days he believed he was on a sort of houseboat on a trip which his wife was conducting. His usual question when I visited him in the morning would be, "Well, how did you get here today?" It is difficult to understand how this delusion could have originated. His occupation for several years had been

that of superintendent at large iron works and during certain seasons of the year he was in the habit of traveling for the making of purchases in various parts of the West. At no time did his delirium become violent, though, as stated before, he frequently attempted to get out of bed. This mental condition continued without interruption until January 26, or about five weeks, when, after a fair night's sleep, the nurse stated that his mind wandered but little. After this time the mind was more or less confused for a few moments at a time each day for two weeks, but it may be said that the mental condition steadily improved. From the time of the onset of pericarditis his temperature did not run above 100.4 degrees. As a rule, it would fall to 99 or even 98.6 degrees in the morning and would rise to 100.2 degrees in the evening.

Dyspnea was always present, though it did not develop to the extent of orthopnea. Cyanosis was also present and its presence, of course, indicated the extent to which the brain must have been disturbed by this venous congestion. Osler states in his practice that delirium and marked cerebral symptoms are associated with the hyperpyrexia of rheumatic cases. I think, however, that you will agree with me that the degree of fever was not sufficient in this case to account for the continuance of delirium through so long a period of time.

Treatment.—December 31, Dr. William L. Estes of South Belkhelem was called to see the case in consultation. The treatment adopted at this time was large doses of citrate of lithium and potassium with iodid of potassium three times a day. Tincture of strophanthus was also given three times a day in doses of ten drops. Fortunately for the patient the bowels were rather active, frequently four to five stools per day, and these were often more or less watery in character. Under the action of the alkaline salts given with copious draughts of water, the kidneys became more active, the quantity of urine running some days as high as 102 ounces and not on any day being allowed to fall below normal. The skin was kept active and perspiration continued profuse. As soon as the patient's condition permitted general massage was given in order to tone up the general system.

Result.—Recovery, of course, was very slow, and he was not allowed to take up any work until March 31; even then the amount of physical exercise was much restricted. In October, however, he started West on a business trip and much of his time was spent at great elevations above the sea level and yet with no untoward result. On November 8 he left Durango, Colorado (elevation 6,520 feet), at 8 a. m. and went to Silverton (elevation 9,224 feet), where he walked two miles to a stamping mill and there climbed up to a height of 150 or 200 feet, afterward returning by train to Eureka. The following day he drove twenty-six miles alone, starting from Silverton (elevation 9,224 feet), and going to Ouray (7,700 feet), passing meanwhile over a height of 11,002 feet, then on nine miles further to Mount Sneffles (elevation between 11,000 and 12,000 feet), and back to Ouray at 6 p. m.

The ability to take such an amount of exercise at such an elevation would seem to me to show how thorough his recovery had been; moreover, careful physical examination of the chest made within the last few days revealed no markedly unnatural sounds. The cardiac impulse is normal in location and force, and the sounds almost natural in character, except for a slight blowing murmur heard at the apex.

How They Do It in Iowa.—A Red Oak paper of August 20 has the following: "Dr. A. A. Potter, who advertised that he would be in Red Oak last Saturday and meet all who wished to have their ills taken away and their youth renewed, was on time all right. But he met with grief a plenty. He had no more than unpacked his pill box when a local officer arrested him and took him before Mayor Reiley to answer to the charge of practicing medicine in Red Oak without having procured a license. The doctor plead guilty and was fined \$29.10. He left town."—*Iowa Health Bulletin.*

THE LIMITATION OF DIGITALIS IN MITRAL AND AORTIC REGURGITATION.*

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While this subject has been thrashed over and ground up before various medical societies and by numerous eminent authorities, there yet remains much to be done in the crystallizing and refining process. What I have to say may seem erratic and dogmatic to some, but I shall try to show by reason of the anatomic location and the physiologic action of the mitral and aortic valves, that in mitral insufficiency when compensation has failed or is failing digitalis is the sheet anchor, the general in command, while in aortic insufficiency with the same condition, it too often plays the rôle like the soldier, Jack Falstaff, of old.

In treating any heart lesion the careful clinician must study closely the cardiac state and the condition of the blood vessels, and he must take into consideration the various organs that are complicated.

The mitral valve, located as it is, at the gateway between the great arterial reservoir, the left auricle and the great arterial pumping station, the left ventricle, can, when it fails to close with systole, throw its burdens on various organs, particularly the right heart, the lungs, liver and kidneys. When compensation has failed or is failing the pathologic picture is that of venous stasis.

The column of blood is forced back on the left auricle. This chamber of the heart can not perform its functions as a reservoir, receiving the blood from the pulmonary veins and sustain this backward flow at the same time. As a result the pulmonary veins are obstructed in their efforts in carrying the systemic blood to the auricle. The right ventricle has to contract against resistance. It has to pump the venous blood of the right side through the lung already engorged from the backward pressure through the pulmonary veins, hence the marked hypertrophy of the right ventricle which ensues. The lungs are overwhelmed, this condition giving rise to dyspnea as an evidence of edema, and to cough denoting bronchitis from irritation to the terminal branches of the bronchial tree. This edema and bronchitis will be in proportion to the degree of obstruction and stasis, and the condition of the cardiac muscle.

This backward pressure exerts its force further on the liver, giving rise to marked engorgement of this organ through the inferior vena cava; on the stomach, spleen and intestinal tract through the portal vein; on the kidneys through the renal veins. Thus it can be seen that we have hyperemia of the lungs, liver, stomach, bowels and kidneys. We have stasis everywhere, beginning at the incompetent valve and ending in a great many cases in the rectum, in the form of hemorrhoids. It is seldom that one sees a classical mitral regurgitation with failing compensation but what hemorrhoids are also found. All these organs enumerated have important functions to perform. Nutrition is profoundly disturbed as a result of this stasis and engorgement. The governing band of metabolism has run off. The constructive and the destructive forces are in a state of unstable equilibrium. We have perverted secretions, faulty excretions, bad nutrition, low blood pressure, vitiated blood and leaking

blood vessels. Dropsy, in mitral insufficiency, if properly treated, very often yields readily.

With this clinical picture before you, with all the organs stagnated and overflowed, is there any necessity for dwelling on the marked effects of digitalis in mitral insufficiency with failing compensation? The very location of the mitral valve when the muscle becomes incompetent is conducive to marked hyperemia and venous stasis. The right heart, in other words, must suffer the brunt of nearly all the evils as a consequence of failing compensation. Now let us consider the other great valvular lesion, aortic insufficiency. The aortic valve stands as a sentinel at the very gateway of life, the aorta. This great blood vessel arises from the great pumping station, the left ventricle. When this valve becomes incompetent from disease, and when the left ventricle fails to compensate and cries for help, it has not the neighbors to call on as the mitral valve has. When it does sound the alarm and cries for help it is, alas, too often too late. When the aortic valve becomes incompetent and can not close with diastole, we have a backward column of blood from the aorta thrown on an organ highly endowed with muscular structure, the left ventricle. For a long period of time the left ventricle is the only portion of the heart that comes to the rescue of the incompetent valve when it cries for help. The ventricle responds with vim and vigor. It puts forth all of its energies. Its fight and struggle is something to be applauded. In its efforts to relieve the leaking valve it becomes enormously hypertrophied. The beef heart attains to its most classic and highest degree in aortic regurgitation. In nearly all cases of aortic incompetency there is naturally a high blood tension.

There frequently exists a well-defined arteriosclerosis. There is not the hyperemia of all the organs which we find in mitral insufficiency, except in the terminal stage when death is close at hand. With this evidence before you let me ask, Has digitalis any place in aortic insufficiency? Nearly all of the eminent authorities teach us that when the left ventricle fails in its efforts to come to the rescue of the incompetent aortic valve, and becomes dilated and relaxed to such a degree as to produce leakage at the mitral valve, then digitalis is indicated.

The argument is that this secondary or relative, or more properly speaking, muscular insufficiency on the part of the mitral valve gives the mitral symptoms of engorgement and stasis added to the aortic symptoms. Therefore, digitalis must be given, just as we would in a frank case of mitral insufficiency with failing compensation. In other words, they teach that failing compensation, it matters not from what source, means digitalis as a remedial agent. I wish to oppose these views most emphatically. Digitalis in my hands has no place at all in aortic insufficiency, it matters not what may be the condition of the muscular structure of the heart. The conclusions reached have not been on theoretical grounds, as some of our authorities are so accustomed to charge, but from a careful clinical bedside study in the hospital wards and in the outdoor clinic.

As we said in the outset, in mitral insufficiency with failing compensation it is the general in command. It tones up the walls of the blood vessels by its vaso-constrictor action. It comes to the aid of the left ventricle, which does not primarily undergo that marked hypertrophy which we have in aortic insufficiency. By its actions on the ventricles, particularly the right, and the walls of the blood vessels, engorgement is relieved, blood tension is raised, stasis is overcome, absorption of serum through the blood vessels and lymphatics takes place.

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

very often symptoms disappear and the patient is made fairly comfortable.

As Broadbent well says in his book on diseases of the heart: "Mitral insufficiency with dropsy is the disease that brings patients to the outdoor clinic. Dropsy can be relieved, their symptoms can be materially alleviated so that they can resume for a time their occupation."

My experience at the outdoor clinic voices the sentiment so well expressed by Broadbent. Dropsy, however, in aortic insufficiency means preparation for a funeral in a short while.

It can readily be seen why this is so. The ventricles, particularly the left, become hypertrophied and dilated, relaxed, worn out and degenerated to such a degree that the administration of digitalis is of no use.

To give digitalis in aortic insufficiency, where we have secondary mitral leakage from ventricular dilatation, calls to mind the fable of the crawfish and the worm. They became engaged in a heated argument. Harsh words followed. They challenged each other to a duel. When they met on the field of battle the worm entered a protest that the crawfish had all advantage of him because he (the worm) could not tell which end of the crawfish to attack, because, as you know, the crawfish can move as freely backward as forward.

So it is in giving digitalis in aortic insufficiency with failing compensation. You do not know which end of the circulation the digitalis is going to attack. In aortic insufficiency with failing compensation, where the mitral valve is relatively incompetent, we have leakage both at the mitral and aortic openings. The leakage at the mitral valve spins its force backward with systole on the pulmonary veins, lungs and the right heart. The backward current from the aorta through the incompetent aortic valve spends its force on the left ventricle.

Let me ask the authorities who contend that digitalis is as much indicated in aortic insufficiency with failing compensation as in mitral insufficiency: Does not the digitalis by its action drive as much blood back through the incompetent mitral valve as it does forward through the incompetent aortic valve? Does it not in this way increase the already existing stasis in the left auricle, pulmonary veins, lungs, right heart and liver? The authorities will answer by saying that digitalis will contract the ventricle, and by so doing will close the mitral valve, thus checking this backward flow, thereby relieving stasis.

Let me ask: When you close the mitral valve do you not put too much work on the left ventricle already overburdened from its continued efforts to come to the rescue of the incompetent aortic valve? Is there not danger by increasing this pressure within the ventricle of paralyzing the left ventricle already dilated to its utmost degree? Do you not put too much work on it while the coronary arteries are crying out for blood to maintain nutrition in the muscle? You are giving the heart more work to do and a stone for food, while it is crying out for rest and bread.

Dropsical symptoms in aortic insufficiency are very late manifestations. They are the expressions of a heart tired and fagged in its efforts to relieve the incompetent valve, and in the majority of cases the dropsical manifestations have their origin in the mitral and not in the aortic valve. To give digitalis in these cases is like trying to make a wick burn when there is no oil in the lamp, or like trying to make an engine pull a heavy train up grade with the brakes on, with the flues burnt out and no steam in the boiler. When compensation fails in aortic insufficiency the left ventricle goes to pieces very much

after the fashion of Dr. Holmes' masterpiece, "The Deacon's One Horse Shay."

Let me quote from our own Dr. Babcock, in his most excellent book on diseases of the heart. You may read between the lines just which way the pendulum is swinging in his analytical mind. He says: "In cases, therefore, of aortic defects manifesting dropsy, the indication is for the administration of cathartics and digitalis the same as in mitral disorders. I believe, however, that the latter should be administered with judgment. There are some physicians who advocate the employment of large doses of digitalis in all cases of aortic regurgitation with broken compensation. My experience leads me to agree with Broadbent when he says that a distinction should be made between cases of aortic insufficiency with edema and those without. When loss of compensation is shown by symptoms pointing to the left ventricle's feebleness, rather than by edema and back pressure consequent on relative mitral regurgitation, then I am emphatically of the opinion that digitalis must be given with caution." He cites the following case: "The man had aortic insufficiency with failing compensation. He says: "Edema was not present, yet the state of the heart seemed to call for heroic doses of digitalis in the forlorn hope of lessening the dilatation of the left ventricle. Instead of doing this, however, the digitalis appeared to aggravate the back pressure, and at last death came suddenly and unexpectedly."

There is no more eminent authority on heart disease than Dr. Babcock. If you will follow him closely you will note that he qualifies to a great extent, the reference to digitalis in the treatment of aortic insufficiency with failing compensation. He wants a string tied to the digitalis so that he can guide it.

In my own experience, as I said at the outset, I can see no rational reason why digitalis should be given in this great valvular lesion. Broadbent says in his book on diseases of the heart: "In the absence of mitral symptoms it is rarely that digitalis is indicated in aortic incompetence or is of service, and it may undoubtedly do harm. It may set up sickness, which is an ominous symptom in this form of disease and induces a condition of asthenia difficult to remedy."

In my opinion, this argument as set forth above can best be applied in aortic incompetence where mitral symptoms are present. There is more reason for discrimination as to the indications for digitalis in these two valvular lesions than there is for the administration of quinin in the various malarial disorders. The subject has always been of particular interest to me, and I have reached the conclusion, after a careful study from bountiful clinical material, that there is but one valvular lesion where digitalis is indicated, and that is mitral insufficiency, and not until compensation has failed.

Tuberculin in Diagnosis.—The *Beiträge zur Klinik der Tuberkulose* is a new periodical, just entering its second volume. It is issued by Professor L. Brauer of Heidelberg. No. 4 contains an article by Bandelier, of the sanatorium at Kottbus, who states that out of 500 persons to whom the tuberculin test was applied, 92.6 per cent. responded positively. All those who failed to exhibit the specific reaction have remained apparently healthy to date. Out of 114 patients tested as they left the sanatorium, 38 per cent. gave no reaction, and 22 of these patients, tested again twelve to twenty months later, were found permanently cured with but 2 exceptions. He urges the application of the tuberculin test as a current measure, not only by specialists, but in hospitals and in general practice. In order to have a uniform standard for comparison he pleads that Koch's technic should be followed.

SOME POINTS IN THE ACOUSTICS OF
RESPIRATION.*

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The first attempt to define, even relatively, the pitch of respiratory sounds was made by the late Austin Flint in a prize essay published in 1852. The opening sentences of that essay are as follows:

Very little attention has hitherto been paid to variations in pitch of sounds heard in the practice of percussion and pulmonary auscultation. By most writers on physical exploration pitch modifications, except in rales, are not recognized, no allusion whatever being made to them.

Flint makes essentially no attempt to explain the production of respiratory sounds, or to offer physical evidence in support of his purely dogmatic affirmations. His statements as to the pitch of normal and pathic respiratory sounds, quoting verbatim, are these:

On placing the stethoscope over the trachea the respiratory sound is found to be notably high in pitch. The relative altitude of pitch is immediately perceived on comparing the tracheal sounds with the vesicular respiration, heard on listening over the chest. Two sounds are heard uniformly in this situation, viz., inspiration and expiration. The sound of expiration is higher in pitch than that of inspiration. In vesicular respiration the pitch is uniformly and notably lower than that of tracheal and bronchial respiration. The pitch of the bronchial sound is high, probably not much below that of the tracheal sound. In the more important elements the tracheal and bronchial sounds are similar; they are both high in pitch, and the expiration in each is higher than inspiration.

The foregoing statements, made over fifty years ago are identical with those found in the standard works on physical diagnosis to-day, and have evidently been accepted through the intervening years by one author after another without question or investigation.

In a former article¹ I presented a comprehensive discussion of the laws governing the formation of respiratory sounds and their pitch relations, and, as I believe, not only demonstrated the fallacy of accepted beliefs, but established, on a strictly physical basis, the truth of the exactly opposite propositions regarding the pitch and pitch relations of such sounds.

It is the purpose of this present paper, reserving the right of reversion to the former article for exactness of statement under criticism, to present anew, in brief outline, a demonstration of the following propositions:

1. The tracheal note represents the inferior pitch limit of respiratory sounds, and that limit may be defined by a letter of the musical scale, as may every other respiratory pitch.

2. In vesicular respiration the inspiratory sound represents the superior pitch limit of respiratory sounds.

3. The passage from vesicular respiration to bronchial breathing is attended, at first, by a lowering in pitch of the inspiratory note, and later by lowering of both inspiration and expiration.

4. In vesicular breathing the inspiration is of a higher pitch than expiration; in rude, bronchial and tracheal breathing the inspiration is of a higher pitch than or the same pitch as expiration. There is no respiration resulting from consolidation in which expiration is of higher pitch than inspiration.

In the proposed demonstration it is necessary to con-

sider first the formation of respiratory sounds. Whatever modifications they may undergo later, there can be no question but what they depend primarily on vibrations excited in the respiratory air column by its motion through the tubes. Any such confined column of air will be thrown into sonorous vibration when it meets or passes an obstruction whereby it is suddenly compressed. Such points are found in the respiratory track only at the larynx and bronchial bifurcations. At the larynx sonorous waves are produced by the primary compression of the air in passing the vocal chords, and the subsequent expansion as it enters the laryngotracheal tube; at the bronchial bifurcations similar waves are developed, on inspiration, by the deflection and compression of the air column, and on expiration by the impact of the two columns of air as they meet in a common tube. Now, it is an established law of acoustics that the pitch note of any vibrating column of air is determined essentially by its length, and that the greater this length the lower the resulting pitch note. In stating this law I am not unmindful of the measures employed by musicians in tuning such instruments as the clarinet and flute; they are but seeming contradictions of this law. Hence, since pitch depends on length, the only supposition under which normal or vesicular respiration could be of low pitch, and bronchial breathing of higher pitch, would be that the respiratory air column vibrates as a whole from the larynx to the ultimate tubes, which column would be at its longest, i. e., lowest pitch in health and shortest, i. e., highest pitch when its terminal was cut off by consolidation of the lung.

If this were the case, however, there could not be two notes in the same tube, and vesicular and tracheal respiration must be of the same pitch, which we know is not true. It is also made an impossibility by the physical conditions, since there is no constant tube length from the larynx to the terminal tubes, and the main air column could not vibrate in harmony with the various terminals. Moreover, we know that a sonorous air column vibrates as a unite only within the limits of uniform compression. These limits within the lung are the points of bronchial bifurcation. It is thus evident that the normal respiratory sound, as heard at any given point, is a composite sound made up of the tracheal sound and an added term from each and every tube in the line of passage to and within that part of the lung under examination, and that each and every one of these component sounds has its own fixed pitch, determined by the length of the tube in which it is developed. By reason of the manner of bronchial bifurcation the notes of the several components of this sound may fairly be represented by lines, of which one represents the trachea, progressively shorter ones the single branches, and multiple short lines the terminal tubes. Now, of these component notes, which combine in normal respiration and which represent all the possible respiratory notes, the trachea is the longest, and hence gives the lowest possible pitch note to be heard in respiratory sounds. Whereby is established the first of our propositions. For proof that the pitch note of this sound is, in the majority of persons, not far from G of the musical scale, I could quote high musical authority, but prefer to leave it to the decision of your own musical friends.

In considering the question of pitch in the composite sound of vesicular respiration it is evident that there are three possibilities:

1. These several components may be heard separately or in groups, thus making vesicular respiration not one but two or more sounds, each of distinct pitch. As it

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.
1. Medical Record, March 25, 1893.

most certainly is not thus heard by the majority of diagnosticians, we leave this contingency as not pertinent to the present discussion, merely stating that it is the case with those whose ears are acutely trained in the differentiation of pitch.

Assuming, then, that but a single sound is heard in respiration, its pitch must be determined by some one or by a combination of similar pitched components about which all the others are gathered as quality. This dominant tone or tones will be that which reaches the listening ear with the greatest intensity.

Therefore, we have for our other possibilities: 2. One of the single notes, either that of the trachea or a primary bifurcation, may dominate the multiple short tube notes, in which case vesicular respiration will be of relatively low pitch. 3. The multiple short tube notes may, by reason of their combination, be the louder, in which case vesicular respiration will be not only relatively high, but the highest pitch respiration to be heard. Which of these possibilities is the truth can be determined only clinically by the ear. But leaving that point for the moment, some conclusions can be deduced from what has already been shown.

It is obvious that, if the second assumption be true and vesicular respiration of low pitch, whether from the trachea or an early bifurcation, the short tube high pitch sounds are heard only as quality of the respiratory sound and their elimination under the processes of consolidation can only affect quality, and can not by any possibility make the resultant bronchial breathing of higher pitch than was the vesicular. On the other hand, if the third assumption is the correct one, and vesicular respiration is of high pitch, by reason of the dominance of the multiple combined short tube sounds, then their elimination by consolidation can only leave the longer tube low pitch notes to supply pitch for bronchial breathing.

Hence, under either contingency, vesicular inspiration represents the highest pitch of any form of breathing; it being under the second assumption, that of one of the single branches, and under the third relatively high from the terminal tubes, but in neither case admitting the possibility of a rise of inspiratory pitch during the consolidation of the lung.

A justification for the decision of the ear in favor of the third possibility is found in a consideration of the factors determining intensity of the inspiratory notes. As the air current is more rapid in the trachea and primary bronchi, their notes are primarily the more intense. Each of these notes, however, is single and suffers a loss of both intensity and clearness by interference as its waves pass into succeeding tubes, while the terminal tube notes not only suffer no such disturbance, but gain relative intensity by their number and production close under the listening ear. It is thus that vesicular inspiration becomes not only relatively and absolutely of high pitch, but of the highest respiratory pitch to be heard, which gives the justification for our second and third propositions.

Turning now to expiration, we see, since this must be a composite sound, formed in the same manner as inspiration, that an expiration of higher pitch than inspiration requires the development of multiple dominant notes in still shorter tubes than on inspiration.

Two things, however, render this impossible. First the manner in which sonorous vibrations are developed at any given bronchial bifurcation. On inspiration this is by impact of the air on the sharp, firm junction of the bronchial walls, conditions most favorable to the produc-

tion of such vibrations; on expiration it is by the collision of the two columns of air from the distal tubes, conditions most unfavorable to the production of such vibrations. Hence the note produced at any given point must be more intense on inspiration than expiration; and for this cause alone, other things being equal, it is evident that the distal point of sound production must be deeper in the lung, i. e., in shorter tubes, on inspiration than on expiration.

Second, the intensity of sonorous vibrations depends, other things being equal, on the pressure or rate of flow of the air column. This is greater on inspiration than expiration, so that both factors of intensity thus combine to make the point of ultimate sonorous vibrations in respiration such as will give an expiration of lower pitch than that of inspiration. What acoustics thus demonstrates to be a necessity the ear confirms clinically, and establishes the fourth and last of our propositions in so far as it relates to vesicular breathing.

It can hardly be necessary to repeat the demonstration for rude or bronchial breathing, since the same conditions governing intensity are in force after the elimination of the short tube notes, until the sound heard is purely a transmitted note from some tube without the affected lung. In such a case the inspiratory pitch may fall until it is the same as that of expiration, but it is impossible that it should fall below the expiratory pitch. Thus we have established our final proposition for all forms of respiration.

A brief word as to the manner in which inspiratory pitch falls under varying grades of consolidation. If the bronchial bifurcations, and the consequent notes which they contribute to the respiratory sound, were in geometrical ratio, i. e., two at the first, four at the second, and thus on through, say, eight, sixteen, thirty-two and sixty-four, and it was found that sixteen tubes, of any one note, were sufficient to dominate the lower notes, it would then be easy to see that normal inspiration must have the pitch of the 128 notes, and that, as consolidation advanced from the surface, the inspiratory pitch would drop successively and gradually through the pitch of the 64 and 32 to that of the 16. But our assumption as to bifurcation is not true; for, in fact, the bronchi, and hence the respiratory notes, going to any given part of the lung, show two, or at the most three, large single branches and then a multitude of very small ones, the difference between these last and the single branches being extreme from the acoustic standpoint. As a result the dominance of these high pitch tubes in the respiratory sound is not destroyed by the occlusion of a portion of the number; but when such pitch control is finally lost by more extensive occlusion the change in inspiratory pitch is not gradual, but by a sudden drop to that of one of the large single tubes, while such small tubes as may still give sonorous elements now appear in the respiratory total as quality. This explains how certain grades of rude respiration, which means retention of higher pitch notes without pitch dominance, may have a pitch nearly if not quite so low as that of pure bronchial breathing. With this change the pitch relations between inspiration and expiration remain unchanged. Indeed so convinced am I that no form of pulmonary consolidation can give a respiration with relatively high pitch expiration, that for nine years I have had a standing reward at the City Hospital for a case showing such respiration. That reward has yet to be claimed.

Twice, however, in ten years I have heard such pitch relations in what was apparently, for the individual, nor-

mar respiration. In each case it was evident that the expiratory pitch was due to a peculiarity in the second branch on the right side, whereby the inspiratory high pitch notes were weakened and the expiratory current from the lower lobes impinged on the angle of bifurcation, as is the rule in inspiration.

CONCLUSIONS.

In conclusion, I beg to answer the question so commonly asked: "Admitting all this to be true, of what good can it be to revise all our ideas, since men are making diagnoses by present methods?"

To this I reply: 1. If it is the truth, it should be known, accepted and taught. 2. It makes available for purposes of diagnosis the full value of the element pitch in respiratory sounds, which, if the position taken is correct, has never been so employed heretofore. 3. An experience of fifteen years in the teaching of physical diagnosis, making practical use of these principles with students, has shown that it enables students to acquire a far greater skill and confidence in diagnosis, within a much shorter time, than under the present methods of teaching.

DISCUSSION

ON THE PAPERS OF DRs. STEELE, GREEN, JONES AND QUIMBY.

DR. JAMES TYSON, Philadelphia.—We should bear in mind that "the proof of the pudding is the eating," and I will simply state what I am doing in cases of aortic regurgitation with loss of compensation, which means that there is also regurgitation at the mitral orifice. My first step is to place the patient in bed; I believe one-half the battle is won by securing a complete relaxation and reduced demand on the heart—taking off the breaks as has been suggested—and this can often be accomplished only by rest in bed. In bad cases I fortify this treatment with small hypodermic injections of morphin, scarcely ever exceeding one-eighth of a grain, with probably some atropin added which softens the effect of the morphin. These two measures will sometimes produce the most satisfactory and even unexpected results. Having done this we are prepared to take more active measures toward the relief of the dropsy, and this can be done by active purgation; I go even further than this sometimes and puncture the dropsical tissues to allow the fluid to drain off and relieve the tension. After this is done, and compensation remains unrelieved, I add digitalis, not in large but in small doses, say five minims every four hours, slowly increasing the dose, after waiting a reasonable time to get the primary effect. I think very often physicians want to see the effects of digitalis before they should expect it. I prefer to give moderate-sized doses and then wait two, three or even four days sometimes; after which, if there is no contraindication, I may increase the dose. In this way I think digitalis is helpful. Dr. Jones' illustration of the forward and backward movement of the erab is applicable, but I do not think the parallel is exact. Of course, if there was an equal balance between the regurgitation at the mitral orifice and that of the aortic orifice, i. e., if the blood came back as fast as it went forward, his position would be strikingly sustained; but so long as there is a chance of getting the blood to go forward more strongly than backward, I think we are justified in using digitalis. I believe the general principles announced by Dr. Jones are correct, and I agree with him, but I think we meet many cases which are successfully treated with digitalis, when there is mitral regurgitation with loss of compensation associated with aortic disease.

DR. RICHARD CABOT, Boston.—Experience seems to show that digitalis may do good in uncompensated mitral disease, stenosis or regurgitation, in the vast majority of cases, and that it does not do good in aortic regurgitation. I think a distinction should be made within the group of cases, known as aortic regurgitation; in elderly persons, with degeneration of the arteries and with high peripheral tension digitalis will

do harm; but there is another and much smaller group of cases, occurring usually after rheumatism and in young persons. In this group the disease attacks primarily both valves, mitral and aortic, the change being not merely a muscular one, but affecting chiefly the valves. Here digitalis will do good, though not so much good as in cases of primary mitral disease. I was struck with one of Dr. Jones' figures about trying to haul a train up hill with the brakes on and with very little steam in the boiler. Better let off the brakes than to try to make the engine do more work. Better lower the peripheral resistance, if it is high, than try to stimulate the heart. I have seen many cases where compensation had failed, and yet the heart seemed to be pumping strongly. In these cases good results may be obtained by using purgatives and diuretics, and, when the dropsy is reduced, digitalis. We should first deplete, reducing the load, and letting off the brakes; after that stimulation may be followed by improvement. I take issue with Dr. Quimby in all the points he has raised. Musi has interested me for many years, and particularly matters of pitch, and I wish to state that before writing my book on "Diseases of the Chest," I went through Flint and verified point by point everything that he stated regarding the pitch or respiratory sounds. Dr. Quimby is of the opinion that the pitch of bronchial breathing ought not to be higher than that of vesicular breathing, but he does not prove that to be the case. My ear tells me that bronchial breathing is higher than vesicular breathing. Also, it is my experience and that of my friends with musical ears that in bronchial breathing the expiratory sound is usually higher in pitch than the inspiratory one. Therefore, I believe that what Flint has stated in his book is correct. Anyone who is to consider this subject should have a musical ear, and should not base his remarks on the theory of the production of sound.

DR. DELANCEY ROCHESTER, Buffalo.—I am in accord with what Dr. Jones has stated regarding the use of digitalis in mitral and aortic insufficiency. I think Dr. Tyson will get better results with rest in bed than by placing his patients on digitalis in cases of aortic insufficiency. There is one thing I wish to disagree with: Dr. Jones stated that the only place for digitalis was in failing compensation in mitral insufficiency; if he had stated "mitral disease" I would have agreed with him. I think it has a great use in mitral obstruction. In mitral obstruction the heart has great difficulty in forcing the blood from the left auricle to the left ventricle; digitalis will lengthen the time of diastole and will energize systole. Therefore the auricle is given more time in which to empty itself. I think that there is a clear indication for digitalis in mitral obstruction. We do not give drugs in cardiac diseases simply because we find a murmur; the use of drugs should be controlled by the condition of the circulation and evidences whether or not it is failing. I am glad that Dr. Cabot took issue with Dr. Quimby; I also take issue with him, and I agree entirely with Dr. Cabot. Change of pitch is more easily recognized in the violin than in any other instrument known, and I must say that, clinically, Dr. Quimby is wrong in the position he takes in this matter.

DR. S. C. JAMES, Kansas City, Mo.—A very unfortunate element in the make-up of the heart is the fact that the valves are too close together; if I had the making of a heart I would like to separate the valves, five or six inches, then we western doctors would know when to use the whip, digitalis, and when not to use it. The average physician, when he comes in contact with a case of heart disease, immediately thinks of digitalis. I think that digitalis has done more harm in the world than it has done good. On the other hand, I think that digitalis is one of the grandest remedies in the hands of medical men today. The lack of the intelligent use of this drug has placed many an unfortunate, though trusting patient, in his coffin. If the cardiac condition were more carefully studied by the physician he would know better how and when to use digitalis. I think if I was to lay the whip on a horse I would not do it at the foot of the hill. I believe in the use of blarney; by its use a horse may be much encouraged and helped in pulling his load. Digitalis should be used, but with intelligence. I believe,

too, in taking off the brake, and, as Dr. Tyson says, use digitalis moderately and with a great deal of caution.

DR. EDWARD F. WELLS, Chicago—In the discussion and reading of Dr. Jones' paper it must have been clear to everyone that the keynote to the situation in failing compensation in cardiac disease, so far as the management of the condition is concerned, is that of opportunity. In the severer cases of lost compensation our opportunity for doing good is sometimes remarkable. Take, for example, a man who has been sitting in his chair for days, with no sleep, with advancing swelling of the limbs, labored breathing, etc., and the management of such a case should be something like this: Minute doses of morphin, 1/16 of a grain, administered hypodermically, will allow the patient to sleep for hours. Cathartics should be given, and watery bowel movements should be obtained by giving elaterium, 1/8 or 1/10 grain doses every three hours, until eight or ten watery movements have been produced. Then, if necessary, several punctures may be made in the feet or legs and you may allow quarts, or even gallons, of water to pass off within twenty-four, forty-eight or seventy-two hours. Now comes the opportunity for the use of digitalis, and with the greatest benefit. I am sure that if the members of the section will review their experience they will corroborate all that I have said.

DR. JOSEPH SAILER, Philadelphia—Dr. Steele's theory of the causation of hydrothorax is not capable of direct proof, and, therefore, depends on the accumulation of presumptive evidence. There are certain facts which appear to be against it. I believe that in the majority of cases of cardiac disease, hydrothorax is present when the left auricle is distended more than the right. This opinion is based on careful percussion and examination of the heart. Moreover, it is difficult to understand how sufficient pressure can be made on the vena azygos major to obstruct it without producing symptoms of pressure on some of the other important viscera of the thorax. The dilatation of the cutaneous veins on the right side, which we should expect to occur on account of their anastomosis with the branches of the azygos vein, is not present, and, as Dr. Steele has said, the theory is hardly applicable to the left-sided cardiac hydrothorax, although there is little reason to believe that the etiology in the two conditions is different. In regard to Dr. Jones' paper, it has been my experience that aortic disease is more common than mitral disease, the proportion being about three to two. When severe edema occurs in the course of aortic regurgitation and fails to clear up in three or four days after the patient has been put to bed, the prognosis is extremely grave. Dr. Cabot spoke of taking off the brakes. The older writers, commencing with Laennec, used venesection freely and apparently with great benefit. In those cases in which I have used it I have never known bad results.

DR. ALFRED T. LIVINGSTON, Jamestown, N.Y.—The heart, as a pump, is a peculiar pump, being practically two double pumps combined and connected with each other. One of the peculiar conditions which makes it differ from an ordinary pump is that it does not pump from a reservoir to a given point, but from the termination of one circuit into the beginning of the other. Now, it is generally conceded that disorders of the heart have their primary cause in disturbances of the circulation. If the two circuits are in perfect condition the pump will have easy work to perform and will not get out of order. If it does get out of order, it is because something has gone wrong in one or both the circuits. Therefore, it seems to me that the primary indication is to correct the abnormal conditions in the circuits. Digitalis has been spoken of by Dr. Jones as acting on the general circulation, but he regards it as a difficult creature to control and, therefore, to be used only with great skill. My general experience with ergot leads me to say that I find it to be the best drug for correcting the fundamental conditions on which these cardiac difficulties arise. Its action is certain, and is chiefly on the disordered tissues, unstriated muscular fiber; in using it you need not stop to consider where the circulation is disturbed. If an overdose be given it will not do harm. Its effect is to tone and contract the relaxed unstriated muscular fibers in the walls of the blood vessels from the crown to the

toe; in so doing it helps the circulation. I am quite sure that you will agree with me, when I say that if the general circulation is helped the heart will have a better chance to recover itself.

DR. GEORGE W. WEBSTER, Chicago—Dr. Jones has stated that digitalis should not be used in any case of aortic regurgitation; here I think we should discriminate and think of the condition which causes it. In aortic regurgitation, when this is the only valvular lesion present, it is, as a rule, due to syphilis and, therefore, is often accompanied by a general arteriosclerosis; here there might have been a widespread disease that started in the blood vessels and ended in the aortic valve. On the other hand, aortic regurgitation is frequently found as a complication of, or exists with, other valvular disease, an obstruction at the aortic valve, as well as a regurgitation. We should differentiate carefully between these cases of aortic regurgitation due to infection and aortic regurgitation secondary to syphilitic infection. In the latter, Dr. Jones will find that where there is a general arteriosclerosis of specific origin, there is no drug in the materia medica capable of doing more harm than digitalis. On the other hand, where there is a simple infection and involvement of the aortic valve, or an involvement of the mitral valve as well, without involvement of the heart muscle, blood vessels, or kidneys, then it is possible to show that digitalis not only may but occasionally does good. I think we should discriminate more than we do.

DR. J. M. ANDERS, Philadelphia—Hydrothorax is a form of dropsy, or venous stasis, dependent on a passive hyperemia. For its production there must be some obstruction to the venous circulation, and on the distal side of the obstruction fluid exudes from the lumen of the small veins. The reason dropsy begins in the feet is because the venous obstruction is here reinforced by another causative factor, i. e., the effects of gravitation. In hydrothorax the influence of gravitation is not manifested, and yet we have all met with cases of pleural dropsy in which general dropsy was slight, or even entirely absent. For an explanation of some of these cases, at least, it seems to me that the theory advanced by Dr. Steele is tenable, namely, that within the thorax there is an obstruction to the venous circulation produced by abnormal pressure by the enlarged heart on the azygos veins. Popoff and other clinical observers, and I myself, have observed inequalities of the radials in valvular disease of the heart, and I think this is explained by assuming that the right auricle exerts pressure on the large vessels within the thorax. It is reasonable to suppose that the azygos veins might be pressed on and produce hydrothorax, although absolute proof is still wanting. Cardiac dropsy is more common on the right than on the left side of the thorax, although it may be more marked on the left than on the right side. Recently I saw a case in which it was confined entirely to the left pleural cavity. There is a principle in the treatment of hydrothorax that should not be lost sight of. When a cure results some of the fluid is obviously absorbed through the lymphatics; but it should be borne in mind that the fluid in hydrothorax is very poor in proteins, and may, therefore, be absorbed also through small veins. As a matter of fact, there is no better way of getting rid of the dropsical fluid in hydrothorax than by systematic daily purgation by means of saline laxatives. Venesection has a similar influence and exerts its good effects in the same way. These measures rid the blood vessels of some of their serum and thus stimulate absorption from the pleural sac through veins and lymphatics to replace that which has been lost. This should be done before the administration of digitalis. The delirium which occurs in chronic heart disease is difficult to explain. I have seen a number of cases which occurred after failure of compensation and where there was a general venous stasis. I had occasion not long since to state that venous stasis should be looked on as a pathologic condition; it means, as Lazarn-Barlow has pointed out, starvation of the tissues, the retention of waste products, and finally an anatomic alteration in the various viscera in the body; in just the same way as we have disturbances of the liver, gastrointestinal tract and the kidneys, so we may have disturbance of the function of the brain, or delirium. There is

another class of cases in which a different causative factor is at work; I refer to the blood changes—the toxic materials in the circulating blood. These may produce heart lesions and general arteriosclerosis, and this sclerotic process may affect the cerebral vessels. Here, coexistent cardiac disease and delirium may be met with before rupture of compensation has occurred. In these cases I think the delirium is rather due to arterial changes within the brain than to any cardiac lesion *per se*, and that both of these organs suffer in consequence of the action of a common cause, namely, the altered blood state. I believe with Dr. Webster that we should classify our cases of aortic regurgitation into those due to endocarditis and those due to general degenerative changes before we begin to use any special method of treatment. I agree with Dr. Jones that in aortic regurgitation, with marked arteriosclerosis, it is bad practice to give digitalis, and especially unguarded; in these cases it should be used cautiously only when indicated, and be guarded by the use of the nitrites or nitroglycerin, so as to diminish the arterial resistance.

DR. X. R. COLEMAN, Columbus, Ohio.—There are conditions in which digitalis does good; this has been my experience. When we have a condition approaching a normal cardiovascular system, then we may secure good results from the cautious use of digitalis; but if there is a degenerative change in the blood vessels, such as an arteriosclerosis, or some marked change in the heart, such as a granular degeneration, then digitalis will not only do no good, but in the majority of cases it will be found to be a dangerous agent. I take issue with Dr. Quimby's theory. While I am not a musician, I believe my ear will detect matters of pitch pretty correctly. I have studied physics, and especially acoustics, with care, and I do not believe the normal vesicular murmur is higher in pitch than the bronchial or tracheal respiration. I will even go farther and say that the tracheal and bronchial expiration is higher than the tracheal and bronchial inspiration sound.

DR. J. DUTTON STEELE—I agree with both Dr. Sailer and Dr. Anders in thinking that there has been no theory thus far advanced that can be called entirely satisfactory, to account for pleural effusions in heart disease. The theory that there may be some pressure on the various venous trunks within the thorax causing congestion and consequent effusion of fluid has a wide acceptance. The vena azygos major curves around the root of the right lung and is, therefore, specially liable to be compressed. The only point of practical value that can be drawn from our present knowledge of the subject appears to me to be that long-continued congestion may cause effusion, not as a mere obstruction to venous circulation, but by reason of the long-continued congestion causing some atrophic change; therefore, the effusion may not be entirely a transudation, but an exudation, and therefore in these cases of hydrothorax I think we had better not wait and give purges, digitalis, etc., to relieve the dropsy, but do early and frequent tapping.

DR. E. M. GREEN—As has been stated in the discussion, the cause of the delirium in pericarditis may be, 1, from hyperpexia, which generally exists in these cases; 2, from venous congestion; 3, from the existence of some toxemia in the blood. The fever, however, was not exceedingly high in the case reported, and the delirium seems to have been caused by venous congestion.

DR. FRANK JONES—I was glad to hear what Dr. Sailer said regarding the frequency of mitral and aortic lesions. It has happened to me to encounter more aortic lesions than mitral. My experience has not been in keeping with the text-books in this respect. In regard to Dr. Wells' statement regarding the general types of aortic insufficiency and the conditions which bring them about, I wish to say that, according to my own observation, when it occurs in early life the prognosis is invariably good. In the endocardial form, the integrity of the heart muscle is not necessarily lessened; the coronary vessels are intact and the circulation is clear. With regard to the remarks of Dr. Tyson, I understand the position he takes in reference to the injudicious use of digitalis. Particular stress should be laid on its use in approaching dissolution, when there is sleeplessness, dyspnea, much anxiety, etc.

DR. C. E. QUIMBY—I am neither surprised nor disturbed that the gentlemen take issue with my statements. I only regret that they have been unable to meet a logical demonstration of specific propositions with anything more interesting or pertinent than dogmatic personal opinions, as it affords me no opportunity for a reply.

INTRACRANIAL NEURECTOMY FOR TRIGEMINAL NEURALGIA.

CASES AND COMMENTS.*

HARRY M. SHERMAN, M.D.

SAN FRANCISCO.

At this time and place one may not report opinions or cases which are merely conventional, and the report of the following five cases in four patients is permissible only because of the exceptions to the rules in two of them. All were cases of trigeminal neuralgia, in all the pain had been of considerable duration, and had gradually become so severe as to be unbearable. In all four patients the third branch was involved, in two the second branch as well, and in one all three branches. In two patients the results were conventional. Complete and lasting relief followed the operation. In two patients, one of whom had two operations, there were exceptional, unconventional accompaniments.

In the first case the exceptional element was a complete and permanent paralysis of the facial nerve, noticed first the morning after the operation. In this patient the pain had been limited to the third branch, but the intention at the time of the operation had been to remove the entire ganglion. However, all that I did remove was the outer half of the ganglion with the second and third branches to their foramina of exit. The wound healed aseptically, the pain was gone, but the seventh nerve was paralyzed. Studying the possible traumatism to the nerve during this operation, it is easy to exclude pressure on the pes anserinus, as the operation was done six or seven years ago, and on the lines of the original Hartley-Krause technic, so the zygoma was not cut and it stood between the nerve and any instrumental pressure by retractors; indeed, the osteoplastic flap of skin, muscle and bone was folded down over the zygoma and protected this very area. On the other hand, while it is possible to reach back, inside the skull, into the posterior fossa, it is not conceivable that I let my finger wander so far as to pick up and tear the seventh nerve before it entered the petrous bone, and I am, moreover, certain that I did not do this. Finally, the man has had no trouble with his ear, nor anything to indicate disease of nor injury to the nerve during its passage through the bone.

Excluding trauma to the nerve in its superficial location, put the case outside that class, of which Pershing wrote and to which Wyeth the other day referred, and in which pressure or pull on a superficial nerve during the period of anesthesia resulted in temporary or permanent paralysis. It is a satisfaction to do this, for the advent of the paralysis suggested this as the first and most obvious explanation and had it proved to be the true one, it would have had to be accepted as a fault in technic. The integrity of the nerve before the operation and the lack of any pathologic ear or temporal bone process make it most probable that some injury inside the skull caused

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

the condition. I am aware that a man working by touch in the dark may easily reach farther than he intends, especially if he does not keep his eye on the external wound, but in this case the work was done by sight and not by touch, so that I can be sure an errant finger did not do the damage. The case was reported in THE JOURNAL some months ago, but no explanation has been offered and for this reason I include it with the other operations and submit it for discussion.

In the other patient the pain began in the supraorbital branch and was associated with an attack of herpes facialis. Primarily it acted as a definite neuralgia and the nerve was cut finally just above the orbit, but without giving relief. Then, because of a history of plumbism some years before, which had yielded to potassium iodid, because of miscarriages by the patient's wife, and because of non-response of the pupils to light, the potassium iodid was again given in doses of 5 grm. daily, with no local relief and with a distinct loss in general health. Thus the consideration of the case took cognizance of syphilis, but as treatment for syphilis proved of no avail, and as the pain had extended to include all three branches, an exposure of the ganglion was decided on. It was also decided to cut the root of the nerve behind the ganglion and to go no further, unless some distinct pathologic process like a gumma should disclose itself. That this might be the outcome was the hope of Dr. Clark J. Burnham and Dr. L. Newmark, when they turned the patient over to me.

As I intended merely to cut the root, as has been practiced by Frazier, I prepared for the possible cutting of the sensory root only, so made my incision to circumscribe the temporal muscle. The muscle was then separated as a whole from the pericranium down to the point where the bone was to be cut. This also avoided unnecessary stripping of the pericranium from the skull in a putative syphilitic. At the proper level, about 1.5 cm. above the zygoma, the pericranium was cut and the skull bared. The zygoma was left untouched. A small trephine opening enlarged by rongeurs gave ample room, the exposure of the ganglion was uneventful and the fasciculi of the root were hooked up and cut, the cutting causing a reflex movement by the patient. It was not possible to discriminate between sensory and motor filaments, but the fact of the section of the entire root was satisfactory and the ganglion was tipped forward out of its bed to make this proof clear.

On coming to close the wound it was seen that the brain did not expand immediately to occupy its original space, and so, to avoid leaving an air space in the skull, normal salt solution was poured in and the head rolled over so as to keep it there while the suturing was done. For two days the man was free from pain and there was paralysis of the temporal and pterygoids. On the third day, however, he began to have pain, and this pain gradually increased in its old area and intensity. For two months the anesthesia, to light touches and to pin-pricks over practically the whole of the area of the fifth nerve, persisted and was verified by several examinations, while the temporal and pterygoid paralysis also persisted. In the third month sensation returned, to my surprise, and light touches and pin-pricks could be felt everywhere over the whole area excepting the supraorbital branch area which had been anesthetic from the time of the superficial section of that nerve. The sensation as it returned was not of normal intensity. It was described as being dull, but it was demonstrably present and evidenced a union of the cut nerve root beyond

any doubt. The paralysis of the pterygoids, however, persisted.

This is the supposedly exceptional point in this case. I do not know the number of cases operated on by Frazier and others in which the nerve root alone has been cut and nothing interposed between the ends, as was suggested by Abbé, but I was impressed with the simplicity of the plan when Frazier, on Spiller's suggestion, tried it and with apparent success. I report this case to call attention to the fact, which I am obliged to accept as proven, that the nerve root may unite and resume its function, and that this most simple operation is not, in itself, to be wholly trusted for the production of an anesthesia and an analgesia which will be permanent.

Because of the persistence of the pain, and also and chiefly, because of the return of sensation, I again exposed this man's gasserian ganglion, three months after the first operation. The point of interest here for me was the possibility of encountering such firm adhesions of the dura mater to the bone as to interfere with the operation. I followed, from the skin to the ganglion, the old line of operation. The incision was, therefore, wholly in scar tissue, which nowhere was it impossible to discern. The dura mater was but normally adherent to the bone and consequently separated easily, and I attributed this to the salt solution, which presumably did not absorb quickly, which diluted any escaped blood, and so resulted in a light areolar tissue bond between dura and bone. A little hook, passed under the root of the fifth nerve, behind the ganglion, demonstrated that the ends had, by some kind of a bond, anatomic or cicatricial, united. The union was broken, the ganglion tipped forward and wholly removed. Salt solution was again poured into the skull and the wound again closed and healed aseptically.

There is now a permanent anesthesia to tactile, heat, cold and pain sensations, except along the borderline between the fifth nerve distribution and areas of contiguous nerves, a line that is never a typical one and which permits, because of its anatomic irregularity, of easy explanation of physiologic anomalies. It may be added that in this last operation the zygoma was cut and pushed down, but that the addition to the field of view did not seem to me to be great.

Since this second operation the patient's subjective pain has continued unabated.

REMARKS.

The points of the case are the variations of the incision so as not to injure the fibers of the temporal muscle nor strip more than the necessary amount of pericranium from the skull. The use of physiologic salt solution to fill the space to be occupied by a slowly expanding brain and exclude air. The fact that a ganglion can be exposed a second time, three months after the first time, with no difficulty and no hemorrhage, by following the lines and planes of the first incision. Finally the fact, on the evidence of this case, that the cut root of the fifth nerve may unite and resume its physiologic function. Other cases may be added to confirm this statement, but even if they are not forthcoming the fact of union in this one case can not, to my mind, be gainsaid.

Dr. Hoffa's Tribute to American Surgery.—In Dr. Hoffa's recent visit to this country he found much to commend in American surgery. He was greatly impressed with the completeness of American hospital appointments, especially the corps of nurses found in every large hospital. He praises the nurses for their intelligence and efficiency.

PHYSIOLOGIC EXTIRPATION OF THE GANGLION OF GASSER.

FURTHER REPORT ON DIVISION OF THE SENSORY ROOT FOR
TIC DOULOUREUX, BASED ON THE OBSERVATIONS
OF FOUR CASES.*

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REMARKS BY DR. FRAZIER

In June, 1901, three years ago, I reported to the Section on Surgery of the American Medical Association then in session at St. Paul, the results of a series of experiments on dogs conducted by Dr. Spiller and myself, with a view toward determining the feasibility of dividing the sensory root of the gasserian ganglion for the relief of tic douloureux.

RESUME OF EXPERIMENTAL WORK.

These experiments consisted in carrying out this operation on a number of dogs and subjecting the structures removed several months later to a rigid histologic examination to determine whether regeneration of the sensory root after simple division could occur. The results of these investigations admitted of but one interpretation, namely, that there was not the slightest evidence of regeneration within the central nervous system. More recently,¹ Dr. Spiller and myself pursued this line of investigation in a series of experiments on the sensory roots of the spinal ganglia with equally positive results.

Having established by experimentation in lower animals beyond a peradventure of doubt the inability of the sensory root to regenerate at least within the central nervous system, it only remained to obtain equally positive results in the human subject before any substantial claims for the operation as a rational, practical and "tried-out" procedure could be made. These we present to-day as a result of our experiments with four cases; all have remained free from recurrence.

ADVANTAGES OF THIS OVER OTHER PROCEDURES.

Extraction of the ganglion. Certain theoretical claims were advanced in favor of the operation, and these have been substantiated by our clinical experience.

1. *Control of Hemorrhage.*—It minimizes the amount of hemorrhage. No one can speak the truth and say that hemorrhage is not a troublesome feature. Hemorrhage from the middle meningeal artery is of little or no moment, and it can be controlled easily whether the vessel be injured as it courses along the temporal bone or at the foramen spinosum. On the contrary, hemorrhage from emissary veins is distinctly troublesome. The greater the number and firmness of dural attachments, the greater will be the hemorrhage from this source, and the nearer we approach the ganglion the firmer the adherence and the freer the bleeding. Inasmuch as the ganglion receives its greatest blood supply from below, surgeons are advised to put off elevation of the ganglion to the last. To divide the sen-

sory root the base of the ganglion is left undisturbed and this cause of free and persistent bleeding avoided.

The only other source of hemorrhage worthy of consideration is the cavernous sinus. Injury to this sinus has caused hemorrhage, if not serious and alarming, at least necessitating suspension of the operation for a day or more. This vascular channel being in intimate relation with the internal aspect of the ganglion, is exposed to danger once the operator begins to free it from the ganglion. Confining, as we do in practicing division of the sensory root, our manipulations to the root itself and to the posterior aspect of the ganglion, work at the point of greatest safety, insofar as the sinus is concerned, and need never give it a thought.

2. *Simple Technic.*—Its execution is comparatively simple. It goes without saying that the exposure of the ganglion is by far less difficult than its extraction. Once the ganglion is exposed, we have made all the preparations necessary for the division of the sensory root; thus this operation is complete before the difficulties common to the extraction of the ganglion have been approached.

3. *Avoidance of Injury to Adjacent Structures.*—The cavernous sinus is not exposed to injury. The abducens is in such intimate relation with the ophthalmic branch that division of one is almost impossible without division of the other. In the extirpation of the ganglion it is a matter of great difficulty to preserve this cranial nerve intact. The motor root is always destroyed in extraction of the ganglion; whereas, in division of the sensory root, the motor root may be preserved intact.

4. *Reduction in the Rate of Mortality.*—If the troublesome difficult features attending operation for the extraction of the ganglion are, to a great extent, eliminated, there should be an appreciable reduction in the time required to complete the operation, and it is only reasonable to predict that the operation, which is more economical as to time and attended with considerably less hemorrhage, will be attended with a lower mortality.

TECHNIC.

This phase of the subject has been treated fully in previous papers.² The approach to the ganglion by the usual Hartley-Krause method, the temporary or permanent resection of the zygomatic process, the exposure of the foramina ovale and rotundum as guides to the ganglion; an incision in the dura propria from one foramen to the other; the reflection of dura propria from the superior and posterior aspect of the ganglion revealing the sensory root; picking up of the root on blunt forceps and division of same completes the operation.³

2. University of Pennsylvania Med. Bul., December, 1901; Philadelphia Med. Jour., Oct. 25, 1902.

3. Considerable importance has been attached to what has been called the intra-arterial route and the difficulties attached to injury to the middle meningeal artery grossly exaggerated. One familiar with the great variation in the course of the middle meningeal artery and its relation to the temporal and frontal bone realizes at once the futility of attempting to establish a point below which one can operate always with the assurance that the vessel will not be injured. The danger of injuring the middle meningeal vessel in opening the skull is due to the fact that the vessel sometimes runs in a bony canal, sometimes in a deep channel. When the fragment of bone is removed the vessel is lacerated. Sometimes there is no canal at all, usually the canal begins sufficiently high to escape injury; exceptionally, however, the canal begins so far down that it would be impossible to make an opening large enough to enable one to carry out the necessary manipulations on the ganglion by the so-called intra-arterial route. Common sense prompts one to make the opening as near the base of the skull as possible, not especially to avoid the artery, but in order to reduce to a minimum the distance from the margin of the skull to the ganglion and to make the opening only as large as the manipulation may require. No other directions to the operator are necessary; he avoids injuring the artery if he can, and if he can not, it is a matter of no difficulty to control the hemorrhage.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

1. University of Pennsylvania Med. Bul., June, 1903, p. 126.

DIFFICULTIES ATTENDING THE OPERATION.

An objection has been made to the operation we advise for the relief of tic douloureux, viz., that the sensory root can not always be exposed, and that in such a case resection of this root would be impossible. Dr. Spiller thinks it is extremely probable that resection of the posterior part of the gasserian ganglion would have the same effect as resection of the sensory root. The object we strive for is the division of the central nerve processes which arise in the cells of the gasserian ganglion. Many of the cells that send processes into the sensory root are cut off from this root by a resection of the posterior part of the ganglion, and the effect in the permanent relief from pain would probably be the same as though the sensory root were divided. If, therefore, there is any difficulty in exposing or recognizing the sensory root Spiller recommends a resection of the posterior part of the ganglion, believing that it would be as effective as a resection of the sensory root.

PHYSIOLOGIC EXTIRPATION OF THE GASSERIAN GANGLION.

Up to this time the claims which have been made for division of the sensory root have been based altogether on the results of our own experimental and clinical evidence. It might be well at this juncture to introduce the evidence of an impartial critic whose judgment and opinions in matters pertaining to the physiology, pathology and anatomy of the nervous system are held in great respect. Van Gehuchten has published recently a most instructive and interesting paper on the surgical treatment of trifacial neuralgia,⁴ and in this article he discusses somewhat at length the effects of division of the sensory root. Owing to the fact that he believes this operation to be as radical in effect as extirpation of the ganglion, he has styled the former not inappropriately the "physiologic extirpation of the ganglion," and regards it as both less dangerous and more complete than the operation of Krause.

His observations and conclusions on the question of regeneration or degeneration of the sensory root confirm absolutely our own. Every fiber of the central nervous system, he says, attacked by secondary degeneration is a fiber inevitably lost. "The nerve fibers of the central nervous system interrupted at any part never regenerate. The section of the large root of the trigeminal nerve is equivalent, then, at least as regards its effects on the bulbo-spinal root, to the destruction or extirpation of the gasserian ganglion itself. Whether the cause of the trifacial neuralgia resides in the semilunar ganglion, or in one or the other of the three peripheral nerves, at the moment we interrupt completely all communication between the ganglion and cerebrospinal axis, we destroy inevitably the route by which painful impressions are conveyed to consciousness.

"The section of the large root of the trigeminal nerve, even though it does not constitute an anatomic extirpation of the semilunar ganglion, is equivalent, then, to a true physiologic extirpation, and is the only one which is of importance in point of view of treatment of trifacial neuralgia.

"This physiologic extirpation is not only more complete and easier to accomplish than the tearing out of the ganglion recommended by surgeons, but it has an advantage over this mode of operation which is not to be despised. It leaves intact the connections of the ganglion with the peripheral organs."

That the operation on the root is much more simple than the extirpation of the ganglion might be inferred from the fact that many surgeons, among them Poirier, Horslev and Lauwers, recommend tearing out the root as a preliminary measure to extirpating the ganglion. If the exposure of the root were a matter of any great difficulty, this step of the operation naturally would have been postponed until the last when the ganglion was entirely freed from its attachments.

It has been said that the suggestion made by Dr. Spiller, in 1898, of treating tic douloureux by division of the sensory root was not original; that there was on record one instance in which, prior to 1898, the operator had deliberately torn out the root. This is quite true, but it should be borne in mind that the surgeon did not perform this as an operation of choice, but did it because he was unable to remove the ganglion. His patient died within a few hours, and he never repeated the operation nor recommended it to others. For the conception of the idea that division of the root was equivalent to physiologic extirpation of the ganglion credit is due to Spiller alone. Furthermore, those who have taken exception to the claim of originality ought to have known that there is a very distinct difference between avulsion of and division or resection of the root. Avulsion of the root is not only unnecessary, but what is still more important, may be distinctly harmful. Simple division of the root suffices to cause complete and persistent degeneration of the bulbo-spinal root of the trigeminal nerve, and the possibility of recurrence of the symptoms is therefore *nil*. Avulsion may expose even the pons to concomitant lesions (Van Gehuchten), and for this reason alone the procedure should be rejected.

AVOIDANCE OF OCULAR DISTURBANCES.

Noteworthy in our experience is the absence of any ocular disturbances. Attention has already been called to the frequency with which the structures on its inner aspect, including the third, fourth and sixth nerves, have been injured in extirpation of the ganglion, and to their escape from injury in division of the sensory root. The most serious ocular disturbances of extirpation of the ganglion is corneal ulceration. Although no especial pains have been taken to guard against it, our cases have been entirely free from this complication. Spiller says it is probable that sympathetic fibers pass to the eye after entering the trigeminal nerve through the gasserian ganglion, and as in division of the sensory root these fibers are not injured, the danger of ocular disturbance by this operation is lessened. The trophic influence of the gasserian ganglion on the eye may possibly depend on the integrity of these sympathetic fibers, but it is probable that these fibers are not so numerous in man as in the lower animals. (The literature bearing on this subject has been carefully studied by Kreuzfuchs.) Of this phase of the subject, Van Gehuchten writes: "The persistence of the anatomic connections between the peripheral organs and the gasserian ganglion, separated from the nervous axis, without doubt, prevents the grave ocular complications mentioned by Kraus and Lauwers." The experimental investigations of Van Gehuchten himself and of Lugars and Bonne have shown that while degeneration of the fibers of the central stump follows division of the sensory root, the ganglion itself does not undergo any marked modification. This is equally true of the posterior roots of the spinal cord and their ganglia as of the cranial nerves and their ganglia.

⁴ Le Noyraxe, vol. v. and University of Pennsylvania Med. Bul., April, 1904.

METHODS OF ABBE AND VAN GEHUCHTEN.

Recognizing from his wide experience the difficulties and dangers that attend extirpation of the ganglion, Abbe recommended another operative procedure, because it was very much safer and, in his opinion, equally efficacious. This consists in division of the second and third divisions at their exits to their respective foramina and the subdural interposition of tissue. Two objections to this method of treatment at once suggest themselves: The first that the operation is applicable only to those cases in which the pain is distributed only to the second and third divisions; the second that there is a possibility of the rubber tissue acting in the rôle of a foreign body setting up a reaction in the tissues, which would terminate in abscess formation and necessitate the removal of the foreign material.

Abbe says: "It is certainly past dispute that there is no need for the removal of the first branch of the fifth pair in any case of grave tic douloureux unless the origin is to be found in a tumor of the gasserian ganglion or behind it." This may apply to the majority of cases, but it certainly is not a rule without exception. In fact, in two of the four cases which constitute this series, the pain was most intense in the distribution of the first division.

It might also be said of Abbe's operation that it offers no assurance against subsequent involvement of the first division, and so far as the mortality is concerned, it should be no less than that following division of the sensory root, since both are intracranial operations, the only difference being that in one two peripheral branches are divided, while in the other the central root of the ganglion.

Van Gehuchten, in his recent contribution to the treatment of trifacial neuralgia, recommends the tearing out of the peripheral branches, a procedure which, he says, is simpler and much more easily executed than intracranial resection. This recommendation is based on the following phenomena: Simple division of a cranial nerve nearer to or further from the base of the cranium is followed by degeneration of all the cells of origin, but with complete integrity of all or almost all of the fibers of the central end. This degeneration is only temporary, however, and is soon followed by reparation of the nerve and restoration of the function. Tearing out of the nerve, on the other hand, produces reactional phenomena much more intense; the degeneration that follows soon becomes an achromatosis, and this, in turn, is followed by atrophy and disappearance of all the injured cells. These phenomena have been observed only in motor nerves, and to prove whether sensory nerves would be affected in a similar manner, experiments were conducted on rabbits; the three peripheral branches were seized with a hemostatic forceps at their exits from the supraorbital, infraorbital and mental foramina and torn away. The results were positive; not only was there atrophy of the cells of the ganglion, but Wallerian degeneration of its bulbospinal root.

As regards the technic of the operation, the nerve should be freed as far as possible from all its connections and seized as near as possible to the base of the cranium, in order to make the resulting traumatism more intense. In reviewing the literature of the subject, Van Gehuchten found that this operation had been recommended and practiced by Blum in 1881, and later by Doyen. There seems to have been some apprehension on the part of surgeons that there was

danger in employing the force necessary to tear the nerve, or inflicting some serious injury to the brain centers. In any other cranial nerve this complication might occur, but the gasserian ganglion is so firmly attached to the base of the skull that this accident could not be considered possible.

These observations of Van Gehuchten are certainly worthy of the surgeon's consideration. If avulsion of the nerve will result in such degenerative changes of the ganglionic cells and the bulbospinal root that restoration of function is impossible, this operation should be practiced as a substitute for the intracranial operations. Whether or no surgeons at large would be willing to practice in those cases in which a so-called central operation is indicated, it should at least be given a trial, when circumstances call for a peripheral operation; that is to say, instead of resecting a portion of the inferior dental or infraorbital nerve, the nerve should be forcibly torn away. If Van Gehuchten's observations are correct, it is reasonable to assume that there would be less chance of recurrence in the case of the latter than of the former operation. Not, of course, until this operative procedure has been proven successful in its application on the human subject can it claim the support of the surgical profession. Therefore, with the exception of a few isolated cases, it is supported only by the results of experimentation on rabbits.⁵ Davis, in 1898, operated on a case in which this idea of Van Gehuchten's was put into practice, but with unfavorable results. The superior maxillary nerve was exposed as it ran from the gasserian ganglion. The nerve, as it entered the bone, was grasped with a hemostatic forceps and pulled upward; with another forceps the nerve was grasped closer to the ganglion and twisted loose from it. The relief which followed the operation was only temporary, the pain gradually returned and became so severe as to require a more radical operation. In commenting on the case, Davis says the explanation of the return of pain is left to the experts. The operation was practiced in the manner prescribed by Van Gehuchten; it might be claimed that the twisting out of the nerve was not sufficiently violent or brusque, but this view is hardly acceptable.

REMARKS BY DR. SPILLER.⁶

In studies of the nervous system of dogs,⁷ in which the sensory root had been cut, I found that when only the external part of this root was divided the degeneration in the spinal root of the trigeminal nerve of the pons and medulla oblongata by the Mareh method was only in the dorsal part of the root. This is well shown by photographs in the article referred to. I believed from these investigations, published in December, 1901, that I was justified in concluding that the fibers of the lateral portion of the sensory root at its entrance into the pons, in their further course, occupy the dorsal part of the descending spinal root. From this it follows that the fibers of the inner portion of the sensory root occupy the ventral portion of the descending spinal root.

The investigations of Van Gehuchten on the changes occurring in the sensory root of the trigeminal nerve, after tearing out peripheral branches of this nerve, are important. He says, in relation to this subject: "This

5. University of Pennsylvania Med. Bull., April, 1904.

6. The following observations on the relative position of the fibers belonging to the three peripheral branches of the trigeminal nerve in the gasserian ganglion and the sensory root and their continuation in the spinal root are by Dr. Spiller, including an explanation for the limited area of anesthesia of the face occurring after partial division of the sensory root.

7. Spiller and Frazier: University of Pennsylvania Med. Bul., December, 1901.

degeneration of the fibers of the bulbospinal root, after a tearing out of the peripheral nerves, is so constant that we have encouraged one of our students, Dr. Bochenek, to employ this method in determining the situations in the bulbospinal root of the fibers belonging to each of the three branches: The results of his investigations have shown that after a tearing out of the frontal nerve the degeneration is localized exclusively to the ventral portion of the bulbospinal root; after a tearing out of the mental nerve, it occupies the dorsal portion of the same root. The tearing out of the infraorbital nerve is followed by a degeneration of a certain number of fibers in the middle region.

"Our own recent investigations are in support of these findings. They show, further, that the number of fibers in degeneration of the bulbospinal root is in direct relation to the number of peripheral fibers that have been ruptured. Bochenek, in his investigations, was content to tear out only one of the branches of the ophthalmic nerve of Willis, the frontal nerve; he obtained distinct

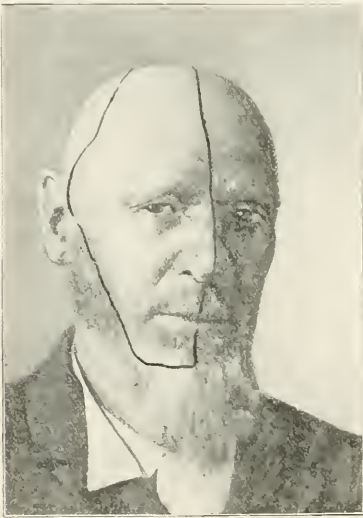


Fig. 1.—Showing the area of anesthesia one week and thirty-two months after division of the sensory root.

degeneration involving a small number of nerve fibers at the ventral extremity of the bulbospinal root. In our own investigations we have torn out the three branches of the ophthalmic nerve, emptying completely the orbital cavity. After a survival of forty-five days we have obtained a much more extensive degeneration of the ventral portion of the bulbospinal root.

"This degeneration of the fibers of the bulbospinal root can be understood, in our opinion, only by admitting that rapid atrophy occurs in a certain number of cells in the semilunar ganglion, an atrophy following the tearing out of the peripheral branch. We desired to determine the existence of this atrophy by the examination of the gasserian ganglion, but our investigations have not been successful. After the tearing out of one or the other of the three branches of the trigeminal nerve, chromolysis of the cells in the ganglion is found after about ten days, but if the animal is allowed to live fifty or sixty or eighty days it is impossible to determine whether the

number of nerve cells has diminished in the ganglion on the operated side, even after a tearing out of all three nerves, frontal, infraorbital and mental. These results should cause no surprise; the gasserian ganglion is difficult to remove; it has, further, a very complex structure; its constituent cells, instead of being placed one close against the other, are usually situated in long bands, like islands, between the fasciculi of nerve fibers, which they accompany in a certain part of the nerve. It is, furthermore, very difficult, if not impossible, to make comparable serial sections of the two semilunar ganglia of the same animal.

"Having in mind the Wallerian degeneration of the fibers of the bulbospinal root after a tearing out of the branches of the trigeminal nerve, and the cellular phenomena which occur in the cells of origin of the peripheral nerves after the tearing out, we believe that we may conclude that the tearing out of one or the other branches of the trigeminal nerve is followed by rapid atrophy of the corresponding cells of the gasserian ganglion, an atrophy which causes in its turn Wallerian degeneration of the central fibers. It is, therefore, proper to propose the tearing out of the nerve as a rational surgical treatment of trifacial neuralgia."⁵

Comparing Van Gehuchten's results with those obtained by me, it will be seen that the fibers of the ophthalmic nerve are represented in the ventral portion of the descending spinal root of the trigeminal nerve (Bochenek, Van Gehuchten), and that the fibers of the inner portion of the extrapontile sensory root are represented in the ventral portion of the descending sensory root (Spiller); therefore, these fibers do not mix with those belonging to the other peripheral branches of the trigeminal nerve; likewise that the fibers of the third division are represented in the dorsal part of the descending spinal root (Bochenek, Van Gehuchten), and that the fibers of the external portion of the extrapontile sensory root are represented in the dorsal portion of the descending spinal root (Spiller), and, therefore, these fibers do not mix with those belonging to the other peripheral divisions of the trigeminal nerve.

This is an important conclusion, because if only the outer portion of the sensory root of the trigeminal nerve is cut loss of sensation should be expected only in the third division of the nerve, and we may conclude when loss of sensation is found also in the distribution of the second division that at least half the sensory root is cut through. This explains why sensation of the face is only partially lost when only a portion of the sensory root is cut, and in such cases it will probably be found that the anesthesia is in the third division of the trigeminal nerve, because the external fibers of the sensory root are more likely to be divided than the inner.

Recent anatomic studies in the territory innervated by the sensory root of the trigeminal nerve, show that this territory is less extensive than formerly supposed. The sensory area of the trigeminal nerve as shown by Otto Grosser does not extend to the chin.⁸ In the diagram of Frohse, the cervical nerves supply the sensation to a considerable area of the face above the chin. According to Zander, the area of the cervical nerves extends almost to the corner of the mouth, and is only about a finger-breadth from the bony orbital border. It is very important that these facts should be borne in mind when the extent of the anesthetic area caused by resection of the sensory root is tested.

⁸ Grosser: Centralblatt für die Grenzgebiete der Medizin u. Chirurgie, Feb. 23, 1904.

SYMPATHETIC FIBERS IN THE GANGLION OF GASSER.

The effect on the sympathetic fibers of the eye from operations on the trigeminus is worthy of attention. Kreuzfuchs has collected considerable proof of the existence of sympathetic fibers in this nerve.

Budge cut the trigeminus in animals, in some cases through the trunk, in others peripherally to the ganglion, and found that after either operation contraction of the pupil occurred. After central division of the fifth nerve the pupil did not contract so greatly nor persistently as after peripheral division of the nerve. Budge assumed that the trigeminus receives in the gasserian ganglion those sympathetic fibers which innervate the dilator pupillæ, and this opinion has been held by all subsequent investigators who have studied the motor tract for the dilatation of the pupil. These fibers pass from the gasserian ganglion to the eye through the first division of the trigeminus, and therefore contraction of the pupil occurs after division of the trigeminus.

Schiff also found that dividing the trigeminus causes contraction of the pupil, and that there is a difference when the division is made behind or in front of the gasserian ganglion.

Claud Bernard found that the pupil contracts after division of the trigeminus and after a certain time dilates but never attains the same size as the pupil on the other side. These phenomena occur after central as well as after peripheral division of the fifth nerve, but these changes are much more striking and are associated with disease of the cornea when the division is peripheral.

Balogh concluded that all pupillary dilator fibers pass through the gasserian ganglion and the first division of the trigeminus.

Similar opinions were held by Oehl and Gutmann, although the latter believed that no pupillary dilator fibers arise in the medulla oblongata, as Balogh had assumed, and that the division of the trigeminus stem has no effect on the pupil. This view has been shown to be incorrect by Claud Bernard and by Kreuzfuchs.

Budge having believed that the trigeminus contains motor dilator fibers, later investigators have tried to determine whether these fibers are a part of this nerve or merely received from the sympathetic. From the investigations of Schpilow and Braunstein, it seems to be decided, at least for many animals, that the trigeminus receives the dilator fibers of the pupil through the gasserian ganglion.

Kreuzfuchs has cut the trigeminus in rabbits at the base of the brain. The pupil was smaller immediately after the operation than it was later. In these animals exposure and irritation of the cervical sympathetic on the operated side caused maximal dilatation of the pupil on the same side, so that the dilator fibers could not have been cut.

Examination of cases in which the gasserian ganglion has been removed in man seems to show that removal of this ganglion does not cause contraction of the pupil, so that Kreuzfuchs doubts whether what is true of the lower animals is true also of man, viz., that all dilator fibers of the pupils pass through the gasserian ganglion, and he is inclined to accept the view that in man the dilator fibers act through the abducens. He says, however, that after removal of the gasserian ganglion in man, the pupils are of equal size in the

light, but in shadow the pupil on the unoperated side is larger.⁹

It seems probable from these observations that even in man a certain number of sympathetic fibers enter the gasserian ganglion, but in a case of division of the sensory root reported in 1901 by Dr. Frazier and myself no difference in the size of the pupils in shadow can now (May 21, 1904) be determined. After several years a re-adjustment of the pupillary mechanism is to be expected.

RESUME OF FOUR CASES.

CASE 1.—J. L., age 68. Duration of affection, five years. Previous treatment, four peripheral operations. The first division alone was involved.

Operation.—October 12, 1901. Two years and eight months ago.

Result.—No recurrence.

CASE 2.—S. R., age 79. Duration of affection, three years. Preliminary treatment, course of hypodermic injections of strychnia with only temporary relief. Third and second divisions involved in the order named.

Operation.—October 21, 1902. One year seven and one-half months ago.

Result.—No recurrence.

CASE 3.—A. W., age 54. Duration of affection, nine years. Treatment, nil. Second and third divisions involved in the order named.

Operation.—March 31, 1903. One year and two months ago.

Result.—No recurrence.

CASE 4.—F. S., aged 54. Duration of affection, 14 months. Previous treatment, nil. First and second divisions involved.

Operation.—March 17, 1904.

Result.—No recurrence.

OSMIC ACID INJECTIONS FOR RELIEF OF TRIFACIAL NEURALGIA.*

JOHN B. MURPHY, A.M., M.D.
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The publication of Delbastaille's¹ article on the injection of osmic acid in inoperable tumors and its subsequent use in the same direction by von Winiwarter² and others, attracted much attention, but the results were unfavorable and its use was abandoned. During this experimentation Neuber reasoned that, as osmic acid has a special affinity for the medulla of peripheral nerves as a stain, it might prove beneficial in a clinical way. At this juncture a patient presented himself who had been suffering from neuralgia of the first and second branches for six years on whom, Aug. 15, 1880, a resection of the second division by Professor Albert, on the plan of Lücke, von Bruns and Lassen, had been made. The patient experienced relief for one year, then had several relapses. On Nov. 30, 1882, there was a ligation of the carotid, with no relief. From Jan. 18 to Feb. 9, 1883, daily injections of 4 to 6 drops of a 1 per cent. solution of osmic acid in water were given, inserting the fluid near the infraorbital foramen, angle of the nose and in the lower lip. The relief was only short lived and by the middle of June the pain returned. A second similarly treated case was well at the end of three months. A third case of sciatica had the injections over the sciatic nerve at the site of pain. The patient remained well up to the time of publication of this article.

⁹ Kreuzfuchs: Obersteiner's Arbeiten, vol. x, p. 275.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

1. Centralblatt für Chirurgie, 1882, No. 48.
2. Mittheilungen aus der Chirurgische Klinik zu Tübingen, 1883, p. 213.

The local reaction was very slight, with no necrosis of tissue and little swelling or edema; no paralysis. (It will be noted here that the injection was not made into the nerve trunk, but around it, nor was the acid injected into the foramina.)

The toxicity of osmic acid as shown by Naunyn, Guélin, Husemann and Brancell is mild, and only in doses of 2 grams or more, administered by the stomach, does it prove fatal to animals. But one fatal case in man was reported by Raymond, the dose not given. It is safe to say that administered hypodermically it is free from constitutional reaction.

Osmic acid injections for peripheral neuralgia, says Joseph Lipburger,³ were first recommended by Neuber of Kiel. Osmic acid was used by Nicoladoni in a case of trifacial neuralgia of nine years' standing, originating in the supraorbital nerve, which was resected, and the pain then appeared in the infraorbital and mandibular branches. These were each resected in succession and it then recurred in the supraorbital, six years after the first resection. Sensation had returned in the whole face, notwithstanding the resection of all the facial nerve branches and the mandibular, even up to the angle of the jaw; though it was not perfect compared with the opposite side, it was practically restored. Patient, October 16-22, received six injections of $\frac{1}{15}$ m. of a 1 per cent. solution into the supraorbital area. There was some gangrene after the second series of six injections of 2 cm. of a 1 per cent. solution. This was slow to heal and left a dark scar. The gangrene is attributed by Lipburger to the excessive quantity used so close to the skin. (In this view I concur; while I have had no such result following any of my cases, there is a deep necrosis of the area around the point of injection.) The pain in this case was absent for a year after the injection was made. There was no incision made in Neuber's or Nicoladoni's cases, and no effort was made to inject the solution into the nerve substance, as was done by Mr. Bennett. The effect was supposed to be exerted on the perinheral nerves and not on the trunks. It was cheerfully commended by Leipsiger, but dropped out of general observation until restored by Bennett.

Jacobi⁴ treated 18 cases of neuralgia with subcutaneous injections of 1 per cent. osmic acid, giving one-half to one syringe-ful; of these, 8 cases, among which were 5 sciaticæ, were cured; 2 improved, and 8 not cured. It is most efficacious in inveterate sciaticæ. Application is not without danger. Radial paralysis followed an injection into the arm.

J. Mercer⁵ reports favorable results from deep injections of 1 per cent. osmic acid in sciatica. Relief following one to four injections between the tuber ischii and the trochanter major was temporary, though in the later cases there was greater relief than after morphin injections. Twelve injections were made in one case.

B. M. Shapiro⁶ treated 8 cases of trigeminal neuralgia with subcutaneous injections of osmic acid (3 males and 5 females). Two males and 3 females were cured; 2 improved, 1 unimproved. He recommends osmic acid, 0.1, water 6.0, glycerin 4.0. About twelve injections. Bad results occurred only once in an epileptic woman. He believes the result to be due to corrosion (atzung) of

the terminal branches. Even though there are no cures and recurrences take place, the method is to be warmly recommended.

W. H. Bennett⁷ treated 12 cases of neuralgia with injections of 10 to 15 m. of 1 per cent. solution of osmic acid. Ten cases were trigeminal, several of them with very severe symptoms. (sic). One case an amputated stump in which the popliteal and peroneal nerves were injected. In one case where the median nerve was injured and thickened with paralysis of long standing, the injection was made below the point of thickening; results were favorable in all cases. Bennett laid the nerves bare by a short incision and injected 10 to 15 m. of the solution into the nerve trunk, changing the position of the needle three times. The cases were all obstinate. Symptoms were alleviated in a few hours and disappeared within a few days. There were slight recurrences in 2 cases—one in a different area, e. g., that supplied by the auriculotemporal branch when the original pain was in the infraorbital. Bennett operated on his first case in May, 1897. He believes the method ought to be applied early.

PATHOLOGY OF TRIFACIAL NEURALGIA.

The changes described by pathologists who have had opportunities to examine avulsed ganglia from operations, or to make postmortem examinations of the ganglia of trifacial neuralgia cases, are almost as varied and diverse as the number of investigators. Hence it would be fair to say that there is no definite well-defined pathologic lesion that is found with anything like uniformity. However, this does not detract from our interest in the pathologic findings reported by different investigators. There is also a great divergence of opinion as to nerve changes proximal to division of the sensitive fibers or of the posterior roots of the spinal nerves, as well as the regeneration and degeneration of the trifacial.

G. Marengli⁸ made 127 experiments on animals, using the sciatic nerve. He believes the following conclusions are established:

1. Electric inexcitability in the scar; 2. impossibility of transmitting electric excitation through the scar; 3. excitability of the central stump; 4. excitability of the peripheral stump above the scar.

The re-establishment of motor function is not indissolubly connected with regeneration of nerve fibers, but that function in a given territory may be re-established by collateral nervous paths, e. g., the crural after-division of the sciatic.

Keen and Spiller⁹ remark that in six of their seven cases the lesions were intense in degree and unquestionable. In the ganglia the medullary sheaths and axis cylinders were much swollen, the fibers atrophied, the sheaths empty, with nerve bundles in which the nerve elements had been destroyed and only connective tissue was left. The ganglion cells were atrophied and stained faintly; the blood vessels were sclerosed and even in some cases without a lumen.

Garré,¹⁰ in writing on nerve regeneration after extirpation of the gasserian ganglion, and the cause of the return of trifacial neuralgia, says the majority of trigeminal neuralgias are located in the peripheral nerves, therefore, recurrences after resection are not surprising and are due to this regeneration. In one of Garré's cases, in spite of resection of the gasserian ganglion, the

3. Centralblatt für die Gesamte Therapie, 1884, Nicoladoni's Klinik.

4. Transactions of the American Neurological Association, 1885, p. 11.

5. The Lancet, 1885.

6. Die Behandlung von Neuralgien mit Injectionem von Osmiumsäure, St. Petersburg med. Woch., 1885, No. 26.

7. The Lancet, Nov. 4, 1899.

8. Archives Ital. de Biol., 1898.

9. American Journal of the Medical Sciences, November, 1898.

10. Archiv für Chirurgie, 1889, vol. lix, p. 390.

second and third branches of the trigeminus were regenerated, the former twice. He offers as explanation of the recurrences:

1. Hysteria. (I do not consider this of any value; merely another expression for an absence of definite knowledge.)
2. Seat of neuralgia in the brain center.
3. Regeneration of nerves through anastomosis or imperfect resection of the ganglia.

T. C. Renton¹² reports examination of two ganglia in which there was absolutely no abnormality.

Schäfer¹³ states Van Gehuchten and Nélis observed that sensory nerve cells of the vagus ganglion disappeared after cutting fibers. If this were true of other sensory nerves it would be difficult to see how they could ever regenerate. Restoration of function would have to be explained by ingrowth of sensory fibers from other areas of distribution. Other observers have not confirmed



Fig. 1.—Shows the supraorbital in two divisions—the infraorbital; the submaxillary or mandibular and the lingual branches. (From Toldt.)

In his cases cited above there was no question as to complete removal of the ganglia.

L. F. Barker¹⁴ examined two cases, using Nissl's method. There were scarcely any normal appearing cells; in some there was an absence of tigroid bodies. Some of the nuclei were swollen; there was no typical Marchi degeneration, no pigmentary changes in cells, no vascular changes and no interstitial hypertrophy. Concentric bodies were present.

these statements as far as the spinal root ganglia are concerned.

Sidney I. Schwab¹⁴ collected 20 cases from the literature in which ganglia were examined after removal. Few of these cases will stand criticism. He also examined two cases, in one of which the nerves had been resected ten years previously. In both cases the nerve cells must be regarded as pathologically altered.

12. British Medical Journal, Nov. 17, 1900.

13. Text-book of Physiology, London, 1900.

14. Annals of Surgery, vol. xxxiii, 1901.

but in neither to such an extent as to consider them permanently affected. The definite changes usually found in acute or long-standing parenchymatous nerve cell affections are absent. The more marked changes in one of the cases lose significance from the fact that the nerves were previously resected. Neuritis and atrophy were probably present. The concentric bodies of brain sand found in one case and which have been described by Barker and Spiller are probably corpora amyloacea. Their pathologic significance is probably *nil*. He concludes that trigeminal neuralgia has no definite pathologic entity. That it is:

of the study of four cases of trigeminal neuralgia, remarks that the ganglion cells showed pigmentation, vacuolization and atrophic appearances. There were no changes in the blood vessels and no interstitial neuritis. He believes that the changes are, first, parenchymatous in nature, and, second, that the myelinated nerves are involved later.

P. L. Friedrich¹⁵ reports a case of recurrence on both sides after complete successful excision of the ganglion on one side. He explains this—according to Garré's hypothesis—that by means of nerve regeneration and collateral nerve branches the sensory trigeminal center

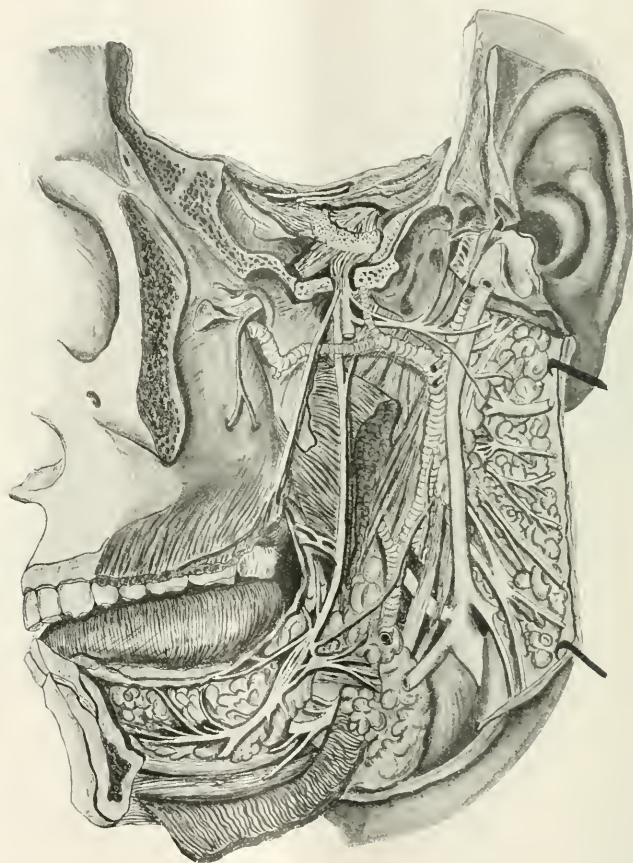


Fig. 2.—Shows the ganglia and the relations of the branches at the exit from cranium, as well as the glandular divisions. (From Toldt.)

1. A neuritis beginning in the terminal divisions of the fifth nerve, and having a tendency to ascend to the ganglia.

2. An interstitial inflammation, chronic and progressive, of the ganglion itself.

3. Central neuralgia or neuritis, affecting the sensory root as it leaves the pons.

He believes also that wherever the process is located, removal of the ganglion must be the first means of relief.

Krause in his report (*Die Neuralgie des Trigemini*),

is certainly brought into communication with the periphery. (This, we believe from our observations, comes nearer to the true explanation of the recurrences of trifacial neuralgia.)

W. G. Spiller and C. H. Frazier¹⁶ report the division of the sensory root of the trigeminal for the relief of *tic douloureux*. The sensory roots of the trigeminal were resected in dogs. Experiments were not conclusive, but

15. *Deut. Zeitschrift für Chirurgie*, vol. III, p. 360.

16. *Univ. of Penn. Medical Bulletin*, December, 1901.

rather contradicted regeneration. A canvass of the literature convinced them that regeneration had not been established in man and that no recurrence of its function was known after resection of the sensory root.

They again report¹⁷ the division of three posterior roots in dogs. The animals were killed at the end of ten months. There was absolutely no trace of regenerated nerve fibers in the cord. The intramedullary portion of the roots was completely degenerated.

Spiller and Frazier¹⁸ further report on the treatment of tic douloureux by division of the sensory root of the gasserian ganglion. The rationale of the operation depends on the inability of this root to undergo regeneration. They proved that only those nerve fibers provided with sheaths of Schwann have the possibility of regener-

ation. The division of the posterior roots in dogs do not correspond with those obtained by Y. Bikeles in the Physiologic Institute of Prof. A. Beck²⁰ in Lemberg. This author showed by experiments that after compressing the posterior roots there are slight attempts at regeneration, contrary to the theory advanced that there is no intramedullary regeneration.

No positive evidence has been obtained to show that regeneration of nerve fibers takes place within the nerve centers after artificially produced lesions. It is remarkable, however, that outside of the nerve centers or ganglia the nerves are regenerated and that the regenerated fibers find their way along the old nerve sheaths to the same structures to which they were distributed before section or degeneration occurred. Regeneration

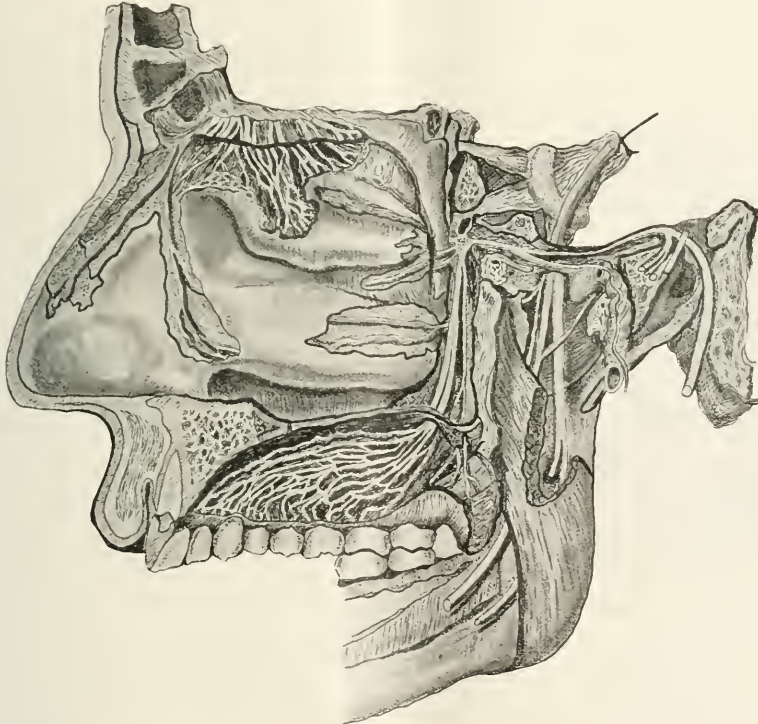


Fig. 3.—Shows the posterior palatine, the posterior palatine foramen and the mandibular branch. (From Toldt.)

ation. This was confirmed by Ballance and Stewart.¹⁹ Therefore, regeneration of peripheral nerves is common, while regeneration of the nerve fibers of the central nervous system is rare, if it occurs at all. This leads to revival of the old theory of peripheral regeneration.

After resection of the sensory root, if nerve fibers have grown out from the sheath of Schwann, they can only go as far as this sheath is present, i. e., to the point of entrance of the sensory root into the pons. They report one successful case with complete anesthesia at the end of one year.

The findings reported by Spiller and Frazier from the

on the distal side of division of a nerve cylinder is readily understood, as the cylinder is merely an extension of the cell from its nucleus, and cell portions do not long survive when they are disconnected from their nucleus. It is well recognized that distal degeneration takes place early in motor fibers after division, and that proximal degeneration advances slowly, probably from non-use, as after amputation. This may account for the absence of degeneration in specimens obtained in our first experiments, as the time was so short, but the paralysis was complete and continuous. The portion of the nerve cut off from the central cell nucleus always undergoes degeneration. Even after division ascending degeneration is limited to a small distance: after division of a sensi-

17. Univ. of Penn. Medical Bulletin, 1902.

18. Philadelphia Medical Journal, October, 1902.

19. The Healing of Nerves, Macmillan & Co., 1901.

20. Neurologisches Centralblatt, 1903.

tive nerve, chromatolysis can not be attributed to loss of function or action. It has not yet been satisfactorily explained why, after complete division, some nerves are rapidly (by primary adhesion) restored to function; others by secondary regeneration are restored; while still others, either after division and after reapproximation (either immediate or remote), or after "pressure paralysis" without division, never regain function, still these facts exist clinically, and we must accept them in our empirical treatment of diseased, divided and contused nerves, as well as to hope that chemical substances may permanently interrupt conduction from the periphery to the center, and *vice versa*. It is on this clinical basis that we are justified in hoping the trunk injections may produce more lasting inability of transmission of impulse than neurotomy or neurectomy. From Goltz's experiments it is fair to assume that bodily pain can be of central nerve origin, and this is supported by irritative lesions of the thalamus (Schäfer).

Last year²¹ I made a preliminary report of a case operated on June 8, 1903, with the technic, which has been



Fig. 4.—Shows a section of the nerve trunk with osmic acid discoloration and granulation condition of axil cylinder.

followed, practically the same, in all subsequent cases, except that I am using a 2 per cent. solution of osmic acid, where formerly I used a 1½ per cent. solution. The case reported at that time has continued free from pain up to date. In that communication I have the results of Sir William Bennett's cases as published in the *London Lancet*, Nov. 4, 1899. I have now the pleasure of reporting his more extended experience with results down to Jan. 22, 1904, as given in a personal letter, for which I express my sincere appreciation. It is as follows:

Results of first 20 consecutive cases operated on.

First case treated July, 1897:

- 2 patients remained altogether well at the end of 4 years.
- 2 patients remained altogether well at the end of 3 years.
- 3 patients remained altogether well at the end of 2 years.
- 2 patients remained altogether well at the end of 1 year.

Two cases may be regarded as failures, i. e., the relief was only temporary (3 months and six months.) Two patients died without recurrence (1 in 9 months and 1 in 6 months) from causes unconnected with the condition for which the treat-

ment was adopted. Six were lost sight of within 9 months after the operation.

In the other cases operated on, the time which has elapsed since the treatment is not sufficient to justify any conclusion.

In 3 of the successful cases recurrence of pain occurred: 1 at the end of 6 months; 1 at the end of 8 months; 1 at the end of 12 months.

The symptoms subsided in one of these cases after a second injection, and no further trouble had arisen when the patient was last heard from.

EXPERIMENTS.

In order to determine, if possible, the *modus operandi* of cure, I have made the following experiments:

Dog No. 35.—Large size, male. Operated on Aug. 14, 1903. Osmic acid solution 1.5 per cent., freshly prepared, injected into trunks of both brachial plexuses; 3 nerve trunks were injected on each side and both supraorbital nerves. Incisions closed with subcutaneous catgut sutures.

August 18.—Extensor muscles of both fore-legs paralyzed. Dog walks with paws doubled under legs. Paralysis appeared on second day and was complete on the third.

August 25.—Paralysis continues as on 18th.

September 11, 1903.—Paralysis has continued. Anterior surfaces of fore feet ulcerated from pressure of the flexed paws in attempt to walk. Dog killed with chloroform, and specimens from supraorbital nerves and brachial plexuses secured for microscopic examination. No gross changes except at points of injection, where tissues were blackened.

Doc. No. 37.—Small, male. Operated on Aug. 14, 1903. Osmic acid injections in trunks of both brachial plexuses, 3 on right side and 2 on left, and in right supraorbital nerve. Incisions closed with subcutaneous and over-and-over catgut sutures.

August 18.—Right foreleg paralyzed in extensor muscles as in dog No. 35. Left not paralyzed.

August 25.—Condition same as on 18th. Right axillary wound open and granulating, but clean. Paralysis same.

Sept. 11, 1903.—Paralysis has continued. Ulcerations on anterior surface of fore feet (larger on right) from walking with paws flexed. Left cornea opaque with whitish secretion. Nutrition poor. Dog killed with chloroform. Brachial plexuses dissected and specimens taken from following situations for microscopic examination: 1, at site of injection; 2, proximal to injection; 3, anterior nerve roots and posterior roots with ganglia; 4, sections of cord at levels of these roots. Both supraorbital nerves dissected out and following specimens taken: 1, at site of injection; 2, proximal to injection; 3, gasserian ganglia; 4, sections of pons and medulla with sensory roots and nuclei. Specimens put in Mueller's fluid. No gross lesions except at points of injection, where nerves were blackened.

The microscopic findings on the slides made from the injected nerves as given by Prof. F. R. Zeit and Dr. A. A. Goldsmith of the Pathologic Department of the Northwestern University and concurred in by Professor Hill are as follows:

Stains were made both by the Weigert-Pal, and also by the usual hematoxylin and eosin method. All the tissues were fixed in Mueller-formalin. The Marchi method was not used in these specimens to show the degeneration of the nuclein sheath, but was used in the experiments conducted for me by Dr. Dunn.

Dog No. 35.—Anterior roots and posterior ganglia of roots of left side, normal. Injected trunks of right plexus. Many of the medullary sheaths of the nerve fibers stained brownish black by the osmic acid. Anterior roots and posterior ganglia of left side normal. Injected trunks of left plexus. Many of the medullary sheaths of the nerve fibers stained brownish-black with the osmic acid. Anterior root and posterior ganglion of right side, normal. Injected part of the right supraorbital nerve. Some of the medullary sheaths of the nerves are stained brownish-black by the osmic acid. Injected part of left supraorbital nerve, practically the same as right. Ophthalmic division of the 5th nerve proximal to injected supraorbital nerve of left side, normal. Gasserian ganglion and ophthalmic

division of the fifth nerve (left), normal. Gasserian ganglion and part of sensory root (right), normal.

Dog No. 37.—Right gasserian ganglion, normal. Ophthalmic division of the 5th nerve and gasserian ganglion not injected (left), normal. Pons and medulla with sensory root of 5th nerve, normal. Injected trunk of brachial plexus (right). Many of the nerve fibers show their medullary sheaths stained brownish-black with osmic acid. Trunks proximal to injection in brachial plexus (right), normal. Cord at level of brachial plexus, normal. Trunks on proximal side of injection in brachial plexus (left), normal. Anterior roots and posterior ganglia of brachial plexus (right), normal. Injected trunks of left brachial plexus. The medullary sheaths of many nerve fibers show a brownish-black stain from the osmic acid. Anterior roots and posterior ganglia of trunks of left brachial plexus, normal.

While the motor nerves were paralyzed by the injection, the microscopic report does not show that there was an ascending or descending degeneration or any change other than the local ones at the site of the injections in the nerve. This is not sufficient to account for the clinical phenomena as obtained in our cases, nor is it what should be found after a chemical destruction of a motor or combined nerve. Still the fact remains that there was complete paralysis of the motor nerve and some trophic changes as well. It shows that we are not permitted to use the osmic acid injections in neuralgias affecting the motor nerves.

Additional experimental injections were made under my direction by Dr. A. D. Dunn on four dogs to determine through a second source the pathologic changes produced by the injection of osmic acid into the nerve trunks, and to check the former experimental results.

Dog No. 1.—Injected March 3, 1904. About 15 m. of a 1½ per cent. aqueous solution of osmic acid were injected into each of the supraorbitals, and the cords of the brachial plexus. The supraorbital incisions were closed with horsehair. The axillary incision was closed with catgut and silkworm gut. The connective tissue sheath enclosing cords of brachial plexus and great vessels was reunited with catgut.

Complete paralysis of right upper extremity occurred immediately following injection and persisted until the dog was killed on the 13th day. The right supraorbital incision healed by primary intention, the left with a slight amount of suppuration. The dog gnawed the stitches of the axillary wound, which broke open and suppurated freely.

Necropsy, March 17, 1904.—Right supraorbital incision clean, an indurated lump to be felt beneath it. The supraorbital nerve is buried in a mass of blackened tissue. The nerve for about 1½ inches is blackened, smaller in caliber and more or less adherent to surrounding tissues. No suppuration. Macroscopically, no change could be observed distally or proximally to point of injection. Left supraorbital, some suppuration from wound. There is a more extensive mass of inflammatory tissue. The nerve when dissected out appeared similar to the right. Brachial, large suppurating subcutaneous pocket. Considerable inflammatory deposit. After sheath, which had been reformed by suturing fascia over nerves, was dissected off, the nerves were readily obtained. The inflammatory process seemed to have affected them little. The nerves were completely blackened for a distance of 1¼ to 1½ inches. Distally the diameter of the nerve seemed diminished. Proximally no changes were apparent. The gasserian and cervical spinal ganglia with corresponding part of cord were removed. No gross changes were noted.

Dog No. 2.—Small puppy. Injected March 12, 1904. About 15 m. of a 1½ per cent. aqueous solution of osmic acid were injected into each of the cords of the right brachial plexus and the right supraorbital. The nerves were small and the injections made with difficulty. The wounds were closed with silkworm gut and with catgut to unite fascia to form sheath over brachial plexus. Complete paralysis of right anterior extremity

followed and persisted up to necropsy. The wounds healed by primary intention.

Necropsy, March 26, 1904.—Induration present under right supraorbital, the injected nerve was dissected out of a mass of recent inflammatory tissue; no pus. The nerve was very small and blackened for about 1¼ inches. There was considerable blackening of the adjacent tissues. Distally to, and at the point of injection, the caliber of nerve seemed diminished. The left supraorbital was removed as a control. Axillary wound healed; a considerable amount of inflammatory tissue lay about sheath of great vessels and nerves, and in the paraneurotic tissues. The cords were blackened for 1½ inches with some diminution in their caliber at and distal to point of the injection. No gross changes in cervical cord and ganglia or in gasserian ganglia.

Dog No. 3.—Small puppy. Injected March 12, 1904. About 15 m. of a 1½ per cent. aqueous solution of osmic acid were injected into each of the supraorbitals, and into each of the cords of the right brachial plexus. The nerves were small and the injections were made with difficulty. Much of the osmic acid escaped into the surrounding cellular tissues. The supraorbital incisions were closed with silkworm gut. The fascia over great vessels and brachial plexus was carefully reunited with catgut; the skin incision closed with silkworm gut.

Complete paralysis of the right foreleg occurred immediately following the injection and persisted until death on the 16th day. There was a small amount of suppuration of right supraorbital wound. The other wounds appeared to have healed by primary intention.

Necropsy, March 26, 1904.—Induration present beneath both supraorbital wounds. Suppuration from right; stitches in situ. Inflammatory masses on both sides, but greater on the right. The tissues about nerves were much blackened. The nerves were dissected out with considerable difficulty. The nerve trunks were blackened for about 1¼ inches. No changes distally. The caliber of the nerve was only slightly diminished at the point of injection. Axillary wound healed. Stitches in situ. After opening wound, a small pocket of pus was discovered. Amount of inflammatory reaction greater than usual, but the nerves were easily freed. They were blackened for a distance of about 1½ inches. No diminution in the diameter of trunks. No gross changes in gasserian ganglia, in cervical ganglia, or in cervical cord.

This dog was also a small puppy. Consequently injections were made with considerable difficulty and did not prove as satisfactory as on the first dog, which was very large and whose nerves were large, so that the osmic acid was easily retained within the sheath.

Dog No. 4.—Injected March 30, 1904.—The supraorbitals and cords of the brachial plexus were each injected with about 15 m. of a 1½ per cent. solution of osmic acid in water. The nerves were laid bare and their trunks injected under aseptic precautions. The incisions were closed with silkworm gut suture. The fascia in the axilla was brought together with catgut. The wounds healed by primary intention. There was an immediate partial paralysis of the upper extremity on the injected side. This rapidly disappeared so that there was little residual paralysis at the end of two weeks.

Necropsy, April 14, 1904.—Supraorbital nerves are buried in a mass of inflammatory tissue. The nerve trunks are completely blackened for about 1½ inches. No changes are apparent proximal or distal to the point of injection. No suppuration in axillary wound. There is a considerable amount of inflammatory tissue. Some of the trunks are blackened only superficially. The osmic acid has apparently not penetrated well. A trunk was selected in which the penetration seems to have been good. There are no gross changes in the ganglia or cord.

The following pieces were taken for microscopic examination. At, distal to, and proximal to the point of injection, the gasserian ganglia, cervical ganglia, and parts of cervical cord.

This case differed from the others in not showing any of the slight changes that were present in the ganglia. There

was little or no diffusion of the Nissl bodies, and the nuclei were for the most part located centrally.

It may be noted in these experiments that about 15 m. of a 1½ per cent. aqueous solution of osmic acid were injected into each nerve trunk, under aseptic precautions. The supraorbitals and cords of the brachial plexus were selected for this purpose. The nerves were subjected to as little trauma as possible, and the injections were made slowly. The fascia was always reunited over the cords of the brachial plexus with catgut, and the skin wound closed with horsehair or silkworm gut.

The wounds usually healed by primary intention. Complete paralysis of the leg in which the brachial plexus had been injected, occurred immediately and persisted until death. The

dogs were killed about the 13th day after the injection. There was a considerable amount of inflammatory reaction in the tissue surrounding the nerve. The supraorbital nerves were embedded in a blackened inflammatory mass from which they had to be dissected with care. There was a considerable amount of inflammatory reaction about the cords of the brachial plexus, but the cords themselves lay comparatively free in the reformed connective tissue sheath. The nerve trunks were more or less blackened for a distance of 1 to 2 inches. In several instances the size was slightly diminished at, and distal to the point of injection. No gross changes were observed in the proximal portions of the nerve trunks, in the ganglia or in the cervical cord.

MICROSCOPIC FINDINGS IN INJECTED NERVE TISSUE AT DISTAL AND PROXIMAL TO THE POINT OF INJECTION, AND IN GANGLIA.

DOG NO. I. Ganglia overheated; Nissl's stain was unsatisfactory.

	Right Supraorbital				Left Supraorbital				Cord of Brachial Plexus			
	At	Distal	Proximal	*Ganglia	At	Distal	Proximal	Ganglia	At	Distal	Proximal	Ganglia
Diminution in caliber.....	Slight..				Slight..				Slight..			
Focal necrosis.....	Slight..				Slight..				Slight..			
Round cell infiltration.....	Slight..				Slight..				Slight..			
Polymorphonuclear leucocytes.....	Few.....				Few.....				Few.....			
Derangement of nerve fibers.....	++	+			++	+			++	+		
Degeneration of myelin.....	++	+			++	+			++	+		
Staining of paraneurotic fat from injection.....	++	+			++	+			++	+		

* Nissl bodies not stained well; subjected to too much heat in embedding.

DOG NO. II. Dog was a puppy; nerves small; therefore injection does not seem to have taken well; left supraorbital taken as control.

	Right Supraorbital				Brachial Plexus			
	At	Distal	*Proximal	†Ganglia	‡At	Distal	Proximal	§Ganglia
Focal necrosis.....	Slight..				Slight..			
Round cell infiltration.....	Slight..				Slight..			
Polymorphonuclear leucocytes.....	Slight..				Slight..			
Derangement of nerve fibers.....	Slight..	Slight..	Slight..		Slight..	Slight..		
Degeneration of myelin.....	Slight..	Slight..	Slight..		Slight..	Slight..		
Staining of paraneurotic fat at seat of injection.....	+							

* Just above point of injection. † Diffusion of Nissl's bodies in many cells; nucleus at periphery of cell.

‡ Injection does not seem to have penetrated well. § Diffusion of Nissl's bodies; peripheral location of nuclei.

DOG NO. III. This dog was also a small puppy, consequently injections were made with considerable difficulty and did not prove as satisfactory as on the first dog, which was very large and whose nerves were large, so that the osmic acid was easily retained within the sheath.

	Right Supraorbital				Left Supraorbital				Cord of Brachial Plexus			
	At	Distal	Proximal	†Ganglia	At	Distal	Proximal	‡Ganglia	At	Distal	Proximal	§Ganglia
Focal necrosis.....	Slight..				+				Slight..			
Round cell infiltration.....	Slight..				+				Slight..			
Polymorphonuclear leucocytes.....									Few.....			
Derangement of nerve fibers.....	Some				Slight..	Slight..			+	+	+	Slight*
Degeneration of myelin.....					Slight..	Slight..			+	+	+	
Staining of paraneurotic fat from injection.....	+				+				+	+	+	

* Immediately above point of injection. † Diffusion of Nissl's bodies in many cells; nuclei of many cells at periphery. ‡ Slight changes as recorded in other nerve. § Diffusion of Nissl's bodies quite marked, also peripheral location of nuclei.

DOG NO. IV.

	Right Supraorbital				Left Supraorbital				Cord of Brachial Plexus			
	At	Distal	Proximal	†Ganglia	At	Distal	Proximal	‡Ganglia	At	Distal	Proximal	§Ganglia
Inflammatory reaction.....					Slight..							
Focal necrosis.....												
Derangement of fibers.....	Slight..				+	Slight..			Slight..	+	Slight..	
Degeneration of myelin.....	Slight..	+	+		+	Slight..			+	+	Slight..	
Diminution in caliber.....												
Leucocytic infiltration.....	Slight..				Slight..							
Blackening due to osmic acid injection.....	Occas ¹				+							

* Eosin affects the myelin of a few fibers, blackening the sheath uniformly. † No marked changes. ‡ No changes.

Two pieces were taken at the point of injection, proximal to, and distal to the point of injections and put in Mueller's fluid, 90 parts, formalin 10 parts. After one to two days, sections from each portion were washed in water for 24 hours, mounted in paraffin and stained with hematoxylin and eosin. The remaining pieces were left for two weeks in Mueller's fluid, which was changed several times to get rid of the formalin. They were then placed in Marchi's mixture, which consists of Mueller's fluid 2 parts, 1 per cent. osmic acid, 1 part, and left for six days. They were then washed in water for two days and afterwards remounted in paraffin. By this method any fatty degeneration occurring in the myelin sheath of the nerve fibers can be demonstrated. It has been found that myelin which has been mordanted for eight days or over in Mueller's fluid or other solutions of the bichromates, loses the power of reducing osmic acid, while fat retains this property unimpaired. The gas-serian ganglia and the cervical ganglia connected with the excised pieces of nerve were removed and placed in Zenker's fluid and stained with hematoxylin-eosin and by Nissl's method after they were mounted in paraffin. Specimens were taken from the cervical cord to be examined later if changes elsewhere should warrant it.

Microscopic Examination.—The most important changes were found at, and distal to the point of injection. The degree of pathologic alteration varied to a considerable extent dependant on the thoroughness of the injection and whether infection had resulted. For example, in one nerve that to all appearances was perfectly injected and blackened throughout, degenerative processes were found only in a limited portion. At the point of injection there was always more or less staining of the paraneurotic and interstitial fat with the osmic acid. There was quite marked derangement of the fibers. The inflammatory reaction was always less extensive than might naturally be expected. An occasional area of focal necrosis, a few foci of round cell infiltration, and here and there a leucocyte, attracted thither by the foreign substance, were all that was to be noted.

Distal to the point of injection the nerve trunk in some cases seemed atrophic, but there were no interstitial changes. Proximally, no changes were to be found except in the immediate vicinity of the injection. At and distal to the point of injection, there was more or less extensive fatty degeneration of the myelin sheath, this varied in amount from the involvement of all the fibers to an occasional fiber. Proximally the myelin was unaffected, except immediately above the limit of blackening, which was our means of defining the extent of injected area.

There were no signs of inflammation in the ganglia. Slight changes, similar to those one would be led to expect after nerve resection, were present. The nuclei of many of the cells were located at the periphery and the stainable substance of Nissl was diffused throughout the cytoplasm.

(To be continued.)

NOTE.—The conclusion of Dr. Murphy's article next week will be followed by the discussion on the papers of Drs. Sherman, Frazier and Murphy.

BLOOD PRESSURE AND PULSE RATE.

AS INFLUENCED BY DIFFERENT POSITIONS OF THE BODY.*

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HISTORY.

The blood pressure in the arteries was first measured with some degree of accuracy by Stephen Hales in 1733. He ordered a mare to be tied down on her back, into whose crural artery, about three inches from her belly, he inserted a brass pipe one-sixth inch in diameter. To this pipe, by means of another brass

pipe, he fastened a glass tube 9 feet long, and of nearly the same diameter as the pipe in the artery. He then untied the ligature on the crural artery, as a result of which the blood rose 8 feet 3 inches above the level of the ventricle of the heart.¹

While blood pressure can be measured in this way with some degree of accuracy, there are several objections to the method, chief among which are the following: 1, Through the uncomfortable position of the animal and the consequent effect on the vasomotor nerve fibers, the pressure is likely not to be the same as it would under normal conditions; 2, the inaccuracy due to the speedy coagulation of the blood; 3, the clumsiness and inconvenience of the apparatus.

Poiseuille, many years later, improved this method of Hales by substituting for the glass tube a mercurial manometer. The tube connecting this manometer with the artery was filled with a solution of sodium carbonate to prevent coagulation of the blood.²

Later, Ludwig made an improvement on Poiseuille's mercurial manometer by placing on the mercurial column a float carrying a writing style, by means of which records of the variation in pressure could be taken on revolving drums. By means of the apparatus a fair degree of accuracy can be obtained, but the oscillations of the mercurial column, due to inertia, render it objectionable. The mercurial manometer, however, has been used very extensively and with very valuable results.

Piorry, a noted French physician, was one of the first to observe the effect of the force of gravity on the circulation, i. e., the effect of the change of position on the blood pressure. His observations, however, were clinical. Having been called to a patient who had lost consciousness, and who was being supported in a sitting position by his friends, he placed him in a horizontal position, after which the patient at once regained consciousness. Hill has also found, through a trephine hole in the skull, that the intracranial pressure is negative in the sitting posture and positive when the head was bent down toward the knees.³

Many other observations of the same nature have been observed clinically on the human subject and experimentally on the lower animals.

Most of the work on the lower animals has been done by inserting a cannula connected with a mercurial manometer into the carotid or femoral artery, and then shifting the animal from one position to another, about a horizontal axis which passes through the point of insertion of the cannula. In this way, quite accurate results have been obtained. Of course the animals were invariably narcotized or anesthetized.

So far as we have been able to learn the experimental observations on blood pressure in different positions of the body have been confined to the horizontal, vertical feet-down and vertical feet-up positions. The same is true of the pulse rate. The clinical observations have been confined to the horizontal, head-up and head-down at no particular angle.

Since the advent of the sphygmomanometer, experiments have been performed on the healthy human subject in the standing, sitting and horizontal postures.

The pulse rate in the human subject in different positions of the body, so far as we have been able to learn.

1. "Statistical Essays," vol. II, after Hill-Schäfer's Text-book of Physiol., 1900, vol. II.

2. "Rech sur la force du coeur aortique." Thèse, Paris, 1828, after Hill-Schäfer's Text-book of Physiol., 1900, vol. II.

3. III: Journal Physiol., Cambridge and London, 1895, vol. xviii, p. 15.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

was first studied by Guy,⁴ who made observations on 100 men, averaging 27 years of age, in the standing, sitting and lying positions. He found the pulse rate to be highest in the standing, lower in the sitting and lowest in the lying positions.

We see, then, that the subjects of blood pressure and pulse rate in different positions of the body are not new ones; that some of the apparatus used in getting blood pressure was inaccurate; that experimental observations were on narcotized or anesthetized animals; that clinical observations on blood pressure in the different positions of the body are confirmatory of the experimental observations.

In our work on blood pressure we have dealt with the subject in a different manner, in some respects, from our predecessors, inasmuch as we have chosen more positions of the body and have taken the pressure on both sides of the body in each position.

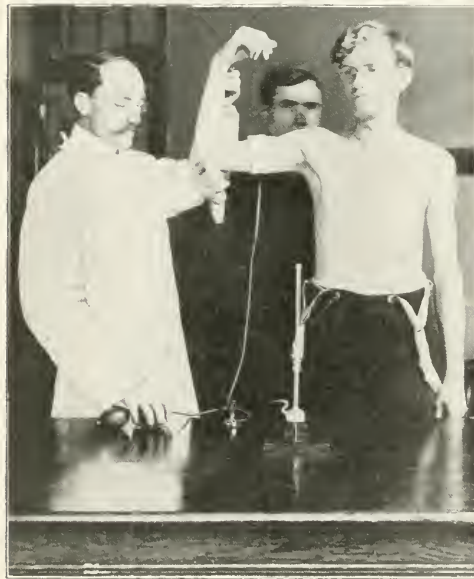


Fig. 1.—Standing.

METHOD.

(a) *Subjects*—The subjects used in these experiments were twenty-two male medical students, with an average age of 24 years and an average height of 170 cm. In one of these subjects, however, the pulse rate was not obtained, hence only twenty-one are used in making computations on pulse rate. In changing from one position to another, they were allowed to remain long enough in the new position for the circulatory apparatus to become adjusted to the new conditions before observations, either on blood pressure or pulse rate, were taken. Every means was taken to keep them comfortable and to avoid anything which would tend to provoke excitement or muscular effort. The rate of respiration was also kept normal.

(b) *Apparatus*.—The instrument used in taking the blood pressure was the Riva Rocci sphygmomanometer,

as modified by H. W. Cook. The instrument is now so well known among physiologists that a description of it here is not demanded.

(c) *Technic*.—Each of the twenty-two men were taken through the following positions: 1, Standing; 2, sitting; 3, supine; 4, head down at an angle of 45 degrees; 5, right lateral; 6, left lateral.

The blood pressure was taken in both brachial arteries in each position by placing the band of the instrument around the upper arm midway between the elbow and shoulder.

The pulse rate was also taken in each position, the count being taken through a whole minute of time.

In taking the pressure in the standing position, the patient stood erect, the upper arm was abducted to the horizontal plane and the forearm flexed at right angles to the brachium and held perpendicularly, with the hand uppermost. The arm was supported in this po-



Fig. 2.—Sitting.

sition by an assistant in order to relieve the subject of any muscular effort in sustaining the arm himself. The opposite arm was allowed to hang laxly by the side.

In the sitting position, the subject sat on a stool, with the thighs parallel and flexed at right angles to the axis of the body. The legs were flexed at right angles to the thighs. The arm in which the pressure was taken was held in the same position in relation to the body, as it was in the standing posture (the assistant supporting it), while the hand of the opposite arm lay laxly on the thigh of the same side.

The subject in the supine posture lay flat on his back with legs parallel, and the arm on the opposite side to the one in which the pressure was taken lay parallel with and along side of the body. The arm in which the pressure was taken was abducted to right angles with the body axis, and the forearm at right angles to the brachium and held perpendicularly. Thus it is seen that the arm did not take the exact relation to

the body in this position that it did in the standing and sitting postures. In the latter, the brachium was so rotated that the inner aspect faced forward, while in this position the inner aspect of the brachium faced toward the feet, having rotated through an arc of 90 degrees. The variation in blood pressure, due to this slight difference in the relative position of the arm, if there be any variation at all, would certainly be too insignificant to be taken into account.

The subject in the head-down position was placed on a table on his back, around his ankles were placed comfortable straps, which were fastened to one end of the table. The end of the table was then elevated so that the subject hung with his head down, at an angle of 45 degrees. The arms assumed practically the same position, in relation to the body, as they did in the supine position, the forearm of the arm operated on being held perpendicularly, and the opposite arm lying along side of the body.

In the right lateral position our subject lay on the

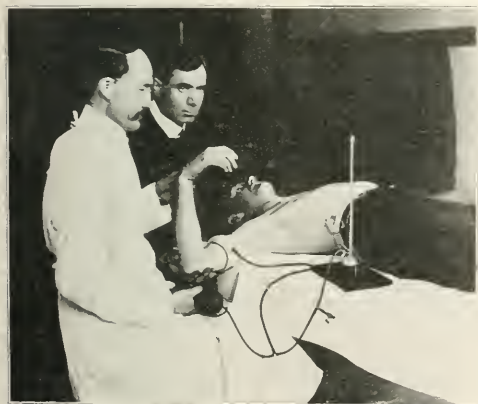


Fig. 3.—Supine.

right side, the head raised to the horizontal level by a pillow, the legs parallel and straight, and the left arm parallel with and on the body. The right arm was extended anteriorly at right angles to the body axis, the forearm flexed at right angles to the upper arm and held perpendicularly when the pressure was taken in this arm. When the pressure was taken in the left arm in this posture, the right arm was allowed to assume a position most comfortable to the subject, in order to obviate any nervous influence on the circulation which might arise from the subject being uncomfortable. The left arm assumed the same relation to the body as it did in the supine when the pressure was taken in it. This, of course, put the forearm in a horizontal plane.

The left lateral position is a repetition of the right lateral in reversed order, and need not be detailed further.

RESULTS.

After the pressure in each brachial was taken in a given position, the two results were averaged to obtain a mean pressure in that position. The results of such observations, together with the pulse rate, are shown in the following table:

TABLE NO. 1.

No.	Stand- ing.	Sitting.	Supine.	Head- down.	Right Lateral.	Left Lat.
1	Right arm ... 134	142	174	185	172	125
	Left arm ... 122	132	150	174	124	163
	Pulse rate ... 97	90	72	69	68	72
2	Right arm ... 146	153	165	170	157	119
	Left arm ... 146	153	155	171	118	78
	Pulse rate ... 85	81	64	57	59	63
3	Right arm ... 106	115	128	137	126	81
	Left arm ... 117	120	134	153	94	133
	Pulse rate ... 70	57	57	53	56	58
4	Right arm ... 134	146	177	199	193	135
	Left arm ... 131	145	158	170	128	192
	Pulse rate ... 93	87	83	87	84	78
5	Right arm ... 110	113	119	148	132	93
	Left arm ... 112	123	138	147	99	133
	Pulse rate ... 102	88	77	79	80	79
6	Right arm ... 133	143	157	159	140	108
	Left arm ... 136	138	159	151	111	170
	Pulse rate ... 118	93	71	71	88	78
7	Right arm ... 151	154	179	216	186	141
	Left arm ... 155	171	186	240	147	213
	Pulse rate ... 86	81	71	64	69	66
8	Right arm ... 124	127	140	143	150	108
	Left arm ... 102	107	145	193	115	145
	Pulse rate ... 127	129	134	148	144	92
9	Right arm ... 134	118	130	136	146	134
	Left arm ... 114	130	138	159	129	116
	Pulse rate ... 115	130	138	159	129	116
10	Right arm ... 109	101	132	153	119	131
	Left arm ... 110	98	86	76	90	87
	Pulse rate ... 141	142	149	169	181	112
11	Right arm ... 139	135	149	165	122	151
	Left arm ... 70	69	60	56	59	59
	Pulse rate ... 130	139	146	167	154	110
12	Right arm ... 135	136	145	171	111	158
	Left arm ... 103	97	80	83	78	77
	Pulse rate ... 136	141	154	169	155	89
13	Right arm ... 117	116	141	164	108	137
	Left arm ... 75	69	65	74	67	67
	Pulse rate ... 127	124	146	156	134	92
14	Right arm ... 113	115	133	153	101	90
	Left arm ... 72	60	53	48	53	50
	Pulse rate ... 152	132	165	163	157	123
15	Right arm ... 134	137	163	168	122	153
	Left arm ... 83	87	76	73	77	75
	Pulse rate ... 111	100	126	132	119	73
16	Right arm ... 115	116	129	133	95	124
	Left arm ... 89	92	69	68	67	75
	Pulse rate ... 134	130	154	177	152	105
17	Right arm ... 125	141	161	184	110	157
	Left arm ... 71	70	62	58	59	58
	Pulse rate ... 164	152	170	203	195	135
18	Right arm ... 158	161	178	206	177	175
	Left arm ... 92	84	74	76	73	75
	Pulse rate ... 154	151	180	198	180	127
19	Right arm ... 151	150	169	183	112	180
	Left arm ... 82	83	78	62	71	66
	Pulse rate ... 122	119	142	153	159	111
20	Right arm ... 119	113	127	158	98	155
	Left arm ... 76	75	59	58	63	62
	Pulse rate ... 127	124	159	162	143	96
21	Right arm ... 133	127	133	161	111	157
	Left arm ... 77	72	62	58	63	66
	Pulse rate ... 132	118	163	185	157	106
22	Right arm ... 141	129	159	189	128	165
	Left arm ... 67	65	55	59	61	60
	Pulse rate ... 67	65	55	59	61	60

In summarizing the above data, we used the Hall-Quetelet method.⁵ This method uses the median value, instead of the average or arithmetical mean. The data collected from each individual are recorded on a card. The cards from the several individuals are grouped as desired. We grouped our cards according to the pulse rate and blood pressure in each arm in the different positions of the body. For illustration, let us take the blood pressure in the right arm in the standing position; and let us take all those cards showing a blood pressure of 105-110 mm. Hg, inclusive, and place them in one group, and all those showing a pressure of 110-115 mm. Hg in another group, etc., till we have all the twenty-two cards placed in groups, the difference between the minimal values of which is 5 mm. Hg pressure. We shall then have the following table:

TABLE NO. 2.

Blood pressure	105+	110+	115+	120+	125+	130+	135+	140+	145+	150+	155+	160+
No. of observations	1	2	1	2	3	6	1	1	1	3	0	1

In adding the number of observations shown in the table, we get a total of 22, which corresponds to the number of subjects in whom the pressure was taken.

The next step is to find the median value, which Dr. Hall defines thus: "The median value is that value which is so located in the whole series of observations of a single measurement of a single group that there are as many above it as below it; i. e., that the number of values which it exceeds is equal to the number of values which exceed it." Since the number of observations is 22, the median value, therefore, will have on one side of it 11 values, which are less, and on the other side 11 values, which are greater than itself. We must, then, find the eleventh value. In counting from left to right, we find that the eleventh value lies in the group 130 mm. Hg. and is the second from the minimal value and fourth from the maximal value of this group. The median value, therefore, lies in this group, which may be called the median group. We know, then, that it must be between 130 mm. Hg. the minimal value of the group, and 135 mm. Hg. the minimal value of the next higher group. Now, according to the biologic laws, the six values in this median group will be practically evenly distributed throughout the 5 mm. Hg. pressure between its minimal value and the minimal of the next higher group. Hence the sec-

are likely to balance the giant values, in which case the arithmetical mean is an accurate though time-consuming method of evaluating data. In a small number of observations, however, one extreme is more certain to overbalance the other, and in this case the Hall-Quetelet method is the only accurate one. It is also accurate in handling large numbers and is much simpler and more easily applied than the old method.

Our data pertaining to the pulse rate and blood pressure in both brachial arteries, in the different positions enumerated above, were handled in this manner, the summary of the results of this evaluation being given in the following table:

TABLE NO. 3.

	Standing.	Sitting.	Supine.	Head down.	Ret. Lat.	Lat. Lat.
Right arm	131.6	133.3	152.5	195.2	155	110
Average	130.8	131.7	150.1	165.6	134.5	133
Left arm	130	131	148.3	165.6	111	137
Pulse rate	86	82	68.7	65.8	68.1	69.1

DISCUSSION OF EFFECTS ON BLOOD PRESSURE.

In scanning this table, it is seen that the average blood pressure in the two arms increases in the standing, sitting, supine and head-down positions, respectively, while the pulse rate decreases. It has been considered that the blood pressure varies as the heart rate times the heart strength times the resistance.

Expressed in terms of a formula, we have P varies as Hr × Hs × R, where P equals blood pressure, Hr, the heart rate, Hs the heart strength, and R the resistance.

This resistance may be due to arterial causes—arterial resistance; it may be due to the capillaries—capillary resistance; it may be due to contractions of the arterioles—peripheral resistance; it may be due to venous causes—venous resistance; or it may be due to the effect of gravity on the circulation—hydrostatic resistance.

Now, it remains to be seen whether the phenomena observed in Table 3 can be explained by means of this formula.

Standing Position.—We see that the average blood pressure in the standing position is lower and the pulse rate is higher than in any other position in the series. Here the current meets with the least arterial and hydrostatic resistance on the arterial side of the circulation, and with the greatest hydrostatic resistance on the venous side. Both of these factors tend to decrease the pressure in the upper portions of the body by tending to allow the accumulation of blood in the lower portions of the circulatory system. This is partially compensated for, however, by the abdominal muscles and contraction of the arterioles in the splanchnic area.³

Sitting Position.—The average pressure in the sitting position is nearly 1 mm. Hg. greater than in the standing position, a difference almost so slight in itself as to be ignored. But when we observe that the pulse rate in this position has decreased four beats to the minute, more importance attaches to this slight rise in pressure, and we begin to wonder why the pressure did not sink with the lowering of the heart rate.

According to the formula, P will vary with Hr where Hs and R remain constant. Therefore, if Hr decreases, P will decrease also. If P does not decrease when Hr decreases, but, on the contrary, remains constant or increases, it is evident that the variation of Hr is counterbalanced or more than counterbalanced by the varia-



FIG. 4.—Head down.

ond value from the left must be 130 mm. Hg. pressure, plus 2/6 of 5 mm. Hg. pressure, which equals 131.6 mm. Hg. the pressure for the right arm in the standing position.

Dr. Hall has also reduced this process to a mathematical formula, thus:

"Let n equal total number of observations; m equal the number of observations in the median group; l equal the sum of observations to the left of median group; r equal the sum to the right; a equal the minimum value of the median group; d equal the arithmetical difference between the minimum values of the groups, and M equal the median value to be determined."

Then

$$M = a - \frac{(d \cdot n - 2l - r) - m}{m}$$

$$M = a + \frac{d \left(\frac{n}{2} - 2l - r \right)}{m}$$

$$M = 130 + \frac{5 \left(\frac{22}{2} - 9 \right)}{6} = 131.6 \text{ mm. Hg. pressure, by substituting the values of the letters in the above cases.}$$

In taking the arithmetical mean, however, we get a pressure of 132.2 mm. Hg. In observing the table, we see that we have one observation of quite high pressure. This slight increase of the average over the median value is doubtless due to this one observation.

In a large number of observations the dwarf values

tion of either Hs or R, or both, in an opposite direction. Can we account in any way for a sufficient rise in Hs or R, or both, to produce the slight rise of P against the decrease in Hr?

It will be recalled that in the sitting position the thighs were flexed at right angles to the body axis, and the legs at right angles to the thighs; that the body was sustained erect on the pelvis, and the hand of the arm not being operated on was lying relaxed on the thigh of the same side. The blood, then, must take a somewhat different course in this position from what it took in the standing position, i. e., it must course around two right angles in each leg—one at the inguinal region and one at the knee. It also deviates slightly from a straight line at the elbow of the arm not being operated on. Thus the blood in two of the largest arteries turns two right angles in each lower extremity, and one large artery turns an angle of approximately 45 degrees at the elbow. The same is true of the veins in the same localities. This introduces an arterial and venous resistance which did not exist in the standing position.



Fig. 5.—Right lateral, lower arm.

It is possible, too, that the capillary resistance may be increased by compression of the gluteal region and upper part of the thigh by the weight of the body on them.

It has been stated that through the influence of the vasodilator nerve fibers the flow of blood to a contracting muscle is increased.⁶ If this be true, the flow of blood to the muscles of the lower extremities will be increased while the muscles are contracting to maintain the body in a standing position. This increased flow of blood to the lower portions of the circulatory system will tend to raise the pressure here and lower it in other portions of the arterial system.

The relaxation of these muscles in the sitting position, however, with practically the same tension of the abdominal muscles and the muscles of the back in maintaining the trunk erect on the pelvis, prevents the increase of flow of blood to the lower extremities, which results in higher pressure in the rest of the arterial system, i. e., the peripheral or arteriolar resistance is increased in this position.

The force of gravity also plays an important rôle. In a man 6 feet high the hydrostatic pressure of a col-

umn of blood reaching from the vertex to the sole of the foot is equal to 140 mm. Hg, and from the vertex to the middle of the abdomen about 50 mm. Hg.⁷ If this statement be true, the hydrostatic pressure in a man 5 feet 8 inches high—the average height of our 22 subjects—will be about 134 mm. Hg. Now, if the average distance from the bend of the femoral artery in the inguinal region to the bend of popliteal behind the knee be about 40 cm., the hydrostatic pressure in this position will not be 134 mm. Hg by 31.5 mm. Hg, the pressure of a column of 40 cm. There will be 40 cm. of the column of 170 cm (5 feet 8 inches), on which gravity exerts a pressure downward on only the lower wall of the vessel. This column of 40 cm. of blood, meeting resistance to its downward tendency, has no effect through its own weight in the column in the leg below it as it had in the standing position, but tends to check the flow of the column above. The latter, by its own weight or hydrostatic resistance, and the elastic force of the arteries must sweep this 40 cm. of blood through a horizontal distance of 40 cm. In overcoming this extra hydrostatic resistance, the column above must necessarily experience a rise in pressure. Thus the decrease in the hydrostatic resistance



Fig. 6.—Right lateral, upper arm.

due to the decrease in height of the column of blood, is reacted on by the increased pressure due to the hydrostatic resistance of the 40 cm. to be moved in a horizontal plane. This is true on both the arterial and venous sides of the circulatory system. Whether or not these two factors balance we do not know. However, to summarize, we see that we have an increase in the arterial, venous, capillary and peripheral resistances, and also the hydrostatic resistance due to the horizontal column of blood. We also have a decrease in the hydrostatic resistance due to a decrease in height of the blood column.

Now, since we have an increase in P and decrease in Hr, it is evident that the increasing factors of R must more than counterbalance the decreasing factor, since the respiration was kept normal and all nervous stimuli avoided which would tend to increase Hs. This increased pressure is shared by the coronary arteries, in consequence of which an increase of nutriment is carried to and increased tension placed on the heart muscle, both of which tend to increase the heart strength.⁷

7. Roy and Adams: Philosophical Trans. of the Royal Society, 1892, vol. cxxxiii, B. pp. 90, 262.

It is clear, then, that the total increase in P is not due alone to the increased resistance, but is brought about partially by the increase in the heart strength. This increase of the heart strength, however, results from the increased pressure due to the increased resistance. Just what proportion of the total increase in P is due to the increase in R , and what proportion is due to the increase in H_s , we do not know. We conclude, therefore, that the increased blood pressure in the brachials in the sitting position over that in the standing position is due to an increase in both the resistance and the heart strength.

Supine.—In referring to Table 3, the median pressure in the supine position is seen to be 150.4 mm. Hg, a distinct rise over that in the two previous positions. We see, also, that the pulse rate has decreased to 68.7 beats per minute, a distinct decrease below that in the two previous positions. Therefore, since P is higher and H_r lower than in the two other positions, it is clear that H_s or R , or both, have made a greater increase.

Hill of London has shown that, when the body of one of the lower animals takes the vertical feet-down position, the blood pressure falls in the carotids and at the same time rises in the femorals. When the body resumes the horizontal position the pressure increases in the carotids and decreases in the femorals, as compared with what it was at first. When the animal is placed in the vertical feet-up position, the pressure still further rises in the carotids and falls in the femorals. These phenomena he attributed to the hydrostatic pressure of the blood. Again, if the phrenic nerves be divided when the animal is in the vertical feet-down position, the pressure will still further fall in the carotids and rise in the femorals. Furthermore, if a crucial incision be made in the abdominal walls, the pressure falls still further in the carotids and rises in the femorals. These phenomena, he attests, point to a compensatory apparatus in the splanchnic area and the abdominal walls, since compression of the latter will cause the pressure to rise in the carotids and fall in the femorals. This compensatory apparatus, he thinks, becomes more nearly complete in animals that assume more nearly the vertical position as their natural posture; therefore, more nearly complete in man.³

The clinical experience of Piorry, cited above, and of many others, also shows the effect of gravity on the circulation in the supine position. When the subject is placed on his back the blood which previously tended to gravitate to a plane below the heart, especially into the spacious venous system of the splanchnic area, now tends to become more equally distributed throughout the circulatory system, since this system has taken a horizontal position. This tends to increase the hydrostatic resistance in the plane of the heart and above it, through an increased flow of blood to these regions and to lower it in the planes below through a correspondingly decreased flow to those regions.

At the same time, the hydrostatic resistance is further increased by the blood in the arterial system having to be moved along a horizontal plane at right angles to the force of gravity.

It is decreased, however, in the lower portions of the venous system by a force equivalent to the difference between that required to raise the return circulation to the level of the heart, and that required to move it through a horizontal plane throughout the venous system. It is increased, however, in the upper portions of this system through the general tendency of the blood

to become equally distributed throughout the circulatory system.

The increased hydrostatic resistance in the circulatory system tends to strengthen the heart beat by increasing the nutriment to and the tension on the heart muscle. This increased force of the heart "may more than counterbalance the increase in the resistance to the contractions of the left ventricle which that rise introduces, so that the ventricle may contract more completely than it did before the pressure was raised."⁴

It may be possible that the capillary resistance is slightly increased in this position by the weight of the body on the tissues of the back; this is evidently small, as the body rests largely on bony prominences, such as the sacrum, shoulder blades, etc., leaving the large muscular areas of the back practically free from pressure.

We see, then, that there is an increase in the hydrostatic resistance in the arterial system and upper portions of the venous system; that because of this increase of hydrostatic resistance the heart's action is strengthened; that there is a possible slight increase in the capillary resistance; that there is a decrease in hydrostatic resistance in the lower portions of the venous system.

Now, since P has increased, we are forced to conclude that the increase in H_s and R more than counterbalances the decrease in R in the lower venous system. Furthermore, that the ultimate factor in bringing about the increase in P in this position is the hydrostatic resistance.

Head-Down Position.—Referring again to Table 3, it is observed that the blood pressure in the head-down position has made a leap of over 15 mm. Hg above what it was in the supine, being now 165.6 mm. Hg. It will also be noticed that the heart rate has been lowered almost three beats per minute, the rate now being 65.8. Now, since the pressure is the greatest and the heart rate is the lowest in this position, it is evident that the heart strength or the resistance, or both, have experienced the greatest increase.

Since the man is on an inclined plane with the head downward, it is clear that the blood will tend to course toward the head through the influence of gravity. This produces an increased hydrostatic resistance in the upper portions of the circulatory system, which is greater than it was in the supine, since gravity acts on an angle of 45 degrees with the course of the blood, instead of 90 degrees. It is also greater than in the standing and sitting postures, since in the latter gravity acts in a straight line with the blood stream and tends to pull it to the opposite extreme of the circulatory system.

The hydrostatic resistance in this position is equivalent to that of a column of blood extending perpendicularly between the plane of the feet and that of the brachial artery, a distance of about 99 cm., with a pressure of about 78 mm. Hg.

According to Hill,³ the increased hydrostatic pressure in the carotids in the vertical head-down position is partially compensated for by a decrease in the resistance in the splanchnic area, brought about through the vasodilator mechanism; but this compensation is far from complete.

The same may be said in regard to the capillary resistance here, as was said in case of the supine; if there be an increase it must be slight.

The hydrostatic pressure, being greater in the upper portion of the circulatory system than it was in the pre-

vous postures, will necessarily be shared to a greater extent by the coronary arteries, in consequence of which there will be a greater increase of nutriment to the heart muscle. The tension on the heart will also be greater. We conclude, therefore, that the strength of the heart is greatest in this position.

Lateral Positions.—In Table 3 it will be seen that the pressure in the right lateral position is 134.5 mm. Hg, and the pulse rate is 68.1 beats per minute; in the left lateral the pressure is 133 mm. Hg, and the pulse rate 69.1 per minute. Here the same general law holds good—that the pulse rate decreases as the pressure increases. But we notice that the pulse rate approximates that in the head-down position, while the blood pressure approaches that in the standing and sitting postures, i. e., the pressure is lower compared with the pulse rate than in the other lying positions.

Now, since the pulse rate is much lower and the blood pressure slightly higher in these positions than in the standing and sitting positions, it is manifest that both the heart strength and resistance, or either one of them, must be increased to a greater extent than in the latter. For convenience we shall take the average pressure and pulse rate in these positions in comparing them with the others, and later take the two separately, in comparing them with each other. The following table will then be useful:

TABLE NO. 4.—LATERAL POSITIONS.

	Right Arm.	Left Arm.	Average.	Lower Arm.	Upper Arm.
Blood Pressure.....	134.5	133	133.8	155.5	112
Pulse Rate.....	68.1	69.1	68.6	.....	.....

This table shows the average blood pressure in these positions to be 133.8 mm. Hg and the average pulse rate 68.6 beats per minute. By comparing these figures with those in Table 3 we see the pulse rate is nearly the same as in the supine, and but slightly higher than in the head-down positions, while the pressure is much lower. That means that the heart strength, the resistance, or both, have decreased.

How can we account for these phenomena? In the first place, how can we account for the slight increase in the pressure over the great fall in the heart rate from what it was in the standing and sitting positions? In the latter a comparatively small amount of blood was moved along a horizontal plane by the heart force, thus overcoming the hydrostatic resistance due to gravity acting at right angles to the blood current, while in the lateral positions the blood moves nearly horizontally through the entire circulatory system.

Here, also, the blood tends to become more equally distributed throughout the circulatory system. This results in a lowered hydrostatic resistance in the lower portions of the body, with a corresponding increase in the upper portions.

In this position it will be recalled that the lower arm was extended anteriorly at right angles to the body axis. Instead of the blood passing from the subclavian artery through the brachial in a straight line to the elbow, it deviates 90° from this course and passes directly forward. This offers a greater resistance to the blood current above, and at the same time tends to lessen the pressure in the radial below it. We conclude, therefore, that because of this variation the systemic pressure is somewhat higher than is recorded in the above table. This is a greater arterial resistance than we had in the standing and less than in the sitting positions. In the

upper arm the forearm was horizontal instead of perpendicular, as it was in the other positions, while the brachium was perpendicular instead of horizontal. Hence, these two differences balance. Because of the increased resistance the heart force is also increased in the same manner as has been given above.

We see, then, that the hydrostatic resistance is greater in the planes of the heart and above it, in these positions, than in the standing and sitting positions; that the arterial resistance is slightly greater than in the standing, but less than in the sitting position; that the heart strength is increased because of the increased resistance. Now, since P is slightly higher and Hr much lower, Hs and R, one or both, must be much increased.

Now, why is the pressure lower than, and the heart rate nearly the same as, it was in the supine? In the latter the circulatory system lies practically in a horizontal plane. In the lateral positions it is "on edge," as it were, and beside, the upper portion is slightly higher than the lower, since the distance from the central axis of the body to the point of the shoulder is somewhat greater than it is from the same axis to the most distant point of the crest of the ilium or great trochanter. This gives a slightly inclined plane, down which the blood tends to gravitate toward the feet, thus raising the pressure below the heart and lessening it above, as compared with what it would be in the supine position. The resistance, therefore, being less, the heart strength will be less because of lessened nutrition to, and tension on, the heart muscle. The decrease in P, then, must be due to a decrease in Hs and R.

The same things are true in the head-down position as in the supine, but in a more marked degree. Here, however, Hs has decreased to a greater degree; hence, we conclude that P has decreased as a result of the decrease in Hr, Hs and R.

Now, Table 4 shows that the average pressure is 1.5 mm. Hg greater and the pulse rate a half beat less in the right than in the left lateral position. How may this slight rise of pressure be explained?

The aorta passes from the left ventricle upward and slightly forward and to the right. It then curves backward, upward and to the left. Therefore, in the right lateral position the heart lifts the greater portion of blood against the force of gravity to the perpendicular distance between the planes of the mouth of the ascending and the beginning of the descending aorta, respectively. It also turns this blood through a semicircle in its course through the arch. In the left lateral this resistance is absent. The force of gravity alone would be sufficient to take the blood around the arch of the aorta after it reaches the top of the ascending portion. This increased resistance in the right lateral in turn produces a greater heart strength. It is clear, then, that the increase in P is due to an increase in Hs and R.

DISCUSSION OF EFFECTS ON PULSE RATE.

"The mere fact that the centripetal fibers which call the vagus into play by reflex action come chiefly from the heart itself, shows that one part, and a very important part, of the vagus function is to reduce the work done by the heart in the interest of the heart itself. We conclude, then, that the vagus acts as a protecting nerve to the heart, reducing the work thrown on that organ when, from fatigue or other causes, such relief is required by it. The fact, however, that there exists centripetal fibers which call the vagus center into activity, in such nerves as the sciatic and splanchnic, shows that the vagus mechanism may be called on to act in the in-

terests of other parts of the body whose circulation requires to be diminished. We conclude, therefore, that the vagus may be used by other parts of the body to diminish the blood pressure and the output of the heart, and thereby reduce the circulation.

"Among the organs whose protection against over-congestion is of the greatest importance, it need hardly be said that the central nervous system takes the foremost place. It is well known that if the intracranial pressure be raised artificially powerful excitation of the vagus center is produced. Vagus action also results from rise in the blood pressure in the systemic arteries, and the excitation thus produced can be shown to be due to the high pressure within the vessels of the central nervous system and not to any direct effect of the rise of pressure on the heart. We must, therefore, look on the vagus mechanism as a means by which the central nervous system gains protection against too great congestion.

"The dependence on the blood pressure of the degree of vagus action, and the readiness with which the vagus center in the medulla is called into play by a rise of the intracranial pressure, seem to us to indicate that the mechanism in question is especially employed in the interests of the central nervous system as well as the heart itself."

Now, if it be true that the vagus acts as a protecting nerve both to the heart itself and the central nervous system, it is clear that the reduced heart rate in the various positions of the body in the order named is in response to the action of the vagus in endeavoring to protect the heart and central nervous system against the increasing pressure.

SUMMARY.

1. The blood pressure increases in the brachials from the standing to the head-down positions, inclusively, in the following order: Standing, sitting, left lateral, right lateral, supine and head-down.
2. The greater the hydrostatic resistance in the upper portions of the circulatory system the greater the increase in pressure where the nervous and respiratory systems are kept normal.
3. An increase of resistance is accompanied by an increase in heart strength; the strength of the heart, therefore, will increase in the different positions in the following order: Standing, sitting, left lateral, right lateral, supine and head-down.
4. The pulse rate decreases in the same order that the blood pressure increases.
5. The decrease in the pulse rate is a conservative act on the part of nature to protect the heart itself and the central nervous system.

DISCUSSION.

DR. H. G. BRAINERD, Los Angeles, Cal.—Are these data altogether from pressure in the arm, or are they taken in any other way? Can they be taken in the temporal region or elsewhere? The Riva-Rocci apparatus, as I have it, is not adapted to use in the temporal region. I have been very anxious to find what the temporal blood pressure is and how it compares with the pressure in the arms. Would it not be necessary to use an air pad?

DR. WINFIELD S. HALL, Chicago—The Riva-Rocci apparatus, as it is furnished to us by the medical instrument houses, is not adapted to taking any measurements except those on the arms or legs. A very easy adaptation can be made for taking the pressure in the temporal artery. One has only to put a band around the head, insert an inflatable bulb between the band and the temporal artery, and inflate the bulb sufficiently to cut off the temporal pulse. Having thus a method of determining the pressure in the temporal artery, we could, at the

same time, take the pressure in the brachial artery; and also perhaps that in the popliteal artery. With these three observations taken simultaneously one could compare not only the three different pressures, but could also get an idea of the average arterial pressure.

TREATMENT OF FRACTURES OF THE PATELLA BY LATERAL SUTURES.*

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The question as to the operative versus the mechanical treatment of fracture of the patella has been ably discussed in a number of papers in the last few years. Some of these have been read before this Association.

I do not intend to reopen this discussion, inasmuch as my contribution deals only with a detail in the technique of the open operation; yet it is only fair that, in order that I may not be misunderstood, I should state my position in the matter; the more so, since the principle of my technic is closely linked with the reasons for my views in regard to the treatment in general.

Fractures of the patella are divisible into two classes—those caused by direct and those caused by indirect violence. Or, as von Mikulicz¹ has very aptly put it, "blow" and "tear" fractures. To this classification he also added another which was the result of both, or a "combination" fracture.

The difference between the "blow" and the "tear" fracture is well known to all, yet the importance of its bearing on the question of treatment seems to be generally overlooked. In the fracture by direct violence, usually the bone alone suffers, and although it may be comminuted, there is little separation of the fragments. In the "tear" fracture, on the other hand, not only the bone but the lateral expansions of the quadriceps muscle on either side of the patella are likewise torn, and there is considerable separation of the fragments. In the "combination" fracture the injury to the soft parts is similar.

Great stress has been laid on the interposition of fibrous frills from the torn aponeurotic structures covering the patella by the advocates of the open operation. This interposition does not occur in the "blow" fractures, because these structures are not frilled.

The fractures by direct violence or blow fractures, then, do not offer indications for open operation, except for the reduction of otherwise irreducible displacements of the fragments, and in practice their treatment by mechanical methods will be found to yield excellent results. On the other hand, the treatment of the "tear" fractures by mechanical means is extremely unsatisfactory. These cases, unless contraindications exist, by reason of age or disease, should in my mind be operated on, particularly those to which a sound limb is a necessity.

The indications for operation consist, then, not in the extent of injury to the patella itself, but to the lateral extensions of the insertion of the quadriceps extensor muscle. The importance of these structures has been emphasized by von Mikulicz,¹ who termed them the "para patella ligaments." I have been accustomed to call them the lateral patella ligaments and for convenience shall adhere to that term. They are strong aponeurotic structures, which are directly connected

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

1. J. von Mikulicz: British Med. Jour., Dec. 13, 1902, p. 1828

with the tendon above and with the ligamentum patellae below, and, in fact, extend its insertion laterally to the tuberosities of the tibia. On their deep surfaces they are intimately blended with the capsule of the joint.

In direct fractures of the patella, the lateral patella ligaments remaining intact, considerable power of extension is present, although the patient may not exercise it on account of pain. In such cases when voluntary trials at extension are made or when the knee is passively flexed little separation of the fragments will result. The function of the ligaments is so important that when these structures are torn as in the "tear" fractures, no operation based on the suture of the patella alone is correct. The lateral patella liga-

ment should be sutured as well. In fact, I have gone so far as to rely on suture of the lateral patella ligaments alone in the treatment of "tear" fractures, only employing enough other sutures of fine catgut to coapt the remaining fibrous tissues.

The steps of the operation are as follows: A curved transverse incision, one centimeter below the line of fracture and long enough to sufficiently expose the tears in the lateral patella ligaments, is made. The fringes of the aponeurotic tissues, which are usually found closely applied to the surfaces of the fracture are separated and trimmed off with seissors, and the blood clots washed out of the joint with a stream of sterile salt solution. All these manipulations are performed with instruments; not even the gloved fingers touch the tissues. Irritation of the synovia by sponging is abstained from.

A suture of strong chromicized catgut, No. 4 preferably, or kangaroo tendon is then introduced in the lateral patella ligament on each side of the patella in the following manner: A strong, full-curved Hagedorn needle is inserted one centimeter from the line of fracture and as close to one of the fragments as is possible, and brought out in the line of the tear just in front of the synovia; again introduced at a similar point at the margin of the opposite torn surface and hugging the other fragment it emerges one centimeter from the line of fracture on the anterior aspect of the lateral liga-

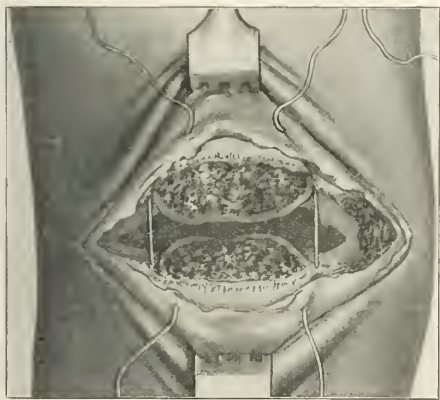


Fig. 1.—Showing the method of introducing the sutures close to the sides of the fragments and in front of the synovia.

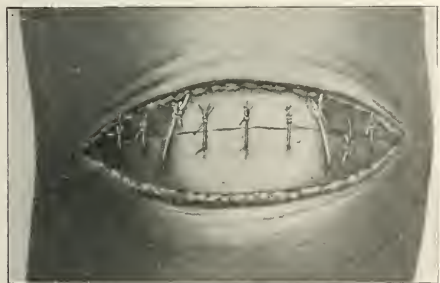


Fig. 2.—Main sutures tied with others to repair the extensions of the tears in the lateral patella ligaments and coapt the tissues in front of the patella.

ment (Fig. 1). The sutures are introduced on both sides of the patella before tying. It is very important that the sutures should be introduced as closely as possible to the fragments. The sutures are now tightened and tied simultaneously, and the coaptation of fragments will be found to be so exact (Fig. 2) that the slightest movement on one another in any direction is absolutely impossible on account of the interlocking of the slight irregularities of the surfaces.

OPERATION.

The coaptation will be good even if the fragments are comminuted, provided the sutures grasp the tissues beyond the fragments.

The reason for the accurate coaptation lies in the fact that the stress of the sutures is exerted at right angles to the centers of the surfaces of the fracture, a feature which is not accomplished by any other method of suture with the exception of the purse string.



Fig. 3.—E. W., female, age 35 years. Refracture of right patella. X ray four weeks after second operation.

One or two additional chromicized sutures of somewhat smaller size are used to repair the extensions of the rents in the lateral ligaments, and the aponeurotic tissues in front of the patella are united with a few fine catgut stitches, the point being not to introduce any more sutures that are not readily absorbable than are absolutely necessary (Fig 2).

The cutaneous wound is closed with silkworm gut without drainage.

The whole procedure should not occupy more than fifteen minutes.

The advantages of the method are its simplicity and ease, the avoidance of prolonged manipulation and traumatism, which is unavoidable when the fragments are bored for sutures; the exertion of the lines of the restraining force in the most efficient direction; the absolute coaptation; use of absorbable sutures and its rapidity.

In regard to the last point, I think that it is generally conceded that with the present perfection of aseptic technic as regards instruments and gloves, infection occurs almost in direct proportion to the length of the operation and the consequent traumatism of the tissues.



(Left knee.)

(Right knee.)

Fig. 4.—T. B., male, age 19. Fracture left patella junction lower one-third and upper two-thirds. Tear later ligaments $\frac{3}{4}$ inch on each side. X-ray 2½ years after operation. Union and function perfect.

The after-treatment is the usual one. A molded plaster splint is put on, which is removed daily for massage after the fifteenth to the twentieth day.

In regard to the time for operation, I consider it is well to operate as soon as is convenient after the injury. I do not wait for the effusion to subside. In fact, I think it a distinct disadvantage to delay operation over four or five days, since after that time the tissues begin to heal in abnormal relationship, and the difficulty in properly coapting them is thereby increased. Also by then, the fibrous fringes become attached to the surfaces of the fracture and fresh hemorrhage is provoked in separating them.

RESULTS.

I have used this method exclusively for three years, and during that time have sutured by it twenty-two fractures of the patella, two of them being refractures. Of these cases two have been done so recently that the

result as regards bony union is still undetermined. In the remaining twenty, bony union was obtained. There have been no infections, the wounds healing in all *per primam*.

In regard to the restoration of function. Some have passed from observation before the motions of the knee were absolutely free, but in all the cases that I have been able to trace, three months after operation the motions of the knee have been perfect, with one exception to be mentioned later. In the earlier cases I was not so particular in instituting early massage, and some of these cases were left in splints for six weeks; consequently, the motions of the joint were limited for longer periods than would otherwise have been the case.

Two patients refractured their patella. One of these was a laborer, 39 years of age. The original fracture was by indirect violence, and was accompanied by considerable separation and tearing of the lateral patella ligaments. The fracture was a clean transverse break. Two months after the operation, while walking, he slipped on some ice and refractured it. He immediately reapplied for operation. At the operation the surfaces of the break were found to be as rough and sharp and bleeding as freely as when first fractured, and there was not the slightest evidence of fibrous union. Furthermore, there had been a considerable formation of new bone on the sides of the patella at the ends of the original line of fracture. Union had been bony, but the time elapsed (two months) since the first fracture had probably not been sufficient for the new bone to become as dense as it would have later. The second operation resulted in good union, but there was a great deal of thickening of the soft tissues and considerable stiffness remaining when the patient passed from observation some three months afterward.

The other case was a negress, 35 years of age. The original fracture was a transverse one, with tilting of the lower fragment, so that its fractured surface was directed forward. There was considerable separation. The result of the first operation was perfect as regards union and function. Seven months later she fell and refractured it. At the operation I was at first unable to determine whether the fracture was at the site of the original one or not, the surfaces were so sharp and rough. Finally, I noticed that the fractured margin of the articular cartilage was somewhat rounded, showing that the line of the second fracture coincided with that of the first. The result of the second operation was excellent. Figure 3 is from a radiograph taken thirty-five days after operation.

In these cases there was no evidence at the second operation of there having been any interference with the circulation in the fragments as a result of the original procedure. In fact, in one of them there was considerable proliferation of new bone at the sides of the patella at the points where the greatest stress from the sutures was exerted. In some of the cases in which there was comminution of the fragments there has been a marked production of new bone during the process of repair, thus adding considerably to the size of the patella. This is evident in the accompanying radiograph (Fig. 4).

In the preparation of this paper I endeavored to get radiographs of as many of the cases as possible. Although I heard from many of the cases I could only get six to come for radiographs. In all of these both knees were taken, and the comparisons of the patella were interesting, particularly in regard to the enlargement of the bone as a result of comminution.

DISCUSSION.

Dr. JOHN H. GIBBONS, Philadelphia—The improved technique added to our knowledge of the pathology of fractures of the patella have gradually increased the indications for operation on this condition. One supposed contraindication to operation is age, but the excellent result I recently obtained in a man over 60, operated on ten weeks after fracture, convinces me that age alone is no longer a contraindication. I showed this case at the Academy of Surgery recently and demonstrated a perfect restoration of function. There is one contraindication to which we should always give consideration, and that is alcoholism. Delirium tremens is a common and serious complication in fractures. The incision is an important point. The old straight incision should be relegated to the past and Dr. Blake's curved incision extending just below the line of fracture is much to be preferred to the straight one. With the straight incision you can not satisfactorily perform the operation as it is impossible to get at the lateral ligaments. I use a horseshoe-shaped incision for all operations on the patella and its bursae. The question of sutures should be referred to and I do not believe that wire is required for the satisfactory union of this fracture. I agree with Dr. Blake that the absorbable suture is the better. We will get practically as good results by suturing only the tendon as by suturing the bone. The avoidance of rough handling of the tissue is important, as traumatism of this character is more apt to result in infection than probably any other one thing. Early massage is an essential in the after-treatment. We are apt to keep the limb quiet too long. We can make the mistake, however, of giving massage and movements too early, as I did in one of my cases. The man was out of bed at the end of two weeks. The result was only some swelling and ultimately the limb was just as useful as in other cases. I want to lay stress on the fact that massage is an essential part of the after-treatment.

Dr. G. T. VAUGHAN, Washington, D. C.—The incision depends on the case. For recent cases I believe the horseshoe or transverse incision is better, but in old cases, with a good deal of separation of the fragments, the longitudinal incision is better. The transverse incision can be reinforced if necessary, but a long longitudinal incision is the better. This method of uniting the lateral ligaments has been usually done in fractures of the patella. I always unite the lateral ligaments when they are lacerated. I have seen cases where there was very little laceration of the ligaments, as in fractures from direct violence. As to the suture, at first I thought it was almost inexcusable to put silver wire into the knee cap, but I have had good results follow the use both of kangaroo tendon and catgut. I have also seen some bad results, but they were not my cases. Sometimes the animal suture gives way too early, and recently I have been using silver wire on this account. To get patients up early the fragments should be fastened together with silver wire, though, as a surgical principle and as a rule I do not approve of the non-absorbable suture. The old cases sometimes give trouble when there is a great deal of separation. I would like to know the best way to get the fragments together. I have used two methods, one of which was to split the tendon of the quadriceps down, cutting across on opposite sides above and below, and the other was to make an oblique cut across it and slide it down. Both of these have been followed by good results, and I have had no particular weakening of the quadriceps extensor. I have had 19 cases altogether of operation for fracture of the patella. In one of the earliest I used the old Barker method and got a fibrous union. Bony union resulted in all the other cases. I had one patient with a refracture of the patella, the fracture occurring at a different site, one-third of an inch above the original fracture.

Dr. C. O. THIENHAUS, Milwaukee—In April of this year I operated on a man who fractured his patella two years ago in South Africa. After having been confined in the hospital at Rhodesia and having been treated by conservative non-operative methods for nine weeks, he left the hospital with an apparatus without union. When I saw him the distance of the fragments was about 15 cm., his leg almost useless, the condi-

tion having grown worse within the last year, and he was unable to extend his leg when it was flexed. The difficulty of getting the fragments together in such cases is very often enormous and different methods of lengthening the rectus femoris muscle have been proposed. Some years ago von Bergmann advised chiseling off the tuberosity of the tibia with a wide chisel. Thereby the inferior fragment is made movable and later heals higher up. In many cases this method alone has proven sufficient to get the fragments together, but this was not possible in my case. I, therefore, combined this method with one of the methods of lengthening the rectus femoris, that is, by a Z-shaped incision through the muscle. After this I succeeded in getting the fragments together and wired them with three silver wires, one of which was removed four weeks after operation. The result has been satisfactory; bony union was obtained. He walked without the aid of a cane eight weeks after the operation. There is still some stiffness in the joint which must naturally be overcome by bending the knee gradually to avoid a refracture.

Dr. J. F. BINNIE, Kansas City, Mo.—I do not think bony union is of very much importance. Thoroughly good fibrous union between the fragments seems to give every bit as good functional results as is possible. I have never yet wired the patella simply because by following a method similar to Dr. Blake's and getting free exposure of the lateral ligament, I have gotten just as good results. There is no use bothering with wire. I would strongly advise, 1, early operation before there has been time for marked changes to take place in the tissue, and 2, thorough operation and suturing of the lateral ligament. I use catgut, either plain or very mildly chromicized. I very much dislike strongly chromicized catgut.

Dr. D. N. EISENDRATH, Chicago—I was obliged to resort to a similar method to that described by Dr. Blake about one year ago in a case of fracture of the patella. The operation was performed twenty-four hours after the injury, and my original intention was to drill the upper and lower fragments respectively, and unite them by means of a kangaroo tendon. Unfortunately, just at the moment when most needed, the drill failed to act, and I was obliged to utilize simply the periosteum covering the anterior surface of the patella in order to get a basis of support for my sutures. I used one kangaroo tendon over the center of the patella, inserted in a mattress fashion, and was very careful to turn outward the edges of the periosteum at the line of fracture believing that this turning in of the periosteum, thus separating the bony edges, will often prevent good union. I fully indorse the point made by Dr. Blake as to the necessity of inserting sutures through the aponeurosis of the quadriceps lateral to the break in the patella, because the fracture of the patella is almost invariably accompanied by a more or less severe laceration of the aponeurosis. I agree that fractures of the patella should not be operated on unless the most aseptic conditions prevail. The early use of massage to overcome the atrophy of the quadriceps is of the greatest importance.

Dr. J. B. BULLITT, Louisville, Ky.—The phase of the subject presented by Dr. Blake has not had the wide recognition that it deserves, and it seems to me that we should change the nomenclature. Instead of sticking to "fracture of the patella" we should say "rupture of the lateral ligaments" of the patella. The attention of the surgeon has always been directed rather to the broken bone than to the ruptured ligaments. We should keep our attention confined to the latter. Dr. Binnie says that he does not give any attention to the fracture of the patella, and he is about right. It has been demonstrated that the patella is not essential and that a perfectly strong joint can be had without it. The separation of the fragments with non-union and the resulting disability has oftentimes led to the impression that it was the non-union which led to the disability, whereas it was simply the lengthening that caused the trouble. I am glad to report that success in this operation has no geographical limitations south of Mason and Dixon's line just as north of it. I have operated on three patellae in two cases and have obtained quite satisfactory results. As to the time elapsing before operation, Dr. Blake says that four or

five days is all that is necessary, and that further time is really a disadvantage; but this is not in accord with the teaching of some of our best surgeons. Some of them have told me that it is much safer to let the cases go ten or twelve days before operation. Probably the danger of infection is less by waiting and the injured tissues are in better shape to take care of themselves. The delicacy of the technic of the operator will necessarily bear some relationship to the time at which he might operate. If a man knows exactly how to manipulate tissues he might venture to operate at an earlier time than a less skilled man. For most surgeons it would be better to wait longer. As to the necessity of keeping the fingers out of these wounds, this can not be too strongly dwelt on. Our chairman advised years ago that we keep our fingers out of wounds of this nature. Most of you are familiar with his work on this subject, and I am sure we should all like to hear from him.

DR. C. H. LEMON, Milwaukee, Wis.—The increasing speed at which street railways are operated is increasing the number of these cases. The operation described by Dr. Blake requires little or no handling of the tissues, which is one of the most important features in an attempt at operation in these cases. I say "attempt" because I wish to raise my voice in warning, by calling your attention to the fact that many of the cases operated on have not had the excellent results reported by Dr. Blake. Occasionally a man riding on a car will lose his hat and jump off before the car stops. We had such a case in Milwaukee where the man fractured both patella. I do not believe the man lives who should attempt to operate on both patella at the same time. I have in mind just such a case and as both suppurated the man's condition was pitiable. The advantage of the operation in young men is that it shortens the disability. If a fracture of the patella is treated by the old plan it will take six months, but if an operation is done as described by Dr. Blake he may go back to work in eight weeks.

DR. CHARLES A. POWERS, Denver—Some years ago I made a report to the American Surgical Association on the question of operation in recent fractures of the patella. I approached the subject with a decided opinion that operation was unwise, but after thorough study I was convinced that it has a very legitimate place in surgery. Where there is no contraindication operation is not only permissible but advisable. Dr. Blake's paper adduces splendid results and I am impressed by his method of local suture. We all endorse Dr. Lemon when he says that the operation of suturing a broken patella demands perfection in aseptic technic.

DR. JOSEPH A. BLAKE—I purposely did not include the treatment of old fractures in my paper and consequently did not mention the cases I have treated. The method I have used is not new, since the treatment of these cases by suture of the lateral ligaments has been done for some time, although the chief reliance has been placed on the sutures in the capsule in front of the patella. My only possible claim for originality exists in my contention that suture of the lateral ligaments is alone sufficient, and in the method of introduction of the sutures. The sutures must be introduced very closely to the sides of the fragments in order to hold them firmly and prevent them from moving laterally on each other. The sutures should actually grasp the bone, as shown in the drawings. As to the suture material, its nature is largely a matter of preference. I have always made sure that it was sterile and then have felt safe. In most of my work on fractures in the neighborhood of joints I use a very mildly chromicized catgut. I prefer the chromicized to the plain, as the plain catgut soon becomes soft and its surface slimy. The chromicized gut does not become slimy and does not untie. In order to make a plain catgut suture knot hold we must put a large amount of foreign material into the wound by having to tie it many times. In chromicized gut this is not the case. If the gut is chromicized too much we then introduce a substance which is worse than silver wire, because we not only have a non-absorbable material, but we have in addition a chemical irritant. As to the time for operation when I have operated about a week after the injury, in many cases I have

found that attempts at repair had already taken place, and I have had to cut away granulation tissue extensively in order to oppose fresh surfaces. I now operate as soon as possible after the case comes into the hospital. I like to have twenty-four hours' preparation, and as a number of these cases do not apply until twenty-four hours after the injury, two days usually intervene between the accident and the operation. It is better to operate early than late, although I have not observed any great difference in the results except that repair is more rapid in early operations. In the suturing of an old fracture, of any bone, the repair is not nearly so rapid as it is after a fresh fracture. Union is often delayed for double the period in old fractures as compared with fresh ones.

THE ETIOLOGY OF HAY FEVER.

THE RELATION OF THE CHEMISTRY OF THE SALIVA AND THE NASAL SECRETIONS TO DISEASES OF THE MUCOUS MEMBRANE OF THE MOUTH AND UPPER RESPIRATORY TRACT.*

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PHILADELPHIA.

While this paper has special reference to the etiology of hay fever, it is necessary to go into the chemistry and pathology of the saliva and nasal secretions before taking up the special subject. In doing this, I take the liberty of quoting from my previous papers on the subject.

In the chemie study of the nasal and salivary secretions we may conveniently classify them under three varieties: First, secretions, non-irritating *per se*, which on exposure (when coming to the surface) undergo some chemie change producing an irritant; this may be noted in either an acid or alkaline secretion. As I will show later, an exceedingly alkaline secretion is decidedly more irritating and productive of a more destructive pathologic process than even a strongly acid secretion. Second, secretions which are irritating *per se* when poured out on the surface. Third, secretions which come to the surface in a non-irritating form, but on coming in contact with extraneous material are rendered irritant.

Two great principles which have been satisfactorily demonstrated are these: In highly alkaline conditions there is an exaggerated oxidation process and the chemie change takes place in the secretion after it is poured out. This is of the greatest importance in nasal, laryngeal and pharyngeal lesions, and is also of immense significance in pathologic changes in the gums and about the teeth, as highly alkaline secretions will cause external irritation more quickly than an acid secretion. In highly acid conditions the oxidation process is incomplete, hence there is a greater tendency to precipitation of material within the tissue, with the necessary pathologic alteration—an infiltration process.

Michaels¹ of Paris was the first, I believe, to call attention to this subject, not in medicine, but in relation to dentistry. Kirk of Philadelphia has also taken up the investigation.

For the chemical formulæ employed in the laboratory investigations reference may be made to Michaels' article, as they are practically the same as my own.

Naturally it was necessary to investigate the histochemistry of a normal secretion, concerning which subject the literature is very meager, before taking up its pathologic or chemie changes. The saliva is the mixed

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secretion of the parotid, submaxillary and sublingual glands, and the small mucous glands of the mouth. Physiologically, three kinds of secretion may be distinguished—a serous, from the parotid gland; a mucous, from the mucous glands, and a mixed secretion, from the submaxillary and sublingual glands. Mixed saliva is opalescent, tasteless, generally alkaline, and has a specific gravity of 1,004 to 1,009. Saliva contains serum albumin, globulin, mucin, urea, an amylolytic ferment called ptyalin, and a proteolytic and lipolytic ferment; also salts, the most important of which are ammonium, sodium and potassium and the sulphocyanid combinations derived especially from the parotid gland. The nasal secretion is practically the same as the salivary.

The ammonium salts and sulphocyanids in healthy saliva are in equal proportion and in very small quantities; in the hypoacid condition the ammonium salt exists in greater quantities than the sulphocyanid, and tends to rapid decomposition, and changes quickly when poured out on the surface. In the hyperacid condition the sulphocyanid is in excess, although it may be present in the hypoacid conditions, and the tendency to decomposition is not so great as in the hypoacid condition until exposed to moisture or air, and the chemic action has caused alteration of the compound.

In hyperacid conditions the sulphocyanids are in greater proportion than the ammonium salts, and the secretion is less irritating, while in the hypoacid state the ammonium salts are in excess of the sulphocyanids and the secretion is decidedly irritating, and in many cases in which I have been able to examine the secretions, especially of hay fever patients, this hypoacid condition has existed.

My studies of the saliva have been very much in the same chemic line as Michaels'. First, the study of the normal healthy saliva; second, the saliva from hypoacid individuals; third, the hyperacid condition. To this I have added the neutral or irregular cases, which are neither normal, hyperacid, nor hypoacid.

From my investigations, I found that the reaction of the salivary and nasal secretions as given by the ordinary litmus test was often faulty and misleading, that owing to chemic changes which had taken place after the secretion is poured out on the surface of the membrane the reaction of the secretion changed. This was of the greatest importance from the standpoint of treatment, as the reaction might show precisely the opposite of what existed in the secretion as it came from the gland proper. This has been verified by Kirk of Philadelphia, who has shown by his investigations that the neutral sodium phosphate is frequently present. This may be the cause of much confusion in testing the chemic reaction. This is especially true in the hypoacid conditions. Kirk also agrees with Michaels that the polariscope is of the greatest value, and a direct aid in the chemic study of these secretions. He has also shown, to quote his own words, that

The neutral sodium phosphate occurring so abundantly in the hypoacid conditions has been put down in earlier works as ammonium chlorid. The appearance of the two compounds is very similar until a special study has been made of them. However, the so-called neutral sodium phosphate is really alkaline, and the alkalinity of the normal saliva may be measured in terms of sodium phosphate, with sodium carbonate and bicarbonate. Both are found in normal and hypoacid saliva, but in different amounts.

When we came to the hyperacid individual we had an entirely different aspect. Here we had an individual producing large quantities of CO₂, more rapidly than it can be eliminated,

the excess being dammed up in the plasma of the blood, existing as H₂CO₃. The normal reaction by which this over-acidity is taken care of by the renal epithelium is H₂CO₃+HNa₂PO₄=H₂NaPO₄+HNaCO₃, but when the conditions are such as to produce larger quantities of carbonic acid than the kidneys can eliminate as sodium acid phosphate, other epiblastic structures take on the same action and there is a higher acidity of the saliva as well as the urine. A curious chemic feature of this matter is that the acid sodium phosphate and the neutral sodium phosphate might exist in the same solution without neutralizing each other, giving a solution that would turn blue litmus paper red and red litmus paper blue, the so-called amphoteric reaction.

The appearance of the lactophosphate of calcium in the saliva and urine indicates certain diseases of the liver. Dr. Kirk has been led to this conclusion from reading the researches of Minkowski, who found, in a series of experiments on geese, where he had removed the liver, that they then excreted, instead of uric acid and the urates, the ammonium lactate, and he deduced from these experiments that one of the functions of the liver was to convert ammonium lactate into urates, as the appearance of lactates in excessive amounts in the excretions, especially the urine, is indicative of a disordered liver function.

The condition of neutral, hypoacid and hyperacid conditions can best be illustrated by cases. The excessively alkaline condition is observed more frequently in hay fever, although either one of the three, the hypoacid, the hyperacid or the neutral condition may exist.

STRONGLY ALKALINE CONDITIONS.

The following case illustrates this condition:

Dr. B., who had been suffering from an irritating, rasping cough since September, 1902, was referred to me in January for an examination of his throat. The symptoms presented were principally the cough, with hyperemic and irritated mucous membranes, though the congestion and swelling were not in proportion to the severity of the cough. The cough was persistently spasmodic, almost resembling paroxysms of whooping-cough, except more often repeated. There was decided hoarseness and congestion of the vocal cords. The chest examination was negative, with the exception of slight bronchial rales. Here and there on the mucous membrane were small hemorrhagic spots, which I believe had been produced by the violent irritation caused by the spasmodic cough.

Examination of Saliva.—The saliva was found to be hypoacid, the ammonium salts being in excess, and when the secretion came to the surface there was liberated free ammonia gas, which was in sufficient quantity to produce the irritation.

Treatment.—On this basis the treatment was administered, all the organs of elimination were stimulated, and the chemistry of the secretion was changed to acid or neutral reaction, following which change the cough disappeared within a few days, the irritation rapidly subsided, and in ten days all inflammation had disappeared with the exception of some slight localized areas, which probably had been brought about by the persistent coughing, and these areas rapidly yielded to local treatment.

In so many cases in which the objective symptoms were in excess of that which the local lesion would justify, I have found that the irritation was brought about by some altered chemistry of the secretion, and that the local lesion was merely a manifestation and result of this alteration.

To review the chemistry, ammonium is a hypothetical alkaline base, having the composition of NH₃; it does occur in a free state, however, in the form of ammonia gas, NH₃, the inhalation of which is very irritating to the mucous membrane and causes suffocation and edema of the glottis. As the ammonium salts usu-

ally exist in combination with other materials, is it not likely, in certain conditions in which the secretions are hypoaoid, that when the secretion comes to the surface of the mucous membrane, owing to its chemie combination with oxygen, there is liberated NH_3 , the irritating ammonia gas? Surely the symptoms, identical with those produced by ammonia gas, in many cases justify this conclusion, and the chemie study of the secretions supports this view.

Many cases of hay fever illustrate this point, although in hay fever the nasal secretions may be either hypoaoid, hyperacid or neutral, or irregular.

ETIOLOGY.

The numerous theories as to the etiologic factor in this disease prove conclusively that as yet there has not been established a definite cause. It may be that different conditions act as etiologic factors; in fact, it is my belief that not all cases which we call hay fever, or hyperesthetic rhinitis, are due to any one cause; or, if to any one factor, that factor must be the altered chemistry of the secretions of the individual. In fact, I am persuaded, after making a series of examinations of the saliva in certain individuals afflicted with hay fever and those not so afflicted, that in some cases the causes, direct or indirect, of local irritation in the nasal mucous membrane are brought about by chemie change in the constituents of the secretions of the mucus-secreting glands. Treatment based on this view is certainly most effective. Sensitive areas within the nasal cavities, or irregularities in formation of the cavities themselves, are factors in some cases, yet such areas or irregularities, instead of being etiologic, are merely auxiliary factors, which render the individual more susceptible to the irritant from within.

It is a well-known fact that in many cases of hay fever the irritation is not limited to the nasal mucous membrane; the conjunctival, buccal, pharyngeal and laryngeal mucous membrane, and even that of the stomach and bladder, may be markedly involved. This could scarcely be explained on the basis of a reflex neurosis. In such cases the mucous membrane suddenly becomes engorged, and is exceedingly sensitive, with profuse, watery, irritating discharge. This comes on suddenly, often without any apparent external irritant, and at times looks very much as though there was an effort on the part of the mucous membrane to rid the system of material which had just reached a certain point of accumulation.

The question may be asked: Why does hay fever come on at certain times of the year? That climatic and atmospheric conditions produce changes in function and secretion, that certain diseases are prevalent at certain times of the year, and that under certain climatic and atmospheric changes individuals are more susceptible to disease, has long been observed. This may be due to some condition of the individual which renders him susceptible to disease, owing to lowered cell resistance and altered chemistry, since temperature and climatic changes do affect the chemistry of the secretions. As to the effect of pollen in certain cases, is it not possible that, owing to some peculiar constituent of the secretion of the mucous gland, there is deposited in or on the nasal mucous membrane certain materials which, when brought in contact with certain extraneous materials as pollen, through some chemie action produces a material which brings about the irritation and causes an attack of what is known as hay fever; or that the extraneous material merely acts as a stimulant to the mucous glands

and causes a flow of mucus, which, owing to its altered chemistry, acts as an irritant?

This is exemplified in the cases in which the ammonium salts bring on an attack identical with that produced by the rag-weed pollen. If the administration of the tincture of rag-weed produced immunization to hay fever, it must do it through the secretory function, and the chemistry of the secretions would be such as to contain no materials which, when coming in contact with the pollen of the plant, would produce any irritating substance. I have seen cases illustrating this point.

There is no question that the irritation is caused by some product of chemie action. The question involves organic chemistry, and any one familiar with the work recognizes the time and labor necessary to work out such chemie formulæ. I have, however, done sufficient laboratory work in the past eight years to convince me that on this basis we can relieve many cases of hay fever. That the chemistry of the secretions has to do with the causal factor, I have illustrated in a number of cases by rapidly changing the reaction of the secretion either from acid to alkaline or from alkaline to acid, or rendering it neutral, and in many instances I have been able, either partially or wholly, to cure the attack.

Certain individuals will have, at any time in the year, an attack which is quite similar to hay fever. The individual may be sitting comfortably at home, subject to no draughts or exposure whatever, when he is suddenly seized with congestion of the nostril, followed rapidly by the thin watery discharge of a decidedly irritating nature, free lachrimation, with burning and itching in the nasal cavities, eyes and nasopharynx. Frequently associated with this is a slightly asthmatic tendency. It can not be cold; it is something in the nasal secretion, and when the secretion comes to the surface and in contact with the air there is liberated some material (chemie) which acts as an irritant to the vasomotor system (peripheral terminal nerve filaments) and causes sudden congestion. Such attacks are quite like inhaling ammonia fumes, and in such cases there is present an excess of ammonium salts in the saliva. Owing to some chemie change in the secretions of the individual there is accumulated material within the system, which in the point of accumulation reaches that period in which it overflows, and the secreting glands liberate on the surface this material, which when exposed to the air undergoes a chemie change. In many instances, on examination of the saliva and the nasal secretions there has been found an excess of the sulphocyanids and the ammonium salts. When this secretion is exposed to the air, free ammonia is liberated, which I believe to be in many cases the cause of the attack. The symptoms produced are identical with those of the inhalation of ammonia fumes. When the secretion is exceedingly alkaline the patient will often have symptoms identical with those of articular rheumatism.

CASES IN WHICH THE SECRETIONS ARE HYPERACID.

The following case is an illustration:

Mr. C., aged 42, consulted me in regard to what he supposed to be a catarrhal condition, associated with ozena. His breath was most offensive, but, although pronouncedly so, it was not the penetrating, clinging odor observed in atrophic rhinitis with ozena. He had observed the condition rather suddenly, and it had existed continuously for some four or five years. His history was absolutely negative as to any catarrhal condition other than an occasional cold. He had consulted specialists both in this country and abroad, not only as to the possibility of the odor coming from the nose or some of the accessory cavities, but had also consulted specialists on dis-

eases of the stomach, as well as having had a thorough inspection of all his teeth. He had been told that he had practically no catarrh, and, as his digestion was good and nothing found wrong by analysis of the contents of the stomach, it was quite puzzling as to the source of this odor. After a thorough examination, and knowing that the men under whose care he had been were most thorough and competent in their line, I reasoned that there must be some source of the disagreeable odor outside of the parts already mentioned. As this was in the winter of 1895, and as my attention had been called to the importance of the secretions by other conditions, as well as a statement made to me by the patient, I decided to investigate the saliva. The statement which he made to me, which was most significant, was this: "That, while his appetite was very good, and when his olfactory nerve was stimulated by the odor of a delicious meal, causing his mouth to water, the disagreeable odor and taste became so pronounced as to almost nauseate him." I then collected some of the saliva. The method used for its collection I learned from my experience in a dentist's chair, that while sitting with your mouth wide open for a few minutes you have a most profuse flow of saliva. This method, practiced just before meal time, enabled the collection of quite a large amount of the secretion. The offensiveness of the secretion was at once detected.

CHEMISTRY OF THE SULPHOCYANIDS.

In order to explain the chemie source of the offensive odor it is necessary to take up the chemistry of the sulphocyanids. As to the sulphocyanids which are present in the saliva, it is a chemie fact that most of the cyanids are actively poisonous and that a cyanid is formed, or is a compound, of cyanogen with a metal or radical. A sulphocyanid is a salt in which sulphur takes the place of oxygen in the acid radical. Cyanogen is a radical molecule having the structure CN , an acid compound of carbon and nitrogen. A radical is a group of atoms having unsatisfied valency, an unsatisfied molecule which goes into or out of combination without change to itself and which determines the character of compounds. A sulphocyanid is a combination, then, denoting the chemie combination of sulphur with a radical. When a sulphocyanid is eliminated the secretion in which the ammonium salts are in excess is alkaline, but when it comes in contact with the air, owing to the chemie change which takes place, it becomes an acid radical. Hence in many instances in which from our test we believe the secretion to be acid, it is really hypoaoid (alkaline). This is most important, and in many instances in which from the test reaction we are led to conclude the reaction to be acid, it is in reality in the system an alkaline reaction, and only becomes acid when, owing to chemie action due to exposure to air, certain materials are eliminated and the reaction changed. In some of the sulphocyanid combinations in which we get the bad odor, as illustrated in the above case, the chemie change causing such odor is as follows: Sulphur itself is an acid element, which unites with oxygen to form an acid radical, but in a sulphosalt the sulphur takes the place of the oxygen in the acid radical. The sulphocyanid itself would be a sulphosalt in which, in combination, the sulphur would take the place of the oxygen and give off sulphuretted hydrogen. In a sulphosalt the sulphur takes the place of the oxygen in combination to form an acid. A sulphocyanid is a sulphosalt, and when the sulphocyanid is in excess, when liberated and coming in contact with the secretion which contains moisture (H_2O), the sulphur would unite with the hydrogen, giving off free oxygen, and form hydrogen sulphid. A radical is a group of atoms having an unsatisfied valency, and is really unsatisfied molecules which go into or out of combination. It is possible, then, to have in a hyper-

acid condition many chemie combinations take place. This chemie result surely verified the olfactory diagnosis in this case.

CASES NEITHER HYPOACID NOR HYPERACID.

That cell nutrition depends on the chemistry of its supply is illustrated in disease processes associated with any form of infection or rise of temperature. This opens up an enormous field for speculation and investigation. The amount of infection, the peculiar chemie change produced by temperature, the materials absorbed into the body from infective processes, or the auto-infection from the intestinal tract, would in each condition produce its own peculiar chemie compound. Yet I believe a general basis can be reached, at least sufficiently accurate, from which to draw chemie and clinical deductions.

For example of peculiar effect on various structures in the body brought about by an altered chemistry in which the secretions may be neutral or irregular, I will quote from an article which was published in *American Medicine*, Feb. 8, 1903, in which I reported a number of cases of enlargement of the thyroid gland in which the cellular elements of the thyroid structure were increased, the enlargement not being due to distended vessels, cystic condition of the gland, or new growth.

I reasoned the matter out as follows: It is a well-known physiologic and therapeutic fact that certain drugs have a selective action on certain tissues or organs of the body, e. g., belladonna, with its selective action on the pharyngeal surface; sodium phosphate, with its selective action on the liver, etc. It is also a physiologic fact that the normal chemistry of the body controls the normal secretions from the various secretory organs, that any perversion from the normal necessarily alters the character and chemistry of the secretion, and that the products of such alteration act as irritants to certain parts of the body; the difference between this and drugs administered is that one is introduced into the body and one is manufactured within the body. I, therefore, reasoned that under certain conditions there is precipitated—due to perverted chemie reaction—a certain material which, circulating through the blood, had a selective action on certain tissues; in the cases observed such selective action occurred in the thyroid gland, acting as an irritant to that gland. While the treatment of these cases reported was somewhat theoretical, I believe, however, that the drug introduced into the body, by its chemie action, altered the chemistry of the material which was acting as an irritant, either rendering that irritating material inert or forming a compound which was non-irritating.

In regard to the pathologic chemie process producing such reactions of the secretion, it is a well-known clinical and laboratory fact that a study of the products of the secreting organs, which in their excretory functions throw off waste material, gives us by deduction a fair idea of what process is going on within the body. Yet this excretory secretion or material is altered in its chemie composition and controlled by the chemie constituents within the body proper.

There is no question that under certain conditions—for example, when the secretions are acid or alkaline—the chemie process taking place within the various secretory glands must vary, and the product of such variation in these unknown quantities must be somewhat the same as the variations we would obtain in dealing in the laboratory with known compounds. In other words, that the body is largely a chemie laboratory, having on hand

a certain amount of material and having added to it daily ingredients through the respiratory and alimentary tract. Now, any perverted condition from what is known as the normal chemistry may bring about a series of changes and produce chemie products which may be harmless or productive of disease processes. On no other basis can we explain the various diatheses and the precipitation of certain materials in the tissues of the body.

The altered chemistry of the saliva presents many possibilities from an etiologic standpoint. Many forms of lesions of the mucous membrane of the nose, nasopharynx, larynx, mouth and gums, as well as diseases of the stomach and intestines, may be brought about by the altered chemistry of the saliva. A great many morbid processes are traced to uric acid in some of its many forms, but I believe that many other substances, especially hyperacid conditions, equally important are deposited and eliminated, which substances act as irritants, producing apparent local lesions. It is a well-known clinical fact that saliva from certain individuals is exceedingly poisonous, as is indicated by the infectious wounds produced by the bite of such individuals, showing that the saliva may be the site of poisonous pathologic, as well as physiologic, compounds. This is especially true in the sulphocyanid cases.

Unquestionably the chemie reaction of the secretions of the body is an important factor in the susceptibility of individuals to disease. I think there is no doubt that the fact that at one time the individual resists disease and at another time succumbs can be largely explained on this basis. To be sure, it is a question of resistance on the part of the individual, but that resistance is largely controlled by the chemistry of the cell or secretion. It also demonstrates the fact of the accumulative phenomena of certain of the diseases, as is illustrated in uric acid diathesis, which Haig has described as the uric acid storm. There is no reason why these same phenomena could not occur as the result of the accumulation of other materials brought about by chemie changes which lessen oxidation and tend to precipitation and accumulation of various morbid products.

The administration of drugs for the relief of, for example, an infective process, probably affects such a process beneficially, owing to the fact that in its action it changes the chemistry of the secretions and blood constituents, thereby producing a chemie compound which either prevents the formation of infectious material or alters the nidus of infection to such an extent that it is not suitable for the growth of bacteria.

While my investigations are incomplete and fragmentary, I am convinced that from the study of the saliva we can determine to a great extent any variation in the chemistry of the body. As these various secreting glands receive from the blood the supply from which they elaborate certain chemie compounds, if an analysis were made of the composition of such secretions it would give a good index to the general condition of the individual, and while in many cases the deductions would have to be based on or associated with clinical observation, I have found them to be of immense value from a standpoint of diagnosis.

The fact that the reaction of the secretion may be apparently acid when there really is present an alkaline condition, explains to us many of the cases in which, from an acid basis, our treatment has failed. That such a condition may exist has been shown by Douin and Gautrelet in their studies of the blood; that the reaction of the plasma is really acid, and if waste prod-

ucts are not eliminated this acidity is increased. The secretions and excretions then also become of an acid reaction.

The irritating gases which form in the stomach and intestines and produce laryngeal and pharyngeal irritation, are the result of chemie changes in the intestinal secretion, and such chemie change in the secretion can be demonstrated by a study of the saliva. That auto-infections and chemie changes in intestinal secretions have a marked general effect on the individual is well known. Such material absorbed into the system will unquestionably alter the chemistry of all secreting glands, and the compounds formed by such alteration which affect the individual can only be determined by the study of organic chemistry. The asthmatic conditions which are not associated with any organic lesion, I believe can all be explained on this basis, and when treated accordingly can, in many instances, be relieved.

In examining the secretion and excretion of the body, we can obtain as good an index of the systemic condition of the individual by a study of the saliva as by a study of the urine; in the urine we have only an index of the waste material, while in the saliva we have products of elimination which return into the body to perform a physiologic process.

Another important factor to be worked out is the different chemie changes which take place in individuals suffering with so-called functional diseases and those suffering from organic or structural changes. In the functional we have a perverted chemistry, which may be brought about by many causes, such as faulty elimination, from the kidneys or liver, and perversion of secretion from the intestinal tract, autoinfection from the intestinal tract; also chemie changes of the secretion illustrated in mental tension from fright, worry and anger; while in the organic lesions we have to deal with a structural change in tissues, with retrograde metabolic changes, in which there is also associated inflammatory processes with their accompanying phenomena and physiologic and pathologic effect on the individual.

EFFECT OF CLIMATE AND ALTITUDE.

The effect of climate and altitude on hay-fever individuals is interesting from a number of standpoints. If the disease is distinctly a neurosis, why should the patient, as a rule, improve in a high, dry altitude, when such altitudes are decidedly irritating to a nervous individual? Why is it that an individual, after having hay fever for several years, will miss one season, or even two, having no treatment whatever? Personally, I think the answer lies in the individual, at least in a majority of cases, and that the secretions of such individuals having changed under certain conditions were non-irritating. The famous case of Mackenzie's, in which the artificial rose produced an attack of hay fever, surely is strong evidence in the line of neurotic origin. At the same time, in a nervous individual with a perverted nutrition and necessarily perverted secretion, any particle of dust or anything whatever that would stimulate the nasal mucous membrane would promote the flow of secretion, which secretion being decidedly irritating, would at once bring on an attack.

INDIVIDUAL VARIATIONS IN SUSCEPTIBILITY.

Another interesting fact is this: That in the cases which I have watched closely for the past eight years, the hay fever was no respecter of persons as to weight; that some individuals who were stout had the worst form of hay fever, while others who were very thin had equally bad attacks.

I also noticed that in a number of such individuals, when the secretions were changed and irritation ceased in some of the stout cases, they lost flesh rapidly, one patient losing as much as 40 pounds, while the thinner individuals improved in weight. This led to a comparison of the chemie examination of the various individuals. The very thin individuals in 90 per cent of cases had an excess of sulphocyanids which, of course, was acting as an autotoxic infection, while in the excessively stout individuals the reaction of the secretion varied, usually neutral or acid, which, of course, predisposes or causes lessened oxidation and increase of fatty tissues. Also that in individuals with an excess of the sulphocyanids, the individual always has the appearance of an autotoxic infection, deranged digestion and intestinal tract, and with the relief of this condition always shows rapid improvement.

Is it not possible that certain pollens coming in contact with the nasal mucosa, thereby acting as stimulants, promote the flow of secretion, and when such secretion is poured out on the surface either, as I have stated before, as an irritating secretion or when combined with the pollen, a chemie change takes place and an irritating material is produced? Dunbar's inoculation theory surely proves this statement, and agrees exactly with what I have said as to the secretions. Under this class of cases would come the rose cold, the ragweed, the horse fever, hay fever, rye fever, etc. Think of the difficulty of procuring an antitoxin for horse fever! In all such cases I think that the secretion is the predisposing and the extraneous material or pollen is an associated factor.

As is shown by Dunbar, the inoculation method is not successful in all cases, which is easily understood, as the chemistry of the secretions in the various individuals are markedly different; so that instead of an antitoxin for exciting factor, use preventive measures by altering the secretion. My own experience surely justifies this statement. Unquestionably, certain individuals, owing to the low grade of their vitality and neurotic temperament, are more likely to be subjects of this disease than persons of healthy type; nevertheless, many individuals of most perfect physical condition are the worst sufferers from this peculiar and annoying disease, and while I do not wish to be understood or quoted as saying that all cases of hay fever can be cured on this basis, my own experience does show that between 80 per cent. and 90 per cent. of the cases can be relieved and cured. When I say cured, I mean in the same sense as you would speak of curing a cold, and most certainly if the condition of the secretion changes and the irritating material returns, if the individual is exposed to the same irritants, he most certainly would have another attack.

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DISCUSSION.

DR. E. C. KIRK, Philadelphia—My interest in this matter originated with a paper read by Dr. Michaels in Paris in 1900; subsequently I spent some time with him in his laboratory and went over the subject in detail. I have been studying the changes in the saliva since that period, and have become convinced of the importance of the generalizations made by Michaels that the chemical composition varies quite constantly with certain pathologic states, especially in relation to faulty metabolism. My own studies have been largely confined to the pathologic conditions of the soft tissues of the oral cavity, especially of the retentive tissues of the teeth. The method of study suggested by Michaels, the use of the micro-polariscope, first made it possible to accurately know the

chemistry of the saliva; it gives a means of analysis which is extremely delicate and is as accurate in qualitative test as the gravimetric method could be. With the use of the polariscope we can detect the salts by polarized light. It is quite true that a study of this subject tends to confirm the general views entertained regarding the etiology of gout and other similar conditions. We have in the arthritic subject a condition of insufficient oxidation with large quantities of carbon dioxide dammed up in the blood plasma. It is part of the function of the kidney epithelium to return sodium bicarbonate to the blood and eliminate the acid phosphates through the urine as a result of the mass action of carbonic acid on the basic phosphates of the blood plasma. When the condition becomes excessive and chronic, it causes the loss of enormous quantities of phosphorus resulting in phosphorus starvation, and during that period other waste products, irritative in character, manifest their presence. Prominent among these is oxalic acid. Oxaluria generally means a state expressed in the terms of calcium oxalate. Enormous quantities of sodium oxalate, however, make their presence felt about the time phosphatic starvation supervenes. The patients then become neurasthenic, and in that connection also we have certain local phenomena. I have watched the development of leucoplasmia in the mouth and its subsequent degeneration into epithelioma. I am of the belief that there is a definite relation between the irritation which these waste products produce and the conditions of the nasopharynx described by Dr. Kyle. I regard them as productive of direct irritation to the mucous surfaces, and that they may even stimulate the tissues to the formation of new growths.

DR. JUDSON DALAND, Philadelphia—A proper appreciation of the chemical causes of this affection indicates a plan of treatment which has given brilliant results. It is not at all improbable that certain spasmodic bronchial affections that are usually considered under the name of asthma may have a like cause and a study of the disease from this standpoint may yield similar therapeutic results. The profession has been gradually recognizing the importance of hyperacid conditions of the upper respiratory tract and mouth, but Dr. Kyle is to be complimented on drawing attention to direct poisonous inflammation of sulpho-cyanids and of the marked local irritating effects of hyperacid conditions which are frequently in association with ammonia compounds, and, at times, free ammonia. These observations are of importance to the general practitioner because of their prejudicial influence on the general health, and there can be little doubt that certain cases of general toxemia are due to this cause. On the other hand, I am inclined to believe there are certain cases of toxemia of intestinal origin, usually fecal, that play an etiologic rôle in the production of the morbid chemical state of the nasal secretions and saliva. If we remember that within a very few minutes after the taking of lithium, it can be discovered spectroscopically in the saliva, and that normally within eight minutes after the swallowing of a solution of iodid, iodin can be detected in this same secretion, we realize how rapidly is the diffusion of these soluble substances and how promptly the salivary glands excrete these substances which here have the peculiarity of again being swallowed to again be absorbed into the circulation. I shall in the future give especial attention to the chemistry of the saliva and nasal secretions, more especially in well-marked examples of auto-intoxication, nervous asthma, hay fever and neurasthenia.

DR. E. FLETCHER INGALS, Chicago—The paper recalls to my mind the remark of the professor of medicine when I was a student, who, when asked what he would do for a certain disease, replied that it would depend entirely on what was the matter. It is encouraging to find some men searching among the living for the causation of disease. Pathologists deal with the dead, and hence become therapeutic agnostics. In the past nearly all medicinal treatment has been empirical, but the kind of experimentation outlined in this paper is destined to do much to enable us to know for what reason we are giving our remedies. It is certainly unwise to continue to give medicines, the action of which we can not satisfactorily explain. The pathologic side of disease is of great importance, but we

should bear in mind the fact that over 90 per cent. of the physician's work is therapeutic in character, and that nine out of every ten sick people get well. Our aim should be to try to cure them more quickly, and it seems to me that the greatest work before the profession in the coming years is along the line of therapeutic research. In our hospitals we find bright, energetic internes, but quickly discover that they have little knowledge of therapeutics. In the large hospitals with which I am familiar nothing whatever has been gained in the way of therapeutics for the past twenty-five years. It is difficult for the older members of the profession to do research work, and the younger men have not been encouraged to undertake it in this line.

DR. W. H. F. FITZGERALD, Hartford, Conn.—I believe the position taken is correct that these conditions are due to irritative changes, basing my opinion on the history of twenty-four cases I have worked at myself during the past two years. There can be no question about the irritative effect on the lining membrane of the nose, and it really makes little difference where this area is located. In my opinion, it is due entirely to the fact that the individual in question does not use his nose. As a class, we do not know how to breathe, and just so long as we go on breathing through the mouth we are bound to have these irritated areas.

A man may go to a certain district and the irritating pollen or organism attacks a particular irritated area of the mucous membrane of the nose and produces the condition of hay fever. Of these twenty-four cases treated, I have had but one case return; I have heard from all of them, and they have stated that they have had no recurrence. This is due largely to the fact that they are now breathing as they never did before. I see that they breathe properly at night, for I plaster their mouths up during the night and make them exercise the nose during the day. In the treatment of these cases I have employed no therapeutic measures at all after obliterating the irritable areas. One of the worse cases I ever saw was that of a minister who was prostrated two or three days out of every week, and at one time for nine months continuously. He then lived in the west, and for the past three years has been living in the east, and his trouble was as great in one locality as in the other. I found he was a very bad breather, and I have succeeded in making a good breather out of him. He recovered entirely, and even went back to his former residence looking for trouble, but failed to find it.

Another case was that of a woman who used from forty to sixty handkerchiefs a day during a period of thirteen years. The condition was complicated during the thirteenth year with attacks of asthma which kept her awake most of the night. I removed obstructions, irritable areas, etc., and discharged her over a year ago. She has since been averaging not more than one handkerchief a day, and says that she has had but one slight attack of asthma in the course of the year. She states that she often had the feeling that if she took one breath through her mouth she would have another attack, and that under these circumstances she often resorted to the plaster during the day. Since she has become a normal breather this has not been necessary.

DR. W. S. ANDERSON, Detroit—Has Dr. Kyle made any study of the secretions of the pharynx in mycosis leptothrica? It runs a very stubborn course and occurs usually in healthy persons.

DR. J. HOLINGER, Chicago—There is a series of experiments which have a bearing on this subject of the chemical composition of the saliva and all the juices of the digestive tract with reference to the food taken. In experiments with dogs, it has been found that if a certain character of food is offered to the dog the saliva has characteristic changes, going very far in the direction spoken of. How can this series of experiments be brought into connection with the paper?

DR. G. V. WOOLEN, Indianapolis—I have examined the statistics relating to the surgical treatment of these cases and have not been satisfied that they offered a definite solution of the problem. When Sajous' book came out, dealing with peculiar idiosyncrasies, external irritation, and diseased noses,

we thought we had the solution in a definite form, but the idiosyncrasy suggested did not wholly satisfy me because this condition of the system is present at all times of the year. I then began, not chemically but clinically, to gather and observe these secretions. I have carried this investigation to an extreme degree ever since and am convinced that the secretions do not offer a solution of the whole matter. I also felt that if I could control the acid condition of the system I should have the key to the whole matter, but that was a disappointment. I am disappointed to-day. There has been a great deal said with reference to the mouth and pharynx, but these do not explain the conditions in the nose. As Dr. Ingals has intimated, the discussion is in the right direction and younger men will perhaps work out the problem along the chemical line.

DR. D. B. KYLE—Many of the points which have arisen in the discussion will be found answered in the remainder of the paper, all of which was not read on account of its length. I omitted to say that the chemical reaction of the saliva is so nearly the same as that of the nasal secretion that I did not use the terms nasal and salivary each time. In some cases, if tested at the same time, one will give an acid reaction and the other alkaline, but if the chemical composition is studied they will be found not to differ, the chemical reaction having changed after exposure to moisture and air.

As to mycosis, if it is a genuine case of mycosis and not keratosis, it is a well-known fact that bacteria grow better in alkaline media than in acid. I have made a careful examination in a few cases of pharyngeal mycosis and the secretion was alkaline in reaction.

POISONING BY WOOD ALCOHOL.

CASES OF DEATH AND BLINDNESS FROM COLUMBIAN SPIRITS AND OTHER METHYLATED PREPARATIONS.*

CASEY A. WOOD, M.D.

CHICAGO.

AND

FRANK BULLER, M.D.

MONTREAL.

With the kind assistance of the profession in the United States and Canada, we have been able to report the following instances of methyl alcohol intoxication, most of them hitherto unpublished.

The list of deaths and cases of blindness following the ingestion of "Columbian spirits" and other forms of wood alcohol, as well as methylated "Jamaica ginger," lemon "extract," "bay rum," "cologne water," "witch hazel," essence of peppermint, essence of lemon, etc., not to mention all sorts and kinds of other official, domestic and proprietary remedies into which alcohol enters, has lately grown to alarming proportions. This record of death and blindness has been made in recent years only, since the cheap, "deodorized" methyl alcohol [untaxed, retail price 50 cents a gallon; ethyl alcohol, taxed, retail price \$2.60 a gallon] has been put on the market.

Wood alcohol and methylated spirits made by the old processes subserved useful as well as harmless purposes. They possessed practically all the solvent and other properties required for the various arts in which they were employed, and no one thought of drinking them or employing them as adulterants in foods or drugs. Indeed, so abhorrent to the organs of taste and smell was even a small percentage of wood spirit in any mixture, that no person in his senses would drink so noxious a compound, however diluted and disguised, or however much he craved an alcoholic drink.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

With the advent of preparations like "Columbian spirits," "colonial spirits," "eagle spirits," *et hoc genus omne*, the principal safeguard against poisoning by methyl alcohol has been removed. Some of these deodorized alcohols are with much difficulty distinguished by the laity from pure ethyl alcohol. Hence it is that in spite of ordinary precautions, such as labeling bottles of these preparations "not to be taken internally," they have been and are now, through accident and design, much used as substitutes for grain alcohol.

The appended histories by no means constitute a complete list of deaths and blindness from wood alcohol poisoning. A more careful canvass will, we are sure, bring to light numerous additional instances of this intoxication that we have not been able to gather during the limited time at our disposal. The remarks of Dr. Moulton properly apply to many localities where grain alcohol beverages are difficult to procure:

Cases (of wood alcohol poisoning) are of frequent occurrence in Indian Territory, where the sale of ethyl alcohol is strictly prohibited by the United States government, so that those who crave stimulants drink anything they can get. I can safely say that in that country at least fifty deaths have occurred from this cause in the last few years.

The same remarks apply, though in a less degree, to methyl alcohol blindness. A circular letter on this subject was addressed by Dr. Wood to a large majority of the ophthalmic surgeons in the United States and Canada, and there is good reason to believe that, as a result of these inquiries, descriptions more or less complete of most of the well-defined and recent cases of wood alcohol amblyopia and amaurosis will be found in this report. At the same time, since blindness from methylated liquids was practically unknown until the recent introduction of this "purified" product, medical men may well be excused for not recognizing, for attributing to other causes or for afterward forgetting cases that several years ago came under their notice.

For purposes of subsequent reference we have divided these histories into four classes:

Class A.—Published cases of blindness or blindness followed by death, due to the drinking or inhalation of methyl alcohol. The cases comprised in Class A were collected, abstracted and tabulated by Dr. Buller.

Class B.—Cases (hitherto unpublished) of blindness or blindness followed by death from drinking methylated liquids.

Class C.—Cases (hitherto unpublished) of blindness from methyl alcohol absorbed through the lungs or skin, or both.

Class D.—Cases (hitherto unpublished) of death from methyl alcohol poisoning, without history of previous blindness.

The cases detailed under Classes B, C and D have been collected and edited by Dr. Wood. The sources of the information in the last three classes, arranged in alphabetical order, will be found at the head of each history.

SUMMARY OF PUBLISHED CASES.

The tabulated records (to appear later in this article) of 54 of the published cases show the ages of individuals to be from 21 to 65 years; mostly about middle life. Of 51 we note: Sex, males, 47; females, 4. Habits of life; 8 were, or had been, hard drinkers; 9 admitted occasional indulgence, 3 habitually temperate, 30 habits not stated, but no doubt most of them were more or less addicted to alcoholism. Six are reported

to have used tobacco in excess, as well as alcohol. Occupations: Artistic painter, 1; attendant, 1; bricklayer, 1; barber, 1; carpenter, 2; china decorator, 1; convicts, 3; dressmaker, 1; farmer, 2; housewife, 2; hotel keeper, 1; miner, 1; millhand, 1; workmen, 4; mechanic, 1; soldier, 1; sailor, 3; woodsman, 1; watchmaker, 1; upholsterer, 1; not stated, 20.

As to the mode of occurrence: In most instances the trouble occurred as a result of a spree, generally together with friends or associates; in a few instances the alcohol was taken by accident. The preparations nearly all undoubtedly contained the drug, methyl alcohol, as the sole or chief toxic ingredient. In 28 cases methyl alcohol was specified; in 12 Jamaica ginger; in 4 Columbian spirits; in 2 essence of lemon or cinnamon; in 1 cologne spirits, so-called; in 1 an unknown alcoholic mixture; in 3 methyl alcohol vapor was inhaled.

As to the quantities consumed: The methyl alcohol series varied from half an ounce to 16 ounces. The Jamaica ginger from 3 ounces to 25 ounces, the larger quantities usually in divided doses over a period of several days. Columbian spirits from 6 ounces to 8 ounces and in 2 cases quantity unknown. Essence of lemon, 3 or 6 ounces in one case, in the other quantity unknown. Cologne spirits less than 8 ounces. Of the unknown strong alcoholic liquor, 15 ounces. Of the three inhalation cases quantity inhaled conjectural.

As to general effect: Headache was mentioned in 19 cases as a conspicuous symptom; gastric pain in 11; nausea and vomiting in 26; dilated pupils in 20.

The results as to visual disturbance were 16 total blindness, 3 total blindness of one eye, 15 partial recoveries, 7 recoveries; 10 remaining cases terminated fatally; sight became dim in three hours in one case; six hours in 1 case; eight hours in 1 case; ten hours in 1 case; twelve hours in 2 cases; twenty hours in 1 case; twenty-four hours in 19 cases; forty-eight hours in 5 cases; three days in 2 cases; six days in one case; seven days in one case; eight became lost in twenty-four hours in 10 cases; in thirty hours in 2 cases; in twelve hours in 2 cases; in forty-eight hours in 3 cases; in three days in 3 cases; in four days in 3 cases; in five days in 2 cases; in six days in 2 cases; in seven days in 1 case; in eight days in 1 case; in seventeen days in 1 case. Of the remaining 21, facts in this connection are not definite.

Certainly few members of the medical profession, and practically no one of the general public, are as yet aware that methyl alcohol taken into the system in moderate or considerable quantity not infrequently causes death, after the manner of the cases just cited. More than this, the people are still less cognizant of the fact that a certain proportion of those who survive the poisonous effect of the drug are condemned ever afterward to the miseries of greatly impaired vision, and, indeed, not infrequently to absolute blindness. It is a remarkable circumstance that notwithstanding the accumulated evidence of many similar recorded facts, there still exists a widespread unbelief in the toxic action of wood alcohol. Not long ago, with the object of discovering cases of methyl alcohol poisoning known to have occurred in Canada, Dr. Buller wrote to thirty or more Canadian oculists, asking each one for his experience in this direction. One sent this reply, which is worthy of record. It runs as follows:

I have not met with any case of blindness from drinking wood alcohol nor heard of any, notwithstanding the fact that

I live quite near one of the largest distilleries of methyl alcohol in Canada. The prevalence of the habit of intoxication from wood alcohol must be greatly exaggerated.

The italics are Dr. Buller's. Two only sent records of cases they had seen; some fifteen replied that they had no experience.

Altogether, Dr. Buller knows of only five reported and three unreported cases in Canada, and has heard of four others, without so far having been able to obtain facts regarding them. Of the five reported cases three if not four actually occurred in the United States, giving, therefore, up to the present time only one reported and three unreported cases which have happened in Canada. It would thus appear that wood alcohol poisoning occurs much more frequently in the United States than in Canada, since of the 54 cases of which Dr. Buller has collected details, some 47 occurred in the United States and two in Europe.

B.—CASES (HITHERTO UNPUBLISHED) OF BLINDNESS, OR OF BLINDNESS FOLLOWED BY DEATH FROM DRINKING METHYL ALCOHOL.

CASE 1.—(From Dr. James A. Bach and Dr. Joseph Schneider, Milwaukee, Wis.)

D. McK., Ashland, Wis., on Nov. 26, 1903, was taken ill with abdominal pains and diarrhea, while engaged in "sealing" lumber in the northern woods of Redcliff, Wis. Being far from any doctor, he secured a bottle of Hinkley's bone liniment and took the same internally according to directions, a teaspoonful every hour for a few hours, then less often. This treatment he continued from November 26 to November 27 inclusive. On November 29 Mr. McK. found his sight leaving him. Within twenty-four hours he became totally blind in his left eye and partially so in the right eye. He thereon consulted a doctor in Ashland, Wis., who told him that the "liniment" had probably "done the work." The patient is now (May, 1904), a man of about 46 years old, strong and robust in appearance and apparently has no bad habits. There is nothing in his history to account for his condition but the fact that he took the quack medicine as above stated, which was followed so promptly by practical blindness. The left disc is gray-white, and the smaller papillary capillaries and vessels are absent, with the exception of the lower macular artery, which is still seen. The larger arteries and veins are reduced in size about 20 per cent. V. = no perception of light. The right disc is also whitish, with a decided diminution of capillary circulation, but not so marked as the left. V = 3/40. The visual field in the right eye shows a large, absolute scotoma, not quite central, with concentric limitation marked.¹

CASE 2.—(From Dr. Wilfrid Beaupré, Quebec, Canada. Reported by Dr. Frank Buller, Montreal.)

J. D., aged 42, machinist, was in the habit of indulging in liquor to excess every month or two. After one of these "sprees" on March 6, 1898, having no more whisky on hand, he drank about half a tumblerful of methyl alcohol from a bottle in the house. He took this one drink only and in a few hours drove to the doctor's office nearly blind. His vision in either eye was finger counting at nine inches. He had intense photophobia and pain in the head; the papillae were white, but the retina showed no particular change. He was immediately put on potassium iodid with bromids. For a time there was considerable improvement in his vision so that he returned to work. On March 20, however, he again noticed failing sight and when Dr. Beaupré saw him on March 21, V. R. = 15/40; V. L. = 15/200. The iodid was continued and he returned on the 31st, when V. R. = 15/20; V. L. = 15/40. April 18, 1898, V. R. = 15/40; V. L. = 15/100. April 25, V. R. = 15/50; V. L. = 15/100. Then citrate of iron and strychnia were prescribed. On May 9 the nerve heads were decidedly white. V. R. = 15/75, and V. L. = 15/200. The patient's eye-

sight now became so defective that he was obliged to abandon his work and engage in selling candy in a small store. Even then he found it difficult to recognize coins or to distinguish the figures on bank bills. When Dr. Beaupré last heard of him he had entirely lost useful vision.

CASE 3.—(From Dr. M. H. Bell, Vicksburg, Miss.)

M. B., man, white, aged 50; occupation, blacksmith. Now in the Mississippi State Charity Hospital under Dr. Bell's care. V., each eye, = light perception; eyes look entirely normal externally. Ophthalmoscope shows no marked changes. There is more pigment scattered over the fundi than is usually found. Nerve heads normal; vessels, both veins and arteries, are small, two-thirds usual size. Two years ago he was working in a "dry" county and, as was the habit there, used "peruna," Jamaica ginger, etc., as stimulants. The patient's usual drink was the ginger, and he told Dr. Bell that he had been taking an occasional drink of it for three or four months. While at work one day he suddenly became blind, so that he had to be led home by another man. This was followed by nausea lasting two or three hours. On the same morning he had taken two or three drinks of ginger, rather indefinite as to quantity. On the following day his sight returned, but since that time gradually failed for eighteen months, after which it has remained the same. He can not now go about without some one to guide him. Although no analysis was made of these beverages, the clinical history and the other facts in the case point directly to methyl alcohol intoxication.

CASE 4.—(From Dr. George H. Bicknell, Omaha, Neb.; Dr. George B. Simpson, Sberidan, Wyo.; Dr. Casey Wood, Chicago.)

G. W. A., ranchman, Scotch, aged 35, had always had good health. An examination by Dr. W. A. Evans of Chicago proved him to be free of syphilis, rheumatism, or any disease of his internal organs. Blood, urine, etc., normal. On July 4, 1899, in company with a number of companions, he proceeded to celebrate the day by getting gloriously drunk. It is not known exactly what sort of alcohol the party imbibed, but it was considerable in amount. For the following four days he suffered from severe and constant frontal headaches, nausea, pain in the abdomen, frequent fits of vomiting and difficulty in breathing. About forty hours after the spree began he noticed a "dazzling" sensation in front of his eyes and in two or three hours more was totally blind. Dr. Wood saw him in consultation with Dr. Bicknell on July 28, 1899, when he said that on July 25 he first noticed his returning eyesight. This improvement in vision continued for a while, but there was a relapse about the time he left for his home in Scotland, the following November. On July 28, 1899, V. R. = no p. l.; V. L. = hand movements in the lower third of the field. Pupils widely dilated. Tension normal. Light reflexes absent; doubtful as to accommodation. Lenses showed a few striae. Both fundi exhibited blurred papillary outlines with loss of the usual transparent appearance of the nerve heads. Retinal veins somewhat engorged; arteries smaller than normal. This patient was vigorously treated by Dr. Simpson with potassic iodid, electricity and, later, was ordered full doses of iron and strychnia. Improvement for a time set in, with enlargement of the small eccentric field for white in the left eye. In July, 1899, he was able to see shadows and the outlines of large objects in the upper part of the right field and to count fingers at six inches with a small area in part of his upper left retina. On Nov. 13, 1899, his vision was much worse. He, at that time, perceived hand movements in the left eye eccentrically, but there was no light perception in his right eye. The fundus pictures were then greatly changed. The nerve heads showed shallow, atrophic excavations, the discs being whitish; veins of normal size, arteries small. Tension normal in both eyes. The patient was given a letter to Dr. Argyll-Robertson, Edinburgh, and has not been heard from since.

CASE 5.—(From Dr. Emil Borjes, Seattle, Wash. Reported by Dr. Hamilton Stillson, Seattle, Wash.)

A German, aged 27, cabinetmaker by trade, drank about two ounces of wood alcohol that was used in a saloon for filling cigar lighters. Seen about an hour afterward. Was in deep stupor, snoring, stertorous breathing; could not be aroused by his companions. Features pale, body cold, bloody froth from

¹ An examination of the proprietary remedy referred to in this report was recently made for me by a competent chemist, and found to contain a large percentage of methyl alcohol.—C. A. W.

mouth, pupils dilated, no reflexes. Had him taken to city jail, where, after heroic rubbing, applying of hot packs, and hypodermic injections of strychnia, he was sufficiently aroused to answer his name. Recovery. Vision, as well as his gait, was affected for several days.

CASE 6.—(From Dr. A. H. Brundage and Dr. James W. Ingalls, Brooklyn, N. Y.)

Mrs. M., living at East Brooklyn, N. Y., aged about 35, was addicted to the excessive use of alcoholic drinks and occasionally drank grain alcohol with water and sugar. Having heard that wood alcohol was about the same thing but much cheaper, she purchased half a pint and drank most of it.

She was found partly unconscious and sweating profusely. She was nauseated, vomited severely and was delirious, with pupils dilated. Seemed chilly. Vision gradually became blurred. Died in about thirty-six hours from the time the wood alcohol is supposed to have been drunk.

Treatment.—Free syphonage of the stomach, cold effusions to head, caffeine, digitalis, pilocarpin, external heat, oxygen, rectal injections of hot coffee, and also of normal salt solution.

CASE 7.—(From Dr. Henry D. Bruns, New Orleans, La.)

A man, about 50 years of age, came to the clinic in 1902 with the following history: He had made toddy one evening with Columbian spirits, of which he took several drinks, using at least an ounce of the wood alcohol. Shortly afterward his vision completely failed him. He then regained much of his sight for a brief period, but finally became totally and permanently blind.²

CASE 8.—(From Dr. Henry D. Bruns, New Orleans, La.)

This case,³ is that of a man of middle age who ingeniously concocted a "highball" whose spirituous portion consisted of a popular "antiseptic." He promptly became blind, but when seen a week later had somewhat improved in vision. He left the clinic and it is not possible to say whether the improvement held or not. Dr. Bruns had the proprietary article employed by this patient analyzed by the chemist of the board of health. It contained a large percentage of wood alcohol.

CASE 9.—(From Dr. A. E. Bulson, Jackson, Mich.; Dr. Pray, physician to the State Prison, Michigan; Dr. J. F. Byington, Battle Creek, Mich.)

John C., convict, aged 48, appeared March 5, 1903, at morning sick call and asked to be excused from work. He walked unsteadily and the pupils were somewhat dilated. He said he had eaten no breakfast and had vomited. On accusing him of having taken some drug he admitted that he had drunk wood alcohol. This was used in the prison shirt shops for dampening collars for the purpose of turning them. The mixture was equal parts of wood alcohol and water with glycerin, 2 ounces to the pint. On March 3 patient consumed 10 ounces of this mixture, and on the next day 4 ounces. He was sent to the hospital and treatment, consisting of large doses of bismuth, given to quiet the intense, burning pain in the stomach. At 7 p. m., although the electric light at the head of his bed was turned on, he asked to have a light; in other words, he was apparently blind. Dr. Pray says the blindness came on quite suddenly. He instituted alternate hypodermics of pilocarpin and strychnia every four hours (1/16 gr. pilocarpin, 1/30 strychnia), and potassic iodid grs. 20. On March 10 the patient could distinguish the hand held close to his eyes. March 15 he could see quite plainly. March 18 again failing vision, and on March 24 very poor vision. Discharged from hospital March 27. Strychnia and potassic iodid continued in pharmacy. Vision 7/30. Dr. Bulson examined this case later and found only light perception in the right eye with blue white discs, and marked retinal changes, the former more pronounced on the temporal side. In the left eye V. = 3/20 for central vision; about the same changes in the papilla. There was a decided contraction of the peripheral field. In September, 1903, Dr. Byington again examined this man who, then a blind pedler, presented himself with the request that the physician, as a matter of charity, give him a "statement of his case" so that he could the better dispose of his small stock in trade. Dr.

Byington made only the superficial examination demanded by the patient and found V. = finger counting at 3 to 4 inches in each eye, associated with white atrophy of both nerve heads—each lamina cribrosa being distinctly visible at the bottom of a shallow, atrophic excavation.

CASE 10.—(From Dr. Homer Collins, Duluth, Minn.)

J. A., aged 46, carpenter, Cromwell, Minn., was in the habit of going on several sprints yearly, but avoided liquor between these sprints. Used tobacco, smoking or chewing about "ten cents' worth a week." On Nov. 22, 1901, with a companion, he drank about one dozen bottles of Jamaica ginger bought at Cromwell. The following day the companion vomited freely, but his eyes did not suffer. The patient vomited "everything" the next day and his eyesight began to fail at once. On the second day he could distinguish only light from darkness, and remained in this condition for two days. Then improvement of vision began and continued until about Dec. 12, 1901, when V. = 2/200 (white letters) in either eye. Right half of each field was covered by a scotoma, the most acute vision being eccentric, to the nasal side of the fixation point. In the left eye the field is very little contracted; central vision is best. There is some tenderness above and behind the eyeballs. The patient gave the history just outlined and stated that immediately after the poisoning he had considerable pain in his eyes, which were too sore to touch. He was put on pilocarpin treatment, under care of the county physician, and on December 22 thought he could see a little better, but tests showed no improvement, and there has since been little change in his condition. Bilateral post-neuritic optic atrophy.

CASE 11.—(From Dr. Coote of Quebec, and Dr. Frank Buller, Montreal, Canada.)

A man between 28 and 30 years of age, well built and healthy in appearance, without any history of a serious illness, while working in a lumbering camp, caught a slight cold. To cut the trouble short he took what he considered a big dose, about a wineglassful, of methylated Jamaica ginger. He commenced to suffer from violent headaches and retching shortly afterwards. Some twelve or fourteen hours later his sight commenced to grow dim. A second dose was then taken and his sight grew worse. He was taken home and, with the exception of his eyes, he was shortly well again. About three months later, when he appeared at the hospital, central vision in both eyes was completely lost. Toward the periphery of the field of vision in both eyes a few patches of retina remained sensitive to light and fingers could be seen at a couple of feet. The pupils reacted to light and on convergence. Both discs were pale (not white) and the margins well defined; the arteries and veins were contracted, but not equally; the media were clear. He was kept in the hospital for some weeks, but the treatment was of no avail.

CASES 12 and 13.—(From Dr. Homer Collins, Duluth, Minn.)

In the year 1900 (exact date unobtainable), an Indian from one of the Minnesota reservations, accompanied by an Indian attorney (G. H. B.), consulted Dr. Collins. The history of the case showed that at least six Indians, having procured a supply of essence of lemon, drank freely of it. Three died promptly, evidently from the direct effects of the beverage, one of them becoming blind before death. Two others suffered considerably, but recovered without apparent damage to any of their organs. The sixth Indian, the patient under discussion, survived, but became totally blind. An ophthalmoscopic examination revealed marked atrophy of both optic nerves.²

3. Through the kindness of Dr. J. W. Chamberlin of St. Paul, Mr. G. H. B. wrote me the following note, giving further information regarding this matter: "Your letter of inquiry reached me at White Earth, Minn. In reply, an Indian trader, named Malone (afterward prosecuted by the U. S.), sold to several Mille Lac Chipewya Indians a number of bottles of essence of lemon on June 28, 1897, which they drank in lieu of alcohol, when that had been exhausted. A large number of Indians drank alcohol; only six or eight drank the essence of lemon. The latter were all taken seriously ill within an hour after they began to drink the essence, and three of them died before morning. I can recall the name of only one of those who died, a chief, Mah-keh-keewis. Another Indian, Bad-dub-ay-kesheh, became blind and has not since recovered his sight. He is still living at Mille Lac, Minn. The others, although very sick, recovered without any bad effects. It was thought at the time that the death of the Indians was due to the wood alcohol in the essence of lemon." C. A. W.

2. This case, as well as the next one, is entered in the tables published by Dr. Bruns in the annual report for 1902 of the New Orleans Eye, Ear, Nose and Throat Hospital.

CASE 14.—(From Dr. W. G. Craig, Hartford, Conn.)

M. J., colored, aged 50, was given as a beverage a mixture of sugar, water and Columbian spirits, about three fluid ounces in all. This was on April 30, 1902. The dose was followed by nausea and vomiting and in twelve hours by complete loss of vision. She recovered her sight to some degree, but a month later it was only $\frac{1}{4}$ in each eye. Nerve heads chalk white.

CASE 15.—(From Dr. M. M. Cullom, Nashville, Tenn.)

While acting as interne in the Manhattan Eye and Ear Hospital, New York City, the following case came under Dr. Cullom's care:

In October, 1897, a workman was brought into the hospital with the following history: Two nights before he drank some wood alcohol in his room. It threw him into a stupor and, as he expressed it, "When he waked it was so dark that he supposed it was still night." He groped his way out into the hall and asked some one the time, and was informed that it was about 9 o'clock in the morning. The following day he was brought to the hospital. His pupils were widely dilated and did not respond to light. He had only perception of light in both eyes. The ophthalmoscope showed both nerve heads to be milk white in appearance and the entire fundus was blanched, the vessels being much smaller than normal. He was put on increasing doses of strychnia nitrate, administered hypodermically, which were carried to the physiologic limit. The vision improved for a short time until with his left eye he could count fingers, but the improvement was soon lost and he was discharged as hopelessly blind. There was no attempt made to secure a sample of the alcohol.

CASE 16.—(From Dr. I. F. Dickson, Portland, Ore.)

Two teamsters, strong, healthy men, under 30 years of age, who had been working hard all night, arrived at a friend's house in the early morning, much fatigued. The friend offered them a drink of something that, he said, "would make them feel better." He accordingly prepared a mixture of wood alcohol and water sweetened with syrup. One man died toward evening. The other took only a few mouthfuls and spat some of it out, as he did not like the taste. Shortly afterward he became unconscious and remained so till next morning. When he awoke he could only distinguish light, and within three weeks the sight was entirely lost. About this time the discs began to show signs of atrophy; otherwise the fundi were normal. He was first seen by a physician shortly after taking the drink, when it was noticed that the pupils were slightly dilated, but nothing abnormal was then seen in the background of either eye and no fundus changes appeared for about three weeks. The latest report from the patient is that he is still totally blind.

The following case is of great interest owing to its early occurrence (1898). It was one of the first examples of blindness due to bay rum made from Columbian spirits:

CASE 17.—(From Dr. J. A. Edwards, Columbia, Tenn.)

In February, 1898, he was called to Centerville, a town thirty-one miles distant, to see a young lawyer, W. A. K., aged about 26 years, who gave the following history: Living in a "dry" town and being in the habit of going on periodical sprees he called on a friendly physician who was in the habit of giving him a prescription containing alcohol and any other simple drug which would protect the druggist filling it from prosecution for violation of the liquor laws. On this occasion he was given, to supply the needed alcoholic beverage, as well as to protect the druggist against the provisions of the prohibition law, the following prescription:

R. Bay rum 2 fluid ounces.
Alcohol 4 fluid ounces.

Sig.: To be applied externally.

He drank all this in an hour or so, and was afterward seized with violent pains in the stomach, nausea and vomiting, which continued about 24 hours, when he became totally blind. Dr. Edwards found him with pupils widely dilated and some tenderness of the globe on firm pressure. Having obtained the above history of his case the diagnosis of retro-bulbar

neuritis or toxic amblyopia was made. At that time very few reports of such cases had been published, but he was given an unfavorable prognosis, and was told that his vision would probably clear up in from ten to twenty days, but that blindness, either partial or complete, might re-ur from secondary changes in the optic nerve. The patient promised to call on Dr. Edwards in a few days, but saw, instead, another very competent oculist, under whose care for three or four weeks his vision cleared almost to normal. Very soon thereafter his sight again declined to 20/60, with scotomata in parts of the visual field. He still sees only well enough to read very large print, and that with much difficulty, on account of the scotomata. He practices his profession, but is very much handicapped, his wife being obliged to assist him in his legal work. Investigation developed that the "bay rum" in this prescription with which he was poisoned, was put up by a firm in Buffalo, N. Y., and made of Columbian spirits.

CASE 18.—(From Dr. W. E. Driver, Norfolk, Va.)

J. B., male, white, age 25, U. S. sailor, brought July 12, 1898, from the U. S. Naval Hospital, by the surgeon in charge. He gave the following history: One week since the patient and two of his companions, who were in charge of a naphtha launch, indulged freely in the wood alcohol used in starting the engine. He and his companions were made desperately sick, and he became totally blind.

The pupils were widely dilated, but there was no visible pathologic change in the fundus. The diagnosis was wood alcohol amblyopia. Treatment was potassium iodid, ten grains three times a day at first; increased doses later. July 16, 1898, pupils still widely dilated. Had something more than light perception in each eye. Optic nerve, each eye, decidedly paler than at the previous visit. July 23, 1898, decided improvement in vision of each eye. Can now recognize large objects. Both pupils widely dilated. Eyes very bright. Both optic nerves show decided pathologic changes, and very much whiter than at previous visit. Dr. Driver learned from the Naval Hospital that soon after the last visit to his office, the patient was discharged from the Navy and nothing further was heard of his case. His two companions died during the debauch, from the effect of the intoxication.

CASE 19.—(From Dr. W. E. Driver, Norfolk, Va.)

A. H. S., male, white, aged 25, came Feb. 2, 1903. Referred to Dr. Driver by Dr. Holland of Holland, Va. The patient became suddenly blind ten days before. When he went to bed he could see as well as ever; on waking was totally blind. Had been drunk from cider purchased from a country store.

Right eye: Cornea very bright and glistening. Pupil widely dilated. Optic nerve pale, but no other pathologic change in fundus. No light perception. No reaction of pupil to light.

Left Eye: Cornea clear and bright. Pupil widely dilated. Nerve white. No reaction of pupil to light.

Diagnosis: Wood alcohol amblyopia.

Patient was sent to hospital and given potassium iodid, 10 grains three times daily, and twentieth of a grain of strychnin. On February 9 vision began to return in left eye. Has light perception. No improvement in right eye. February 15, counts fingers one foot from left eye. Light perception only in the right eye. Optic nerve, each eye, decidedly paler than normal. February 23 patient went home, with no improvement in the right eye, but counts fingers at three feet with left eye. Nerve, each eye, white, bluish tint. Pupils widely dilated. Corneal reflex extremely bright.

This man has consulted Dr. Driver three times since he left the hospital the first time. There has been no improvement in vision of the right eye. With left eye vision is 6/200.

CASE 20.—(From Dr. William H. Dudley, Easton, Pa.)

Ralph W., single, aged 39, an essence pedler, about June 15, 1903, took for a "cold," diluted with water, four ounces of what he says he bought for grain alcohol. Two days later his vision became very bad, and when seen three months later his optic discs were quite white; fields were narrow; vision 1/200 right and left. Seven months later his condition remained practically the same. Patient states that as soon as he had

drunk the alcohol he discovered his mistake, realizing then that he had taken wood alcohol.

CASE 21.—(From Dr. H. P. Engle, Newton, Iowa.)

G. F. of Mingo, Iowa, aged 45, drank at least half a pint of Columbian spirits diluted. He lived forty-eight hours, but before death there were present gastrointestinal irritation, blindness, delirium and collapse.

CASES 22, 23 and 24.—(From Dr. W. H. Ford, Sulphur, Ind. Ter.)

As detailed elsewhere in this report, four men, aged from 30 to 40 years, went on a spree with methylated bay rum. Two, who consumed large quantities of the poisonous perfume, died. There is no history of blindness in one case, but the other, S. B. B., age 24, who succumbed to the poison, lived about eighteen hours, and suffered the most excruciating pain in stomach and bowels. Even though heroic doses of morphia, administered hypodermically, were given him, he had to be held in bed. He was totally blind most of this time. About an hour before death his pulse became imperceptible at the wrist, his heart being very rapid all the time. The odor of methyl alcohol was very noticeable in the perspiration, which was very profuse. The two that survived, aged 29 and 37, suffered for some twelve to fourteen days with marked ocular disturbances. Vision was very indistinct; it seemed at times as if they were "looking through a moving screen." Again, in a few hours there would be a total loss of the outlines of objects. After two weeks vision appeared to return.

CASE 25.—(From Dr. P. G. Goldsmith, Belleville, Ont., and Dr. Sprague, Stirling, Ont., and from the *North Hastings Reporter*, June 15, 1904.)

William Sutherland of Montague met his death under very distressing circumstances on Monday night. He had returned from working with the chemical company near Orillia and brought a bottle of wood alcohol with him to let his neighbors see it. Not suspecting its poisonous nature he let some of them taste it. Finding it too strong, they were all satisfied with merely tasting it. But Sutherland, it is estimated, took about a wineglassful. In a short time he complained of difficulty in breathing, then of blindness, and asked for a physician, who was sent for. He soon lapsed into unconsciousness and died before medical aid could arrive. Deceased was a respectable farmer about 45 years of age, and a widower, having two sons. The sad event cast a gloom over the community.

CASE 26.—(From Dr. A. H. Gordon and Dr. Frank Buller, Montreal, Quebec.)

B. K., aged 40, female, domestic, alcoholic. On Jan. 18, 1904, had been drinking for two days. Drank one quart of whiskey, a half-pint mixture of gin and spruce gum, as well as nearly eight ounces of wood alcohol. Vomited all one morning, and in the afternoon became excited, partially delirious. Complained of severe headache, pain in arms and fell to floor unconscious. Later, general convulsion and death in half an hour after convulsion. Half an hour before falling she groped about the room calling for light, evidently completely blind. Pupils widely dilated and inactive. The cause of death was undoubtedly the wood spirit drunk within twenty-four hours of her death. The autopsy showed no brain or kidney lesion.

(To be continued.)

An Aid to the Comfort of Bedridden Patients.—*American Medicine* says that in cases of severe heart disease with orthopnea it is often extremely difficult to keep the patient in the semi-upright position as the direct pressure on the tuber osities of the ischium is not only uncomfortable, but is conducive to bedsores, and there is also a tendency to slip down in the bed. In such cases a hard bolster is placed under the mattress at the level of the thighs, forming with the pillows a double inclined plane, in the trough of which the back rests. The support and the removal of a part of the weight from the tuber ischii to the fleshy part of the thighs affords great relief to the patient.

FATAL POISONING DUE TO SKIN ABSORPTION OF LIQUID SHOE BLACKING (NITROBENZOL).

WITH AUTOPSY REPORT.

WILLARD J. STONE, B.Sc., M.D.

TOLEDO, OHIO.

A report of the clinical and autopsy findings in the following case is of interest, first, because of its rarity, it being, so far as I have been able to ascertain, the only case recorded in which the fatal result could be attributed to skin absorption of this poisonous agent; and, secondly, since it reiterates once more the danger attendant on the use of the various cheap products of coal-tar distillation as solvents for the anilin dyes in certain commercially manufactured articles.

Dr. A. W. Wheeler and Dr. Peter Donnelly have kindly furnished the clinical history of the case.

History.—W. R., aged 22, male, salesman, in excellent health so far as could be ascertained, was taken suddenly ill in a café about 12:30 a. m., March 20. He had attended a dancing party earlier in the evening in company with some friends. After the party he and four or five of his associates went to the café for a lunch. His friends were with him during the entire time after he left his room earlier in the evening. He remarked while in the café that he did not feel well, but his friends noticed nothing unusual about his appearance except that he seemed very pale. In the café each one drank four or five glasses of beer. While standing up to put on his coat, which one of the men present was holding for him, he suddenly seemed to faint, and fell to the floor. He was carried into an adjoining room, and a medical student who happened to be present dashed cold water in his face, which seemed to revive him. He complained of no pain, but felt dizzy and faint, and shortly after vomited the beer, crackers and cheese eaten but a few moments before. He was assisted to a carriage, and arrived at his room at about 2 a. m.

A physician was not called until about 3:30 a. m., since his roommate supposed him in a drunken stupor. The physician, Dr. Wheeler, was informed that he had passed into the comatose condition on arrival at his room about 2 a. m., and that he had not recovered from it.

Examination.—Dr. Wheeler found him in collapse; very pale skin, eyes glazed, cyanotic lips, ears and finger tips, corneal reflexes absent, no peculiar odor to breath, no convulsive tendencies, heart action fairly good, both sounds clear, pulse rapid, 130, skipping about one beat in 25; respiration 28. His friends were unable to throw any light on the cause of his condition, except that they thought him drunk.

Death.—After giving 1 30 strychnin and 1 10 apomorphin. Dr. Peter Donnelly was called in consultation, but shortly after his arrival (4:45), a slight convulsion occurred, and with a sudden dilatation of the left pupil the heart stopped beating (not heard by auscultation or perceptible at wrist). Slight respiratory efforts continued for about five minutes, after which the patient died; in all about four and one-half hours after the fainting attack in the café.

Autopsy.—This was made by me about six hours later, March 20. Length, 71 inches; weight about 160; good muscular build; no scars or deformities; no signs of trauma or surgical wounds; skin and all visible mucous surfaces very pale; ear lobes and finger tips cyanotic; hair black; both feet discolored black to above ankles, resembling the crook of black-colored hose; rigor mortis just beginning in jaw; no postmortem lividity of under surfaces; slight body heat present; no distention of abdomen; no edema lower extremities.

Thorax: Mediastinal tissue small in amount; lymph glands normal; no fluid in pleuræ; pericardial sac not distended; fluid normal.

Heart: Fatty covering normal; section muscle normal color; left ventricle wall hypertrophied, 20 mm. thick; mitral valve

admits two fingers; valve flaps thin, normal; aortic opening admits thumb; valves normal; coronary openings patent, traced to smaller ramifications; no thrombus or embolus; right heart normal; dark fluid blood and small mixed clot in right auricle; pulmonary artery traced to small ramifications; no embolus; thoracic aorta normal.

Lungs: Pleuritic adhesions both lungs behind and at apices; section, old scar right apex; anthracosis moderate; dark red in color, yields slight fluid on pressure, crepitant throughout; slight hypostasis lower lobes; bronchial lymph glands negative.

Abdomen: Omentum and peritoneum normal. Stomach: Ligated cardia and pylorus—removed entire. Spleen: 12 by 10 cm.; capsule normal, dark red on section; follicles, pulp and connective tissue normal. Liver: Not enlarged; brown-red on section; mottled appearance in areas; consistency normal; shows cloudy swelling; parenchymatous degeneration. Gall bladder and ducts: Normal; no calculi. Pancreas: Small, otherwise normal. Adrenals: Normal; small. Right and left kidneys: Identical in appearance; large capsules strip off readily; do not drip blood on section, though they appear congested; dark red in color; cortex paler in color; congestion (?); parenchymatous degeneration; acute nephritis (?). Ureters: Patent throughout. Bladder: Normal; 150 c.c. urine withdrawn by catheter for examination. Duodenum: Small intestine and colon normal; serosa not injected. Appendix: Long, free entire length; contains small, hard concretion.

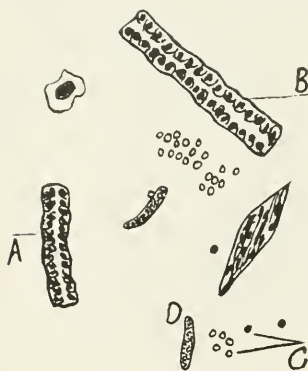


Fig. 1.—Camera lucida. Acute desquamative nephritis from nitrobenzol. (Zelss, oc. 4. obj. A. A.) A. True epithelial cast of medium-sized tubules. B. True epithelial cast of larger tubules. C. Red and white blood cells. D. Fine granular cast.

Brain: Meningeal vessels congested. Internal capsule normal. Vessels traced to finer branches; no embolus or hemorrhage. Ventricles normal. Basal sinuses, cerebral ganglia peduncles, circle Willis, cerebellum, pons and medulla, normal.

Stomach contents: About 40 c.c. opaque, rather thick, dark red fluid. Absence of free HCl to Congo red and di-methyl-amido-azo-benzol papers. Sour odor. Microscopically, much amorphous debris, cellulose fibers en masse (crossed striation), many finer cellulose particles. Many fat globules, large and small; many small non-motile bacilli; few shreds gastric mucosa (columnar celled); no crystals of any kind seen. Negative guaiac test for blood.

Urine: Amount withdrawn by catheter, 150 c.c.; specific gravity, filtered urine, 1013; reaction, acid; heat plus HNO_3 , slightly positive; acetic acid plus potass. ferrocyanid, positive; Fehling's, negative; Nylander's, negative. Microscopic examination: Many white (see illustration), and red blood cells; many finely granular casts (medium size); many larger hyaline and leucocyte casts; few very large epithelial casts of the larger tubules (about one in every two fields with low power); bladder epithelium and spermatozoa (death phenomenon).

Microscopic examination of liver: Congestion slight, cloudy

swelling (parenchymatous degeneration) and fatty degeneration quite general throughout sections; necrosis in areas.

Microscopic examination of kidneys: Stained in eosin-hematoxylin and Van Gieson. Cloudy swelling (parenchymatous degeneration), general throughout sections. Necrosis in areas. Much debris in larger tubules. Partly exfoliated epithelial lining of tubules in many areas.

Diagnosis.—Acute desquamative nephritis and acute hepatitis (toxic?).

Etiology.—Subsequent inquiry four or five days later into the circumstances surrounding the death by the coroner, Dr. C. Storz, revealed the following facts: The young man had purchased, a few days before his death, a pair of shoes at a sale being advertised in the city. These shoes were black patent leather lowers with cloth tan tops. On the evening of the dance above mentioned he had applied a liquid shoe blacking, made in Chicago, to the tan cloth uppers of the shoes. These shoes were worn that evening. The cloth uppers absorbed enough of the blacking to entirely cover up the tan color, and, moreover, since the shoes were put on before the tops were dry, to stain his feet and ankles black.

The coroner found in the man's room part of the bottle of blacking used and also the shoes. Both the shoes and blacking emitted a strong odor, not unlike oil of bitter almonds, the shoes having this odor a week after death. A portion of the blacking and the shoes were turned over to City Chemist G. A. Kirchmaier. Through his kindness I am able to append his report.

Chemical Examination.—About three drams of liquid shoe blacking was received from the coroner. Suspecting nitrobenzol from the odor, the blacking was distilled after adding H_2SO_4 , according to the method of Jacquemin.¹ To the distillate zinc and H_2SO_4 was added to reduce to anilin, after which the liquid was treated with excess of sodium carbonate and filtered. On the addition of a drop of carboic acid and then some sodium hypochlorite a brown coloration, rapidly changing to blue, appeared, due to formation of sodium erythrophenate, and which indicated the presence of nitrobenzol. The amount of pure nitrobenzol obtained was nearly as much as the total amount of blacking received from the coroner. The shoe tops were also extracted with solvents and marked traces of nitrobenzol obtained.

Reinsch's test for poisonous metallic salts was applied to stomach contents with negative results.

Nitrobenzol (or nitrobenzol $\text{C}_6\text{H}_5\text{NO}_2$) was discovered by Mitscherlich in 1831. Casper,² cited by Blyth, first called attention to its poisonous properties. Its importance as a commercially used article lies in the fact that it is a cheap solvent for the various anilin dyes and that it is used as a flavoring or odoriferous agent, under the name "Essence de Mirbane," in cheap perfumes, soaps and confections. Nitrobenzol is an intermediate product between benzol, a constituent of coal-tar, and anilin. It is in reality formed from the action of nitric acid on benzol ($\text{C}_6\text{H}_6 + \text{HNO}_3 = \text{C}_6\text{H}_5\text{NO}_2 + \text{H}_2\text{O}$), and anilin, the next step in the process, is formed direct from nitrobenzol (Allen³ and Lloyd⁴).

Pure nitrobenzol is a pale yellow liquid, having an odor closely resembling that of the essential oil of bitter almonds. It differs, however, from that body in many respects, the oil of bitter almonds being benzoic aldehyd ($\text{C}_7\text{H}_6\text{O}$).

SYMPTOMS.

Jübbel⁵ collected, between 1848 and 1876, 42 cases of poisoning by nitrobenzol, 13 of which were fatal. R.

1. Jour. Pharm. Chim. 4. vol. xxii. p. 375.
2. Casper: Vierteljahrsschrift f. Ger. Med., vol. xvi. s. 50, 1859.
3. Allen: Commercial Organic Analysis, vol. II. p. 478, 1887.
4. Lloyd: Twentieth Century Practice, vol. III. p. 400, 1895.
5. Jübbel: Die vergiftung en m. Blausäure u. Nitrobenzol in Forpnischer Beziehung, Erlangen, 1876.

Bachfeld,⁶ cited by Gould,⁷ has collected 63 poisoning cases by anilins and benzols. He concludes that there is danger of poisoning if clothing soaked with anilin or nitrobenzol remains in contact with the body. Nitrobenzol is a powerful narcotic poison, whether taken in the form of vapor or as a liquid. The fatal dose for an adult is probably about 1 gram, although numerous examples exist of serious poisoning by much smaller doses. The quantity which would be fatal if breathed is not known with any accuracy. Husemann⁸ mentions several cases of poisoning associated with the symptoms stated by the various authors mentioned as common to all: 1, fainting; 2, cyanosis, and 3, coma. A case cited by Taylor⁹ is typical:

A woman tasted a liquid used for flavoring pastry (it was afterward chemically identified as pure nitrobenzol. She immediately spat it out, swallowing probably not more than a drop. In replacing the bottle about a tablespoonful was spilt. As it was a small room the vapor rapidly permeated the atmosphere in it, and caused illness in herself as well as in a fellow servant. In about three hours, when seen by a physician, she showed symptoms of prussic acid poisoning. The features were pale and ghastly, skin clammy, lips and nails cyanotic, pulse feeble but mind clear. She became suddenly unconscious a few moments later, consciousness returning in eleven hours. Recovery not complete for weeks.

This case is exceptional, since recovery in instances where coma has developed is very rare.

Blyth¹⁰ states that the symptoms are almost identical with prussic acid poisoning, except that in nitrobenzol poisoning there is a much longer interval between taking the poison and its effects. "This is, indeed, the strangest phenomena of nitrobenzol poisoning, for the person taking it may appear well for periods varying from fifteen minutes to three hours, or even longer, and then there may be the most alarming symptoms, followed by coma and sudden death." (Note similarity to the present case, also Dr. Collamore's case below.)

Cases vary but little in their main features; in a few the blue skin and deep sleep are the only symptoms noted. This, of course, is quite typical for excessive doses of any of the coal-tar products, i. e., antipyretics, naphthalene yellow, metanil yellow, orange II or picric acid combinations. These latter have been used as constituents of butter color along with anilin yellow (dimethyl-amido-azo-benzin), and from the use of which several fatal poisoning cases have been recorded.

Nicholson¹¹ reported a case of fatal poisoning by liquid nitrobenzol. He stated also that the vapor from "almond glycerin soap" had caused in a friend of his who used it while taking a warm bath symptoms of mild poisoning (fainting and illness for some time afterward). It would seem that the circumstances surrounding this last case were favorable to skin absorption of the poisonous agent, and that the symptoms of poisoning which followed could be attributed to absorption in such a way.

Dr. G. A. Collamore, Toledo, about ten years ago attended a man who, when intoxicated, touched a small bottle of nitrobenzol to his lips under the impression it was whisky. The accident happened in the home of a local soap manufacturer, who had brought the stuff to the house from the factory and deposited it on the man-

tel because it imparted a pleasant (*sic*) odor to the air of the room. Shortly after, the man became unconscious and was cyanotic. After twenty-four hours he regained consciousness and insisted on returning to his work, though still cyanotic. He died suddenly while attending to work twenty-four hours later. The skin was dark colored and the breath exhaled the odor of bitter almonds.

Letheby¹² relates the case of a man who spilt some considerable quantity on his clothes. For several hours afterward he went about breathing an atmosphere of nitrobenzol. He then became drowsy, expressionless, and, with unsteady gait, presented the symptoms of intoxication. The stupor suddenly developed into coma and the man died, the fatal course being altogether nine hours, i. e., four hours before coma and five hours of total insensibility.

The first symptoms usually are headache, drowsiness, flushing of the face (which is shortly followed by extreme pallor, with cyanosis of the ears, finger-tips and lips), dyspnea (not present in the case under consideration), dilation of pupils, loss of voluntary power, and sometimes convulsions. These symptoms are followed by coma, which usually appears suddenly and increases in intensity till death ensues in five or six hours. When the stage of coma is reached there is but little chance of preventing a fatal termination (Allen). Death is usually stated to be due to paralysis of the respiratory centers. In the present case death was evidently caused by paralysis of the circulatory centers, since the heart stopped beating about five minutes before respiratory efforts were discontinued.

POSTMORTEM FINDINGS.

It is such an insidious narcotic poison that indications pointing to severe irritative action on stomach or bowels—when swallowed—are usually absent. The kidneys and liver may show extensive parenchymatous degeneration, as in the present case, this being probably mere evidence of the attempted eliminative process on the part of these organs. The changes are, however, no different from the action of many other actively poisonous agents. When swallowed the breath may give off an odor resembling the oil of bitter almonds. Filehne¹³ states that the blood gives the spectrum of acid-hematin. A dark brown to black color of the blood has been noted in some cases—the blood not being coagulated.

Cushy¹⁴ says that the oxygen-carrying power of the hemoglobin, when combined with nitrobenzol, seems to be lost. Its carbon dioxid is also decreased. With the spectroscope methemoglobin has been found, although in two cases—not fatal—cited by Huber¹⁵ the blood was chocolate colored, but gave in both instances normal blood and spectroscopic tests. An absorption band which does not seem to correspond to any of the usual hemoglobin products, often appearing between the yellow and red, has been noted in several cases. It has been designated the nitrobenzol-hemoglobin line.

Weyl¹⁶ mentions that sugar is found in the urine in nitrobenzol poisoning, although in the present case (and in Huber's cases, mentioned above) no reducing substance was present which reacted to Fehling or Nylander's solutions.

6. Bachfeld: Vierteljahr. Gerichtl. Med., 1898.

7. Amer. Year-Book, Med. and Surg., 1899.

8. Husemann: Jahresbericht, s. 531, 1872.

9. Taylor: Poisons, 3d ed., p. 665.

10. Blyth: Poisons—Their Effects and Detection, vol. i, p. 162, 1885.

11. Nicholson: Lancet, Feb. 1, 1862, p. 135.

12. Letheby: Royal Soc. Reports, 1863.

13. Filehne: Ueber d. Giftwirkungen d. Nitrobenzols, Arch. f. Exper. Path. u. Pharmacol., vol. ix, p. 229.

14. Cushy: Pharmacol. a. Therapeut., p. 411, 1899.

15. Huber: Giftwirkungen d. Nitrobenzols, Virchow's Archiv, vol. cxxvi, 1891.

16. Weyl's Monograph: The Sanitary Relation of the Coal Tar Colors, by Löffmann, 1892.

TREATMENT.

Since death occurs from narcotic action, with subsequent paralysis of the respiratory and circulatory centers, in this as well as in poisoning with other coal-tar-anilin preparations, a prompt emetic should be given or the stomach tube used. The stomach tube should be used, since, as in the case of morphin, the possibility of the drug being excreted into the stomach and bowels should be borne in mind. An effort should be made to ward off the impending coma; constant exercise, flagellation with wet towels and rubbing being employed. Hypodermically, atropin 1/100 to 1/60 gr. and cocain 1/4 to 1/2 gr. might be used for their stimulative action on the respiratory and cardiac centers. Evidently the process of elimination is attempted by the kidneys (as in the present case) and possibly also by the bowels. Large quantities of hot normal salt solution per rectum or intravenously would undoubtedly assist in this process. The depressant action of and danger attending the use of pilocarpin to assist elimination by the skin, in cases of already depressed circulatory activity, would seem to be contraindicated because of the danger of pulmonary edema.

CONCLUSIONS.

This case reiterates the danger of the promiscuous use of nitrobenzol by manufacturers. How they are able to prevent poisoning among the workers in their factories is somewhat of a mystery. Its use should be still more strenuously prohibited as entering into the composition of liquid shoe blacking, cheap soaps, confections and similar articles of widespread usage. The conditions present in this recorded case were unfortunately such as to permit of absorption by the skin. The shoes were put on before the blacking was dry, and shortly afterward the exercise incident to the dancing party probably aided its absorption. Nitrobenzol is probably used as a solvent for the anilin dyes in many liquid shoe-blackings on the market. The reason that the small boy shoeblack is not more frequently poisoned lies in the fact that but a very small quantity of the liquid comes in contact with his fingers, brushes being used instead, while the fingers are usually used for the application of the "polish." The "polish" is probably an anilin-black in most cases and probably contains nitrobenzol as a solvent. Why fatal poisoning is comparatively so rare among shoe-blackers is not quite clear. Perhaps but extremely small quantities are absorbed and that this absorption extends over a considerable time.

SPLENECTOMY FOR SPLENIC ANEMIA.

J. H. CARSTENS, M.D.
DETROIT.

Splenic anemia is a distinct variety of anemia, and entirely different from the various conditions characterized by enlargement of the spleen and classified under various names. The distinctive features are enlargement of the spleen without enlarged lymphatics, evidence of pigmentary deposits, and if long continued, disturbance of the liver and ascites. So far as etiology is concerned, nothing definite is known.

The special features of the condition are: 1, Slight diminution in the number of red corpuscles; 2, reduction in hemoglobin, and 3, a most remarkable reduction in leucocytes. This last seems to be the pathognomonic condition.

H. C. Wood¹ first described this in 1871. He says:

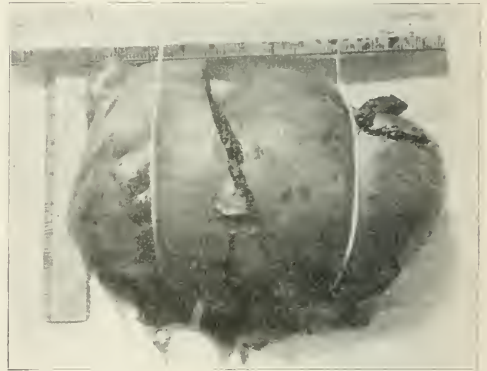
"I now desire to show that there is still a third form of pseudoleukemia, a splenic variety. Under the names of tumor of the spleen, splenic cachexia, etc., medical records furnish accounts of cases which I believe represent this affection." Griesinger, in 1866, describes a case in a child and called it anemia splenica, although it has since been shown that enlargement of the spleen in children is different from that peculiar enlargement found in adults.

Sippy has given us an excellent résumé on the subject and reported in full a case which ended in death. He gives all the blood examinations and careful microscopic examination of the spleen with illustrations.

Oslér, in two papers, reports 18 cases, some of them having extended over a period of many years, the patients being in fairly good condition. Harris has also reported quite a series of cases.

My case is as follows:

History.—Mr. B., aged 38; had always been well until last winter, when his abdomen began to enlarge. He became weak and pale, digestion was poor and he was unable to work. Various remedies were tried without much benefit. The enlargement of the abdomen increased until it reached the symphysis, crowding the abdominal viscera toward the right. It



Spleen, removed by Dr. J. H. Carstens.

was diagnosed as an enlarged spleen. He was brought to me by Dr. Peterson of Ruth, and I had his blood examined by Dr. Sill of the Detroit Clinical Laboratory. The report is as follows:

Blood examination—Erythrocytes.....	3,804,000	%
Hemoglobin	75	%
Color index	0.94	%
Leucocytes	1,250	%
Polynuclears	10	%
Mononuclears	90	%
Eosinophiles .....	...	%

There was a marked reduction in the number of leucocytes and an enormous increase in the proportion of the lymphocytes. The red cells showed no degeneration.

Operation.—July 21. An incision was made along the outer edge of the left rectus, a large incision being necessary on account of the size of the growth. I found some slight adhesions of the omentum, but otherwise no complication. The spleen was very soft, almost like jelly. In trying to lift it out of the wound I turned it a little so that the apex would come out first. It broke and a severe hemorrhage occurred, which was controlled by clamping the pedicle. I removed the spleen, ligated the blood vessels separately and then the pedicle. There was one vein the size of an ordinary pencil. Several bleeding points in the omentum were ligated, the abdominal

¹ American Journal of Medical Science.

cavity washed out and the wound closed. He was given an enema of two quarts of saline solution and put to bed.

During the first few days there was a temperature varying from 99 to 101 degrees, with the pulse 120. On the 26th the temperature went higher, and a blood examination made by Dr. Edmunds showed leucocytes, 11,000. On the 29th temperature went up to 105 degrees, pulse 132, and the increase of leucocytes indicated sepsis.

REPORTS BY DR. C. W. EDMONDS.

July 26.—Reds	2,745,000
Leucocytes	11,204
Mononuclears	73 %
Polynuclears	27 %
Hemoglobin	70 %
July 29.—Reds	2,919,200
Leucocytes	4,077
Mononuclears	18 %
Polynuclears	82 %
July 30.—Leucocytes	4,771
Mononuclears	19.7 %
Polynuclears	80.3 %
July 31.—Leucocytes	4,526
Polynuclears	85 1/2 %
Mononuclears	14 %
Eosinophiles	1/2 %

August 26 I removed the dressing and examined the abdominal incision, which had been closed with sterilized catgut. I found a red spot which indicated a stitch abscess. This was opened and a small quantity of pus removed. The leucocyte count again dropped. He had been irrational for a day or two, and one night, in the temporary absence of the nurse, he got up and walked around the room. He was put to bed and a restraining sheet applied. The next morning, during a violent effort at coughing, something gave way, and on examining him I found that the edges of the abdominal wound had separated and the intestines were protruding. An anesthetic was administered, the abdomen thoroughly washed out and the incision closed with silk-worm-gut sutures.

Results.—His recovery after this was rapid and uninterrupted. He developed a voracious appetite, his mind became perfectly clear, and he returned home four weeks after the operation perfectly well. A few days after sewing the abdomen I had another count of his blood made and the report by Dr. Sill was as follows:

August 1.—Erythrocytes	4,128,000
Hemoglobin	60 %
Color index	0.75 %
Leucocytes	2,666
Polynuclears	77.77 %
Mononuclears	22.23 %
Eosinophiles	.....

In comparison with previous examination the blood showed a marked change. The red cells had increased, but the hemoglobin had dropped in percentage. There was an increase in the number of leucocytes with a startling change in the proportion of the varieties, the polynuclears regaining their normal proportion.

The spleen weighed fourteen pounds. The pathologic examination of the growth, made by Dr. H. Gibbs, is as follows:

Examination of Tumor.—Hyperplasia of splenic tissue without increase in the capsule or trabeculae. The whole tissue is infiltrated with blood, in some places amounting to extravasation. There is no appearance of malignancy.

Further blood examinations were made occasionally by Dr. E. Edmunds as follows:

August 8.—Reds	3,325,000
Hemoglobin	65 %
Leucocytes—	
Mononuclears	26 %
Polynuclears	74 %
August 12.—Leucocytes	3,032
Polynuclears	31 1/3 %
Mononuclears	48 1/3 %
Eosinophiles	1/3 %
Hemoglobin	70 %

The peculiarity of the blood in these cases is the very small number of leucocytes. That seems to be distinctive of splenic anemia, but the most remarkable change was: 10 per cent. polymorphonuclears and 90 per cent. mononuclears before he was operated on, while ten days after the operation the proportion was nearly normal.

In order to throw more light on the subject I asked him to come for another blood examination. He came, and eight months after the operation the blood report, by Dr. Joseph Sill, is as follows:

Date received, April 5—Erythrocytes	5,448,000
Hemoglobin	100 %
Color index	1.0 %
Leucocytes	9,250
Polymorphonuclears	58 %
Mononuclears	42 %
Eosinophiles	..

This specimen of blood was practically normal.

Beside this the man's appearance was remarkably improved. I did not have him weighed when he arrived at the hospital, but when he left he weighed 97 pounds, and the day the last blood examination was made he weighed 193 pounds, was the picture of health and in every way well, except having a slight bulging at the line of incision, and hence was incapacitated for hard physical labor.

SUMMARY.

1. Splenic anemia is a distinct variety of enlargement of the spleen.
2. It can be diagnosed by blood count, which shows an abnormal and small number of leucocytes. It is, as a rule, slow in its development, and is but slightly relieved or retarded by treatment.
3. Splenectomy seems to offer the only chance for a permanent cure.

X-RAY THERAPY IN LEUKEMIA.

A PRELIMINARY REPORT. WITH SPECIAL REFERENCE TO LYMPHATIC LEUKEMIA.

JOSEPH A. CAPPS, M.D., AND JOSEPH F. SMITH, M.D., CHICAGO.

EDITOR'S NOTE: The article with the above title in THE JOURNAL, Sept. 24, 1904, page 891, was marred by the inadvertent omission of the accompanying table. The readers of the article easily recognized the fact that something was omitted, as the table was referred to in the article.

CASES OF LEUKEMIA TREATED BY THE X-RAY.

Case No.	Type.	Acute or Chronic.	EFFECT OF THE X-RAY ON			Time of Observation under X-Ray.	Present Condition.
			Spleen.	Glands.	Leucocytes.		
1*	Spleno-Myelogenic.	Chronic.	Enormous mass reduced to small size. Recurrence.	None	261,000 to 10,000. Recurrence 250,000 to 9,400	18 months.	Dead.
2	Spleno-Myelogenic.	Chronic.	Much reduced.	None	400,000 to 46,500.	12 weeks.	Improved.
3	Lymphatic.	Subacute.	Much reduced.	Reduced nearly to normal size.	70,500 to 25,000.	10 months.	Dead.
4	Lymphatic.	Subacute.	Not noticeable.	Not noticeable.	80,000 to 64,500.	6 weeks.	Dead.
5	Lymphatic.	Acute.	Not noticeable.	Not noticeable.	69,000 to 299,000.	10 days.	Dead.
6	Lymphatic.	Chronic.	Reduced.	Much reduced.	208,000 to 46,500.	16 months.	Dead.
7	Lymphatic.	Chronic.	Reduced.	Much reduced.	150,000 to 4,200.	5 months.	Improving.
8	Lymphatic.	Chronic.	Reduced nearly to normal size.	Reduced nearly to normal size.	355,000 to 6,800.	8 months.	Improving.

*Case previously reported by Dr. Senn.

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THE VALUE OF CYTODIAGNOSIS IN DISEASE OF THE CENTRAL NERVOUS SYSTEM.

During the last two years a number of articles have appeared, particularly in journals devoted to neurology, dealing with the so-called cytodagnosis. This procedure, which is a natural outgrowth of the differential blood count, consists of a differential count of the cells in an inflammatory exudate, or in one of the natural secretions of the body, as the cerebrospinal fluid. The introduction of a test of this sort is almost invariably followed by a certain number of articles based on an insufficient number or an insufficient variety of cases, and as a result of this false though often very attractive conclusions are reached; and too many of us are too apt to accept the various claims set forth for new methods without the necessary saline flavoring.

In the case of cytodagnosis, the most work has been done on the central nervous system by staining centrifugized cerebrospinal fluid withdrawn by lumbar puncture. It is in diseases of the central nervous system that the procedure has been claimed to be of the greatest value. The main claims, briefly stated, of the majority of French, German and American writers, have been that an increase in the lymphocytes in the cerebrospinal fluid is pathognomonic of a meningeal irritation, and that such an increase is characteristic of the early stages of general paresis and *tabes dorsalis*, and of cerebrospinal syphilis.

In a recent article,¹ Niedner and Mamlock have drawn attention to some of the fallacies which are apparent in the technic and in the interpretation of the results of cytodagnosis as it is now done. As these observers point out, if we are to compare the results of different workers with a test of this sort it is necessary to base all observations on a common technic, and so far this has not been done. A measured quantity of the fluid should be taken; it should be centrifugized in a centrifuge having a given number of revolutions per minute, and should be left in the centrifuge for a given length of time. Further, the method of making spreads, and the method of staining should be uniform, and the technic as a whole should be as simple as possible. The present lack of uniformity of technic makes it difficult if not impossible to compare the results of different authors, and leads different observers to give different figures as normal. Thus French observers state that

three or four lymphocytes in a microscopic field with a magnification of 100 diameters represent the normal, while certain German observers, as Merzbacher, state that under similar circumstances six to eight lymphocytes in the field are normal.

Up to the present the common conditions in which an increase of the lymphocytes in the cerebrospinal fluid has been observed have been general paresis, *tabes*, and syphilis of the nervous system. Occasionally such an increase has been found in other conditions, as herpes zoster, sciatica and parotitis. On the other hand, it has generally been stated that in functional neuroses, epilepsy, senile hemiplegia, cerebral tumor and compression myelitis no increase in the lymphocytes takes place. Niedner and Mamlock studied a large series of cases from von Leyden's clinic to determine whether they could substantiate the reported findings. They conclude that an increase of lymphocytes in the cerebrospinal fluid is not necessarily associated with parasymphilitic affections (*tabes*, general paresis), but that it may be due to any cause producing sufficient irritation of the meninges which lasts a certain length of time. Thus it may be due to intoxication (*lues*, uremia, tetanus), or to mechanical irritation from tumors or other mechanical factors causing cerebral pressure.

Simple irritation of the meninges from injury or disturbances of the circulation is not in itself sufficient to cause an increase in the lymphocytes. As to the value of the test, the authors state that they feel somewhat disappointed. The frequent appearance of lymphocytosis in *lues*, and its not infrequent absence in *tabes*, make its value in the latter disease rather problematical. While the test may be of some value in general paresis, as the lymphocytosis here is quite constant, still the diagnosis in these cases is so seldom in doubt that the test is rather a superfluity than an aid. The impression received by the work of Niedner and Mamlock is that the test has been very much overrated in the articles so far written.

PSYCHOPATHIC HOSPITALS AND CLINICS.

One of the disadvantages with which American alienists have had to contend in the past has been the inability to study and treat the acute insane and milder grades of psychoneuroses under such advantageous conditions as the surgeon and physician enjoy in caring for medical and surgical cases in city hospitals. The acute insane are sent to large state asylums as soon as legal commitment is possible, and the psychoneuroses have never been properly provided for in city clinics. They are not admitted to general medical and surgical hospitals. Strangely enough, they are not often regarded by the admitting authorities as sufficiently ill to require hospital treatment. American cities have as yet provided no special hospital for the proper care of neurologic cases other than a few infirmaries in con-

1. *Zeitschrift für klin. Med.*, vol. liv, Nos. 1-2.

nection with almshouses. The usefulness, even of such provisions, has obviously been sacrificed by the nature of the associations and surroundings of such hospitals.

However, it looks more promising for the future. Ann Arbor and Albany already have their psychopathic wards. The last New York legislature appropriated several thousand dollars for a psychopathic hospital for New York City, and plans of construction are now in preparation. It is interesting to note with what singleness of purpose well-meaning reformers put in operation the state care of the insane. They seem to have entirely overlooked the various economic, therapeutic and scientific principles which were sacrificed in transporting all the insane from the towns and cities into large and only too often inaccessible country district asylums. On the continent of Europe the mistake of caring for the insane so far from their homes was recognized early and was in process of correction long before the state-care movement had become at all general in this country. Thus in the early sixties Griesinger pointed out the urgent necessity of forming small city hospitals and out-clinics for reception and treatment of the acute insane, to supplement the workings of the large district asylums for the chronic cases which were situated quite remote from the populous centers. Its general adoption soon followed. Germany preceded us, therefore, by at least two decades in establishing this type of hospital for the acute insane and psychoneuropathic.

Out-clinics or dispensaries have been in successful operation for several years in the German psychopathic hospitals; indeed, the great majority of the so-called functional neuroses, such as hysterias, epilepsies, chronic neurasthenics and the like, have been treated in this manner. Their ratio in the psychopathic hospitals at Giessen and Kiel has steadily increased. In the first year's opening of the hospital at Giessen in 1896, 6.5 per cent. of the total number treated in the dispensary and wards were of the psychoneuropathic class. In five years it increased to 23 per cent.

In this country the lack of proper facilities for diagnosis and treatment of such cases in general neurologic clinics has often been commented on. Clark and Montgomery¹ have included these essential out-clinic departments in their suggested plans for psychopathic hospitals in American cities. They have arranged ample out-clinic provisions for diagnosis and treatment by electricity, hydropathy, mechanicotherapy, massage and systematized movements. Out-clinics of this kind would be of inestimable value for selection of proper cases for in-ward treatment. They would reduce the fear with which the general public regards such hospitals. They would also result in lessening the necessity for so many private sanatoria which, for economic reasons at least, are only too often impossible for the poor.

THE PASSING OF PRIMITIVE MAN.

The disappearance of primitive man before civilization has been recently discussed in an interesting manner by Dr. F. A. Cook.¹ He says that alcohol and venereal diseases have been largely credited with the result, a conclusion which he questions, though he admits his observation has been limited to the sub-Polar races, the Fuegians, Patagonians, Eskimos and sub-Arctic Indians. He is inclined to credit as an important factor the lack of immunity of these races to the diseases of civilization, which, to civilized man, have, from long familiarity, become comparatively innocuous. The part played by such disorders as measles, mumps, whooping cough and scarlet fever in the destruction of primitive man, was to him a great surprise. Even chicken-pox is a fatal epidemic among the Eskimos, and even more severe among adults than among children. The infant mortality among the Indians is very great, and this he attributes to the introduction of new diseases by explorers, traders and missionaries. Alcohol and venereal diseases come second. Lastly, he considers the destruction of savage ambition and altered conditions of life and environment as important factors leading to physical degeneration, and making the savages ready subjects for tuberculosis.

There is undoubtedly considerable truth in these conclusions. They may certainly be accepted as the deductions of a careful and trained observer in a comparatively limited field. Many will think that he underestimates the influence of alcohol as a cause of degeneration and fatality. There would be little difficulty in exterminating many native tribes by free trade in intoxicants during their hunting season with the consequent results of improvidence and later famine. Such a condition of affairs occurred some years ago on St. Lawrence Island. There is undoubtedly a great deal of truth in his theory of lack of immunity, and this would be an interesting study could it be taken up over a wider field by competent observers. If we could exterminate tuberculosis for many generations and then admit the infection, we might have a similar experience of our own.

The influence of changed environment and of contact with a higher grade of civilization generally, unattended by a higher grade of morals, is also probably underestimated by many observers. We can imagine, perhaps, a similar demoralization occurring in our own race were the presence of a vastly superior class of beings without moral restraint suddenly thrust on us. Mr. Wells' fantasy of the "War of the Worlds," even without the active extermination he portrays, would probably soon be more than realized. There is a vast difference, however, as regards racial vitality in uncivilized man, and, in some sections, with special conditions, primitive man is capable of existing and even flourishing in spite of the demoralization and disease introduced by contact with the whites. Thus in the

1. Suggestions and Plans for Psychopathic Wards, Pavilions and Hospitals for American Cities, by L. Pierce Clark and H. P. Van Montgomery. *American Journal of Insanity*, vol. lxi, No. 1, 1904.

tropics the partial immunity toward malaria of some of the colored races is apparently an adequate defense, and among the Eskimos we might look for a similar partial immunity to evils of crowding and non-ventilation. This may account for the fact reported by Nansen, who has observed that while tuberculosis is not uncommon among the semi-civilized Greenland Eskimo, it is by no means always a rapidly fatal disease with them, but may exist in a readily recognizable form for years without seriously interfering with their ordinary activities and pursuits, and this notwithstanding the exposure that these involve.

Primitive man, however, is rapidly disappearing under all these causes and unfavorable conditions that have been mentioned, together with many others, in most parts of the world. The desirability of careful medical studies among primitive people is, therefore, the more imperative. There is a field of study here which has been too much neglected, and in many cases the opportunity is forever lost. It is to be hoped that medical explorers and even non-medical ones will give it their future attention. It may be that such a study thoroughly carried out would lead to some valuable practical deductions as regards the warding off of disease among civilized races as well.

THE GROWING NECESSITY OF COLLEGE TRAINING PREPARATORY TO MEDICAL STUDY.

For the young man who is planning to fit himself for the practice of medicine there are two possible routes: One, the longer, but admitted by all to be more nearly the ideal, involves the intervention of a greater or less length of time between the completion of the high-school course and the actual assumption of medical study, to be spent in attendance at some college or university; the other is the short cut from high school to medical school, which is recognized as practical by a large number of eminently well-conducted medical schools, although their number is steadily decreasing. There can hardly be a question as to which is the better route. The question that does arise in the minds of many is, however, does it pay to give up from two to four years to college work which, in large part, may have no direct bearing on the study or practice of medicine?

There are two things that are to be obtained in a college course: One is the acquisition of certain knowledge, and this is, perhaps, what the majority of people consider the chief function of any educational institution. The other is the social training, the habit of contact with people of rather better than average bearing and education, the broadening of prospect and the development of ideals; and it is these less material profits of college education that those most familiar with the subject will insist are really the most important. In the nature of things a medical school must be given over almost entirely to the first matter—the

imparting of information. The curriculum of every school is so crowded that there is little opportunity for anything but hard work, and the student's mind has little time for play on any but the topics of his work. The hours for social contact are few, the instruction afforded is essentially narrowing, and the desire for hospital appointments and other immediate rewards holds the attention of the student fast on the one subject. The intensity of concentration and the eagerness for new information that is so characteristic of the medical student is brought out very strongly in those institutions in which medical and undergraduate students occupy the same buildings and grounds. Therefore, the medical student seldom gets much social advantage from contact with his fellow-students, and still less from the faculty, as a rule, and the student who has entered medical work in the immature condition of the high-school boy is bound to lose altogether this benefit that is conferred so well by the college. To be sure, there are some of the most broad-minded, cultured and estimable of the members of our profession who have had never a moment of undergraduate life in their career—some who have not even had a high-school education but these are brilliant exceptions. Most of us must get our polish through contact. Furthermore, it will be generally found that these are the very men who regret the lack of a college education most of all. With the rapid increase in the number of colleges and universities throughout the country, and the great growth among them all, the proportion of college-bred men and women in every community is rapidly increasing, and already they form a very considerable proportion of the generation with which the present-day medical student will live. It is certain that these college-bred people, holding the positions of trust and influence in their several communities, will constitute that portion of the society to which the physician will naturally look for his companionship and associations, and the mere holding of a degree and a title without the necessary breadth of education and culture behind it will not of itself make him acceptable to them. Success consists of a good deal besides a large income, and a professional man who is not socially recognized is seldom happy. No one would be so foolish as to insist that a college education is the *sine qua non* of social and mental success, but we know of no other aid that is so great or so satisfying in after years.

As for the advantages of the college training in the way of the addition of knowledge, there is much that could be said bearing on the relation of a full training in literature, economics and history to breadth of character and the formation of ideals, but there are also many other things of immediately practical nature. First of all should be mentioned the study of French and German, without a reading knowledge of which no student should be at the present day. Then there are the fundamental conceptions of biologic science, and also geology and paleontology, which afford such excel-

lent foundations for the study of human biology and development which every student needs, but which he can not possibly get elsewhere than in college. But of most immediate concern to the teacher in the medical school is the training in methods of laboratory study. High-school laboratory work, when it exists at all, can give little training that is of the same type as should be demanded of every medical student, and affords little conception of the real meaning of the words science and research. Put together in the same laboratory two students, one of whom has had but a high-school preparation while the other has taken laboratory courses in the sciences in any good college, and the high-school student is of necessity handicapped from the start.

THE DIPLOMA-MILL BUSINESS.

According to the newspapers, not less than 20,000 people are labeled doctors of laws, letters, science or theology by diplomas bought from a young man named Farr who is, in his corporate capacity, half a dozen or more colleges and universities entitled to issue diplomas giving high-sounding degrees. If one individual can be all this and distribute 20,000 doctorates up to date, what is the output of the numerous competitors, the Buchanans, the Armstrongs, the Proberts, and all of that ilk who are also in the business? The prospect seems to be that every fool who can spend ten dollars, more or less, may become a doctor of some sort or other. Unearned honors coming cheaply are always in demand by a certain class. Fortunately, in most of the states now there is a legal restriction on medical degrees, and imperfect as the law often is it is far better than it has been.

WOOD ALCOHOL.

At the session of the American Medical Association held last June, the House of Delegates unanimously adopted the following preambles and resolution:

WHEREAS, The employment as beverages of wood spirit or methyl alcohol and its various preparations is known to have been responsible for numerous deaths and many cases of blindness in this country during the past few years; and

WHEREAS, Even the breathing of confined air charged with the fumes of this form of alcohol has been shown to produce blindness, it is

Resolved, That the House of Delegates of the American Medical Association, recognizing the dangerous character of wood alcohol and liquors containing it, believes that it should be placed on the list of poisons. It accordingly urges the proper federal and state authorities to take the necessary steps to protect life and eyesight from its pernicious influences.

At the time this action was taken—on the recommendation of the Section on Ophthalmology—only a preliminary statement was ready for presentation; now, however, the investigations are complete, and we publish this week the first installment of the report of Drs. Wood and Buller¹ on the subject, which confirms all that has been claimed in the preambles and resolutions. To a large extent "Columbian spirits" and other "deodorized" forms of this deadly poison, wood alcohol, are being substituted for the innocuous, or less injurious,

grain alcohol in all sorts of liquid which—legitimately or otherwise—are used by human beings. These include the medicines we use, the perfumes we smell, the condiments, sauces and flavors we employ in cooking, as well as the common intoxicating beverages. Surely, it is high time that the medical profession should voice an emphatic protest against this wholesale poisonous adulteration of food and drink—an adulteration so far confined, by the way, to the American continent—and consider whether the sale of this "deodorized," palatable and attractive poison should not be altogether prohibited.

EXPULSION PENALTY FOR EXTORTION

A German medical society, it is reported, has recently disciplined one of its members for charging extortionate fees. Being consulted by an American millionaire for appendicitis, he recommended an operation and suggested the name of a surgeon. The latter was employed and received a liberal fee. Then the physician in question who was first consulted sent in a bill for \$2,000 for his advisory services. This charge was objected to and a smaller sum offered. The physician then instituted legal proceedings, and had the American arrested and humiliated by being placed in "jail limits"—we presume a sort of unpleasant *quasi* confinement. The matter aroused public attention, and the conduct of the physician was severely condemned by press and public, and his fellow-physicians took the matter up with the result as stated. It is generally admitted by the public, as well as by the profession, that a physician's charges may vary with his professional reputation, and also according to the means of his client. There are high-priced physicians as well as high-priced lawyers, and nothing unethical is recognized in the distinction. Moreover, the scale of charges varies according to standards fixed by medical societies to fit the means of the patients. Practically, there is no limit as to contracts between physician and patient. One is at liberty to receive whatever the other is willing to pay, and one's conscience permits one to receive, and there is nothing unprofessional or unethical in large fees *per se*. When, however, as in this instance, a physician attempts to force by legal means what the public would regard as extortionate demands not corresponding to what is considered the value of his services or opinions, he is liable to receive the tacit, if not the open, condemnation of most of his professional brethren. The occurrence of such affairs and the concomitant public discussion is an unpleasant thing—a sort of scandal on the profession—and probably our German confrères followed the least regrettable course in the matter.

NIELS R. FINSEN.

In the death of Niels R. Finsen in Copenhagen, Denmark, September 24, there passed away one of the heroic figures in modern medicine. In spite of chronic and incurable disease, Finsen, with rare persistence, developed phototherapy on a strictly scientific basis so that it became definitively established as a successful means of cure in lupus vulgaris. He early recognized

1. See page 972.

that if the great forces contained in light ever could be used in the science of practical medicine it would result only from investigations of physical, chemical and biologic nature, together with practical experiments in different diseases. Apparently, his earliest publications concerning light and its action on the animal organism date from 1893. In 1896 the results of his scientific researches led to the establishment in Copenhagen, as the outcome of private and public support, of "Finsen's Medical Light Institute." Subsequently this institute, which soon became known everywhere, was greatly enlarged. In 1899 Finsen began the issue of a series of reports (Meddelelser fra Finsen's medicinske Lysinstitut) in which are published the results of the scientific and practical work of the institute. In the meantime, there appeared important monographs by Finsen in the Danish, French and German languages. Here were considered especially the rôle of the chemical rays of light in medicine and in biology and the treatment of lupus vulgaris by concentrated chemical rays. The report covering the first 800 cases of lupus vulgaris treated at Finsen's institute (November, 1895, to November, 1901) show that 407 were cured, 85 had interrupted the treatment, while 308 were still under treatment. This report may be taken as a model of thoroughness and exactness in dealing with matters of this kind: one is particularly impressed with the carefulness to avoid premature and exaggerated statements as to the value of the method. This is not the time nor the place to give any detailed account of the scientific work of Finsen and his assistants. To Finsen belongs the credit of having placed phototherapy on a firm and scientific basis. But no one must think for a moment that this was accomplished without persistent effort. In reading Finsen's writings and the publications of others working in his institute, one at once finds the keynote to be continuous extension of our knowledge of the action of light on living matter and improvements in the practical application of the chemically active rays. Finsen was ever conservative in his own estimation of the therapeutic powers of light and advanced claims which subsequently proved to be without adequate foundation. In his short but fruitful career, Finsen consistently illustrated that unselfishness and modesty which medical men love to see in their best types. He cared not for personal gain. When he was awarded the Nobel prize in medicine, in December, 1903, he generously turned the money received over to the use of the institute. From whatever side we look at Finsen and his work, there comes only the impression of a noble character.

Medical News.

CALIFORNIA.

Donation for Hospital.—The Pasadena Hospital has recently received an anonymous donation of \$15,000 to be applied to the construction of a new hospital building.

New Buildings for Sanatorium.—Work has been commenced on a two-story building and a bungalow cottage to cost \$30,000 for the Southern California Sanatorium for Nervous Diseases, Pasadena.

Angelus Hospital Association Will Build.—A permit was issued September 16 to the Angelus Hospital Association for

the construction of two fireproof hospital buildings in Los Angeles, to cost \$150,000.

One-fifth of Deaths Preventable.—In the last two years, 28,600 deaths have occurred in the state, of which 5,798, or more than one-fifth, were from preventable diseases, and especially typhoid fever. No case of plague has been reported since February.

Personal.—Dr. Frank S. Woolsey, Berkeley, has been appointed physician of Alameda County, vice Dr. Hubert N. Rowell, resigned.—Dr. Dwight H. Trowbridge, Fresno, has returned from Europe.—Dr. Rae Felt, Eureka, was injured in a wreck on the New York Central Railway at Lyons, N. Y., September 25.—Dr. James H. Todd has been re-elected president of the Oakland Board of Health.

Restrictions of State Health Board.—Dr. Newel K. Foster, Sacramento, secretary of the State Board of Health, in his report to the governor, says that while the law imposes important duties on the board, it bestows little power, as it does not oblige local boards of health to answer interrogations from the state board, does not allow enforcement of proper measures to protect life and health, gives no means for eradicating causes of diseases and epidemics or for the dissemination of information to the people save through the good will of the press.

CONNECTICUT.

Bequest.—By the will of the late Mrs. Ruth Ann Adkins of Winsted, the residue of the estate, after the payment of legacies, is devised to the Litchfield County Hospital. The value of the bequest is about \$15,000.

Infectious diseases were reported during August as follows: Measles, 15 cases in 7 localities; scarlet fever, 44 cases in 17 localities; cerebrospinal fever, one case; diphtheria, 86 cases in 22 localities; whooping cough, 6 cases in 3 localities; typhoid fever, 173 cases in 47 localities, and consumption, 18 cases in 6 localities.

Personal.—Dr. Edward S. Brackett, Hartford, has been appointed surgeon of the schoolship *Philadelphia*, which is about to take a trip round the world.—Dr. Franklin H. Mayberry, East Hartford, has been nominated for state senator.—Dr. L. Z. Skinner, Windsor, has been appointed assistant professor of anatomy in the medical department of the University of Illinois.

August Deaths.—During August 1,362 deaths were reported, 46 less than in the preceding month, 33 less than in August, 1903, and 53 less than the average of August for the five years preceding. This is equivalent to an annual mortality of 17 per 1,000. The principal causes of death were diarrhea, 361; diseases of nervous system, 136; consumption, 123; heart disease, 104; and violence, 86.

GEORGIA.

Personal.—Dr. Thomas H. Hall has been elected city physician of Dublin.

Journals Consolidated.—The editor of *Southern Medicine* announces the consolidation of that journal with *Gaillard's Medical Journal*, beginning with the October issue.

Health Department Appropriation.—Augusta has appropriated an additional sum of \$2,400 for the health department, \$1,200 of which is to be used in betterment of the isolation hospital.

National Guard Surgeons to National Meeting.—The governor has detailed the surgeon general, Col. Joseph A. Guinn, Connors; Majors Floyd W. McRae, Atlanta, Joseph G. Jarrrell, Savannah, Olin H. Weaver, Macon, Charles J. Montgomery, Augusta, and Andrew H. Hilsman, Albany, and Lieutenants James M. Kelly, Griffin, Guy Chappell, Dawson, John M. Spence, Camilla, and Sam H. Greene, Atlanta, as delegates to the Association of Military Surgeons of the United States, which meets in St. Louis, October 10 to 15.

IDAHO.

Society Meets.—The South Idaho District Medical Society met at Idaho Falls, July 2.

Hospital at Coeur d'Alene.—Plans are nearly completed for a hospital building to be erected at Coeur d'Alene lake on the water front, by Dr. W. W. Webb.

Smallpox Death.—A patient who had been ill with smallpox for two weeks at Mahon's Mill on Lake Creek, died, principally, it is said, from want of proper care and attention.

In Prison for Shooting.—Dr. James W. S. Emerson, Milner,

has been sentenced to two years' imprisonment in the state penitentiary for shooting and seriously wounding his wife last autumn.

ILLINOIS.

Hospital Incorporated.—Baptist Hospital, Woodstock, has been incorporated, with a capital stock of \$10,000.

Personal.—Dr. Howard Kelly, Baltimore, was the guest of honor at a dinner in Peoria, September 22, at which Dr. Clifford N. Collins presided.—Dr. Elijah A. Morgan, Deatur, has retired from practice on account of ill health.

Hospital Planned for Oak Park.—A hospital "built by Oak Park people, and managed by Oak Park people for Oak Park people" is planned. Dr. John W. Tope is the chairman of the incorporation committee. The projectors expect to erect a building to cost \$125,000, with separate isolated and maternity buildings.

Illinois Suitable for Consumption Cure.—The Illinois State Board of Health has issued a third revised edition of its circular on the "Cause and Prevention of Consumption," which was published in July. In this circular Illinois is commended as a suitable place for the treatment of consumption, and attention is directed to climatic conditions, elevation and soil, which is equally as good as, and in some instances superior to those found at the famed tuberculosis sanatoria of Massachusetts, New York and Pennsylvania. The sections on the care of the consumptive, prevention of consumption, and consumption in schools, contain much new information. Within the last few weeks \$10,000 has been offered to the board, to be utilized in the construction of a consumptive hospital.

Chicago.

Requests to Hospitals.—By the will of Mrs. Elizabeth G. Kelly the Home for Incurables receives \$60,000; the Presbyterian Hospital, \$25,000, and St. Luke's Hospital a liberal sum, the amount of which is not yet announced.

Personal.—Dr. George F. Butler has severed his connection with Alma Sanitarium and will resume practice in Chicago.—Dr. John L. Sweeney has returned from Europe.—Dr. and Mrs. Daniel R. Brower have returned from the west.—Dr. Norval H. Pierce has returned from a summer in Europe.

Mortality for the Week.—In the week ended September 24, 457 deaths were reported, 14 more than in the previous week, and 41 less than in the corresponding week of 1903. This is equivalent to an annual death rate of 12.36 per 1,000. Acute intestinal diseases caused 81 deaths; consumption, 63; violence, 42; heart disease and Bright's disease, each 34, and pneumonia, 32.

Antitoxin Stations Opened.—The department of health has established antitoxin stations at 7 drug stores on the north side; 14 on the south side; and 19 on the west side, at which diphtheria antitoxin can be obtained at the following prices: 1,000 units 75 cents, 2,000 units \$1.25, 3,000 units \$2.25. The department supplies culture outfits and makes a diagnosis of diphtheria free for all physicians who apply. They advise all physicians to make a culture and send it to the laboratory in every case of "sore throat," whether they suspect diphtheria or not, "because it is well known that it is practically impossible to diagnose diphtheria clinically in every case. If a child dies of diphtheria one of two parties is directly responsible—either the parents in not calling in a physician soon enough, or the physician for not making the correct diagnosis and giving antitoxin early enough in the disease."

Summary of Smallpox in Chicago.—During the last six years 1,241 cases of smallpox have been sent to the Chicago Isolation Hospital. Of these 1,114 never had been vaccinated; 127 had some sort of a scar said to have been of a vaccination in early life. None of these with the old marks had ever been re-vaccinated. Three experienced physicians examined these persons for evidence of vaccination, and the figures are absolutely reliable. These 1,114 cases came from the remnant of unvaccinated persons. It is probable that 90 per cent. of the people of Chicago are vaccinated, and from this source came only 127 cases, while from the remaining 10 per cent. 1,114 cases were sent to the hospital. Last year 389 patients with smallpox were sent to the hospital, 102 of whom were unvaccinated children under the school age of 6 years, 14 of whom died. This year, out of 161 cases, 52 are unvaccinated children under the school age. The children under school age are not required by law to be vaccinated, which accounts for these babies falling victims to this face-scarring and death-dealing disease. The unvaccinated children under 6 years of age, and the unvaccinated new

arrivals in the city who have found employment without being required to produce a certificate of vaccination, furnished nearly all the victims. The disease has changed recently to a more virulent form, four deaths having occurred in the last fifteen days. There were but three deaths in the previous eight months. Evidence that no recently vaccinated person ever contracts smallpox is the fact that during the last six years the most recently vaccinated person to be sent to the hospital with smallpox had an imperfect mark made thirteen years previous to the attack.

MARYLAND.

Baltimore.

Opening of New Surgical Building.—The new surgical building of Johns Hopkins Hospital will be dedicated with elaborate ceremonies October 5.

College Opens.—The twenty-fourth annual course of instruction at Baltimore Medical College was opened, September 20, with an address by Dr. George Reuling.

Teachers to Examine Children.—The board of commissioners has instructed the teachers to examine the arms of all children under them for vaccination marks and report to the health department.

Need Isolation Hospital.—A fatal case of diphtheria, in which a woman was without medical attendance for a week, and was dependent on her neighbors for sustenance, again emphasizes the need of a hospital for infectious diseases.

Personal.—Dr. William Lee Howard has returned from abroad.—Drs. Isaac E. Emerson and Smith Hollis McKim arrived home from Europe September 18.—Dr. and Mrs. Charles Whittier Young will sail October 25, from San Francisco, for China, where Dr. Young will be a medical missionary.

Defects in State Lunacy Laws.—Attention is drawn to numerous defects in the lunacy laws of Maryland. Dr. Preston, secretary of the lunacy commission, says the law is unconstitutional. All that is necessary to commit any one to an asylum is the signature of two physicians to a certificate of insanity. There is no identification of the signers, no affidavit is required. "It would be an easy matter for a person to procure a blank certificate and forge the signatures of two reputable physicians to it; or he need not do that, but simply inscribe 'M.D.' after any name. I know of no instance in which this has been done, but the mere fact that it is possible under the present law is sufficient warrant for an amendment to the law." Again, the law says a person so committed "shall be confined until released by due process of law," which is legally imprisonment for life, as there is no process of law in the Maryland statute books by which an insane person can be released. The commission has endeavored to get around this by "paroling" patients who have recovered, but there is no legal warrant for it, as there should be. The last legislature passed a bill by which the state, in January, 1905, will assume the care of all insane institutions, except those in private asylums. By this law all pauper lunatics will be removed from county jails and almshouses to one of the state asylums. Dr. Preston proposes that commitment shall be made only on an order from a court of record. The judge is to order an inquiry to be made into the alleged insanity by two competent physicians. If they find insanity present they shall certify so under oath, after which the finding is to be approved by the judge, who, if he thinks proper, may order a new examination by physicians or jury, or may summon the parties before him. In case of emergency a patient may be admitted to an institution for three days, during which the examination is to be made as above. The secrecy with which the incarceration of an alleged insane person is permitted under the present statute is further said to be one of the weightiest arguments against the law, as it practically legalized kidnaping.

MINNESOTA.

Ames May Go Free.—The county attorney of Hennepin County has made a motion for a nolle of the ten indictments against Dr. Albert A. Ames, formerly mayor of Minneapolis.

August Vital Statistics of Duluth.—During the month 72 deaths and 114 births were reported. Typhoid fever caused 5 deaths; tuberculosis, 6; and violence, 16. No death from contagious disease was reported.

Anti-Spitting Crusade Extended.—The health commissioner of Minneapolis, after having conducted a successful campaign against spitting on sidewalks, has now caused to be placed in

the galleries of all the theaters of the city huge placards reading, "Don't Spit on the Floor. Fine, \$5."

Hospital Notes.—The new emergency hospital at the state fair grounds, secured by the efforts of the Woman's Medical Society of Minneapolis, contains 3 wards, an operating room and several private rooms.—A thoroughly-equipped hospital was recently opened at Cass Lake.—Work on the State Sanatorium for Consumptives at Walker will be begun soon. During 1904 and 1905, \$25,000 is available for the sanatorium.

NEW YORK.

Medical Staff Changes in Utica.—At the quarterly meeting of the medical staff of Utica General Hospital, Dr. Raymond L. Baker was elected a member, vice Dr. Thomas J. Bergen, resigned.

Medical Colleges Open.—The medical department of the University of Buffalo opened for the session of 1904-05 September 26.—Albany Medical College reopened September 20. Dr. Richard M. Pearce delivered the introductory address.

For Nassau Hospital.—A charity fair was held at the home of Mr. and Mrs. Clarence Mackay at Roslyn for the benefit of Nassau Hospital. Mrs. Mackay has recently presented this hospital with a new ambulance complete in every detail and also with a home for nurses.

Faculty Changes.—The following faculty changes in Albany Medical College have occurred: Dr. Richard Mills Pearce has succeeded Dr. George Blumer as professor of bacteriology and pathology; Dr. H. Judson Lipps has been made clinical professor of obstetrics; Dr. Spencer L. Dawes, adjunct professor of materia medica; Dr. Wilfred S. Hale, demonstrator of anatomy and assistant curator of the museum; Dr. Edwin McD. Stanton, lecturer on histology; Dr. Howard E. Lomax, instructor in anatomy; Dr. Charles K. Winne, Jr., instructor in bacteriology; Dr. George G. Lempe, instructor in anatomy; Dr. Donald Boyd, demonstrator in anatomy of the nervous system; Dr. Edward F. Sibley, instructor in clinical microscopy, and Dr. Silas L. Filkins, prosector of anatomy.

Buffalo.

Mercy Hospital Opened.—The new Mercy Hospital was opened with appropriate ceremonies September 24. Bishop Cotton made an address.

Returned.—Dr. W. Harry Glemay has returned from Muskoka.—Drs. George W. York and Charles H. Stadlinger have returned from California.—Dr. James W. Putnam has returned from St. Louis.—Dr. Bernard Bartow has returned from Wanakah.

Crusade Against Insanitary Bakeries.—Health Commissioner Greene has started a crusade which has for its object the bringing of every bakery in the city into a sanitary condition. Hereafter every baker will be required to obtain a permit from the health department before securing a license from the mayor. This will bring the bakeries under direct supervision of the health department and the department will thoroughly inspect the bakeries at regular intervals.

New York City.

Dinner to Semon.—Invitations have been issued to a dinner to be given by the Section on Laryngology of the New York Academy of Medicine on November 1 to Sir Felix Semon of London.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended September 24, 305 cases of tuberculosis, with 145 deaths; 224 cases of diphtheria, with 16 deaths; 93 cases of typhoid fever, with 21 deaths; 58 cases of scarlet fever, with 4 deaths; 43 cases of measles, with 4 deaths; 2 cases of smallpox, 3 of variella, and 19 deaths from cerebrospinal meningitis.

Protest Against Carbolic Acid Ordinance.—Health Commissioner Darlington has given a hearing to a number of druggists on their protest against the new ordinance forbidding the sale of carbolic acid in other than a weak solution without prescription. The druggists claim that it would not lessen the number of suicides, as such persons would seek some other remedy, and that the five per cent. solution would be as deadly in effect if it were taken in sufficient quantity. Dr. Darlington declared that his investigations of carbolic acid suicides for the past several months showed that in 42 per cent. of the cases the acid was procured in drug stores without any difficulty.

OHIO.

Dr. Scott Stricken.—Dr. Xenophon C. Scott, Cleveland, was stricken with apoplexy while making a professional call, September 15, and is in a serious condition.

Hyndman's Successor.—Dr. Albert V. Phelps has been chosen to succeed the late Dr. James G. Hyndman as secretary of the faculty of Ohio Medical College, Cincinnati.

Memorial to Dr. Buechner.—The Mahoning County Medical Society devoted its meeting of September 20 to a consideration of the life of its late honored member, Dr. William L. Buechner, Youngstown.

Personal.—Dr. Amanda H. Miller, Cleveland, has returned from Europe.—Dr. John P. Kenny, Youngstown, is ill with diphtheria.—Dr. Frederic W. Lamb has been appointed to succeed Dr. William Muehlberg on the staff of the Cincinnati City Hospital.—Dr. Charles L. Harmer has resigned from the staff of the Massillon State Hospital, Drs. J. D. O'Brien and D. E. Harris have been promoted from internes to assistant physicians, and Dr. H. F. Vaughan has been promoted from druggist to assistant physician.

Colleges Open.—Dr. Starling Loving, Columbus, opened the fifty-eighth session of the Starling Medical College with a clinical lecture, September 14. Additions to the teaching force are: Dr. Sissons in the department of anatomy; Dr. Clement Jones in biology and embryology, and Dr. Sterling B. Taylor, demonstrator of anatomy, vice Dr. Louis Kahn.—Toledo Medical College opened for its twenty-fourth annual session, and its first session as a department of the Toledo University, September 22.

PENNSYLVANIA.

Personal.—Dr. John P. McCord, Pittsburg, has been elected surgeon general of the Union Veteran Legion.—Dr. and Mrs. James M. Anders, Philadelphia, have returned from an extended visit in Europe.

Smallpox in Pottstown.—Smallpox continues and is apparently on the increase in Pottstown, and general vaccination is to be carried out. An order has been issued preventing all pupils who have not been successfully vaccinated from entering the public schools.

Diphtheria in Chester Schools.—Since the opening of the public schools in Chester several cases of diphtheria have been discovered among the pupils. The disease is scattered throughout the city, and the authorities claim that the epidemic is due to weather conditions, and not to any sanitary defects in the buildings.

Asks Increased Powers.—The State Board of Medical Examiners has prepared a bill which will be introduced at the next session of its legislature, giving the board the power to cancel any license issued by it whenever it appears that the holder is not a fit person to be so licensed because of lack of education or unsatisfactory professional and moral character.

New Pittsburg Hospital.—St. Joseph's Hospital, Pittsburg, was opened for public inspection September 20. The first floor of the building is devoted to the administrative department, dining room, kitchen, etc.; on the second floor are the medical and surgical wards and the operating room, and the third floor is used for dormitories for the nurses and resident hospital staff. The staff consists of Drs. Otto Gaud, John P. Saling, M. L. Schoenfeld, Benjamin B. Wood, Alexander R. Hampsey, Thomas P. Cochran, Charles H. Hertzog, Christopher C. Hersman and G. Arthur Dillinger.

Philadelphia.

Public Baths.—The 16 public bath houses maintained by the municipality have been closed for the season. During the season 4,725,142 persons, including 3,525,736 boys, 1,072,941 men, 98,952 girls, and 27,513 women made use of the baths, an increase of 734,525 over the bathers of last year.

Smallpox Hospital Closed.—The smallpox building of the municipal hospital has been closed and thoroughly fumigated. This is the first time in five years that the building is without an occupant. The freedom of the city from the disease is attributed to universal vaccination, and this is to be continued by house-to-house visitations during the entire winter.

Brunton and Liebreich in Philadelphia.—Sir Lauder Brunton, F.R.S. London, formerly lecturer on therapeutics in St. Bartholomew's Hospital, London, and Prof. Dr. Oscar Liebreich, professor of pharmacology in the University of Berlin, addressed the students of Jefferson Medical College, Friday, September 30, and were entertained at dinner by Dr. Hobart A. Hare in the evening.

Health Report.—The typhoid situation is much improved. The number of new cases reported for the week was 97. This is a decrease of 37 over the preceding week. In all 186 cases of contagious disease were reported, with 23 deaths, as compared with 234 cases and 27 deaths for the previous seven days. The general death rate remains low, and the deaths from all causes for the week aggregated 401, a decrease of 7 from those of last week and a decrease of 9 from those of the corresponding period of last year; 51 deaths resulted from tuberculosis.

Medical Colleges Open.—The medical department of the University of Pennsylvania opened for its 139th session September 30. The exercises were held in the new laboratory building, and Dr. John H. Musser delivered the address.—Hon. William Potter, president of the board of trustees, delivered the address at the exercises, which marked the opening of the 80th annual session of Jefferson Medical College, which were held in the new college building, September 26.—The Medico-Chirurgical College of Philadelphia held its 23d annual opening exercises September 28. Dr. Judson Daland delivered the address of the evening.—The 55th session of the Woman's Medical College of Pennsylvania was opened September 21. Dr. Clara Marshall, the dean, delivered the opening address.

TENNESSEE.

College Opens Later.—Tennessee Medical College, Knoxville, will open for the year, November 1, a month later than usual.

Epidemic Disease.—There are three cases of smallpox in Grundy County at Coalmont. All necessary precautions have been taken.—Sumner County is reported to have an epidemic of scarlet fever. Three cases have been found at Portland, 2 at Fountain Head and 9 at Grabell, with one death. Schools have been closed.

Personal.—Dr. William A. Duncan, Nashville, has passed the examination for admission to the medical department of the Army, and is ordered to report for duty in Washington, October 1.—Dr. Z. D. Massey, Sevierville, is unopposed as candidate for state senator from the fourth district.—Dr. John P. Bates, St. Bethlehem, has been appointed a member of the sanitary staff of the Isthmian Canal Commission, and left for his post of duty, September 20.

TEXAS.

Personal.—Dr. Joseph S. Wooten, Austin, is seriously ill with typhoid fever.—Dr. Thomas M. Colley, a retired physician of Palestine, was run over by a buggy, September 15, and seriously injured.

Yellow Fever Kept Out.—The U. S. Public Health and Marine-Hospital Service and the state health authorities of Texas have succeeded in preventing the introduction of yellow fever across the American border from Mexico. Last year the disease managed to get into some of the American towns on this side of the border. New Orleans quarantined against a number of Texas points, and the state health boards of a number of southern states took the matter up. The work this year has been directed toward extermination of mosquitoes along the border, and has been quite successful. Mexicans and Americans have joined in doing all they could to prevent yellow fever getting a foothold in this country this year. So far there has not been a single case in the country.

WASHINGTON.

Tacoma's Health.—During August 54 deaths occurred, equivalent to an annual death rate of 9.96 per 1,000. Three cases of consumption, 4 of smallpox, 3 of measles, 20 of typhoid fever, and 2 of diphtheria, were reported during the month.

Medical Building for Seattle.—Local physicians and capitalists are to erect a ten-story building, to cost \$200,000, to be occupied exclusively by physicians, and to be known as the Medical Building. The lower floor will be occupied by a prescription drug store and a medical supply house.

School Children Inspected.—For the first time in the history of Everett, through inspection of school children was made, September 7, by physicians of the department of health. Two suspicious cases were found, and the children sent home.—Medical inspection of Seattle school children began September 6.

WISCONSIN.

Healthy Milwaukee.—During August 330 deaths were reported, equivalent to an annual death rate of 11.95 per 1,000.

Tuberculosis caused 30 deaths; organic heart disease, 29; violence, 17, and diarrheal diseases, 75.

Physician Enjoined.—Dr. L. W. Zochert, Hingham, has won his suit against Dr. J. H. Blekking, of that village, whose practice he recently bought out, with the condition that Dr. Blekking would not practice medicine in neighboring towns. The latter resumed practice, however, and Dr. Zochert brought suit against him. The judge granted an injunction against Dr. Blekking.

Milwaukee Colleges Open.—Milwaukee Medical College opened for the first session of its second decade September 20. Dr. William H. Earles delivered the address of welcome, and Dr. William G. Doern, formerly of Fort Madison, Iowa, the newly-elected professor of anatomy, the formal address of the evening.—The opening exercises of the Wisconsin College of Physicians and Surgeons were held September 20. Dr. Arthur J. Patek delivered the address to the matriculants.

Health Teacher Fined.—"Dr." Mak, claiming to hail from Colorado, but who also says he has been a "health teacher" in Wisconsin for many years, was fined \$50 and costs, or sixty days in jail, September 3, on the charge of practicing without a license in Ashland. The sentence was suspended twenty-four hours, to give him time to get out of town. With a view, however, of protecting the citizens of Wisconsin, notices have been sent to cities throughout the state notifying the authorities to be cautious and to see to it that "Dr." Mak does not attempt to practice medicine in their vicinity.

GENERAL.

Mississippi Valley Medical Association.—The thirtieth annual meeting of this society will be held at the Grand Hotel, Cincinnati, October 11-13.

Hospital for Manila.—The Board of Health of Manila and the Secretary of the Interior have approved plans for a building to be used as a civil hospital, on the grounds on Calle Padre Faura, known as the exposition grounds.

American Neurological Society.—At its annual meeting at St. Louis this society elected the following officers for the ensuing year: President, Dr. Z. W. Spiller, Philadelphia; vice-presidents, Drs. Philip Zenner, Cincinnati, and William Lullard, Boston; secretary, Dr. T. M. Hammond, New York City. Philadelphia was selected as the meeting place for 1905.

New Hot Springs.—The United States government is preparing to spend \$600,000 in improving the reservation and park at Sulphur Springs in the Chickasaw nation, I. T., for the purpose of making a second Hot Springs similar to the famous Arkansas resort. It is to be maintained by the government in the same manner as is Hot Springs, Ark., but will be even more beautiful and picturesque. There are three groups of springs and abundant fresh water of good quality in sufficient volume for city water supply.

Sanitary Conditions in Panama.—An interesting feature of the sanitary work of the canal zone consists of what is known as "mosquito engineering." Owing to the heavy and intermittent rains, anopheles abound. Breeding places have been found in the Ancon grounds at Colon, where the hospital is situated, and all the collections of water contain the larvæ. One of the worst localities in Culebra, where the actual work of excavation is going on and malaria is very prevalent among the laborers. In order to prevent smallpox an ordinance regarding vaccination has been promulgated by the chief medical officer.

Luncheon to World's Fair Visitors.—A luncheon was tendered the delegates of the biologic and medical sections of the International Congress of Arts and Science by the faculty and staff of teachers of the medical department of Washington University, Sept. 21, 1904. Among an attendance of 100 the following eminent men participated: Theobald Smith, Harvard University; Oskar Hertwig, Berlin; Yves Delage, member of the Institute of France; Wilhelm Waldeyer, Berlin; S. J. Meltzer, New York; Max Verworn of Göttingen; Pierre Janet, College de France, Paris; Morton Prince of Boston; William Osler of Johns Hopkins; William T. Councilman of Harvard; William T. Sedgwick, Massachusetts Institute of Technology; Ronald Ross, Liverpool; Ludvig Hektoen, Chicago University; Johannes Orth, Berlin; Sir Lauder Brunton, London; Frederiek C. Shattuck, Harvard; T. Clifford Allbutt, Cambridge; William S. Thayer, Johns Hopkins; L. F. Barker, Chicago; Shibusaburo Kitasato, University of Tokio; James J. Putnam, Harvard; Charles L. Dana, Cornell University; Edward Jackson, Denver; George M. Gould, Philadelphia; Sir Felix Semon, London;

Theodor Escherich, Vienna; Abraham Jacobi, New York; John H. Musser, Philadelphia; William B. Northrup, New York; R. A. Reeves, Toronto; William H. Welch, Johns Hopkins.

Cancel Charter of a Fake Medical College.—On two or three occasions THE JOURNAL has referred to a diploma mill that has been in active operation in Guthrie, Oklahoma, under the title of "The Twentieth Century Physio-Medical College." Last week a suit was filed in one of the district courts of Oklahoma Territory by the attorney general of the territory against this college to have the charter canceled. The petition for the revocation of the charter states that the concern was organized by H. Warner Newby, C. A. Newby and M. E. Newby, and that it was for the purpose of carrying on an educational institution for the conferring of degrees, etc.; "that instead of conducting the institution as a medical college it has been fraudulently used for illegal means of issuing diplomas, and that instead of issuing these as a result of a legitimate course of study, the diplomas were sold at wholesale." The institution was at one time sending out circulars, not only from Guthrie, but from a little town in Pennsylvania, and through the efforts of THE JOURNAL the postal department undertook to get a case against it, but those connected with the Pennsylvania end of the concern discovered that they were being investigated and stopped. Beside the Twentieth Century Physio-Medical College, the same individuals were conducting the "Twentieth Century Health Association," which, according to their circular, was incorporated under the laws of Oklahoma. Of this concern Calvin D. Gully was president, and H. Warren Newby secretary. Ostensibly, this association was organized "to advance the cause of liberal medicine and the mutual protection of members of our association, and to form a stronger combination, where all can be benefited and have legal protection wherever they wish to go." The real object, however, appears farther down in the circular, where it is stated that the shares are \$10.00 each, and each member of the association holding one share "will receive a large, handsome certificate, with a beautiful seal and ribbons, which will be a fine ornament to your office. We wish the co-operation not only of the physicians of the association, but every healer and every good citizen in the country. . . . Every one who sends \$10.00 will receive one of these handsome certificates, 19x28 inches, as fine as any diploma you ever saw." To show the connection of the Twentieth Century Health Association and the concern against which legal steps are now being taken, a footnote in the circular says: "Graduates of the Twentieth Century Physio-Medical College, Guthrie, O. T., can practice anywhere in the United States."

CANADA.

Hamilton Supports the National Sanitarium.—The Hamilton Branch of the National Sanitarium Association has recently contributed \$1,000 toward the maintenance of patients in the Hamilton and Wentworth County Pavilion of the Muskoka Free Hospital for Consumptives. This makes \$4,000 received from Hamilton altogether for the support of their consumptive poor.

Personal.—Sir Lauder Brunton was recently the guest of Professor McPhedran of the University of Toronto.—Prof. William Osier has been visiting in Montreal and Toronto.—Dr. Charles O'Reilly, medical superintendent of the Toronto General Hospital, has been elected vice-president of the Association of Hospital Superintendents.—Dr. Brefrey O'Reilly, Toronto, has been appointed surgeon on the C. P. R. steamship *Tartar*, and has gone to Vancouver to assume his new duties.—Dr. H. A. Bruce, one of Toronto's leading surgeons, and who was recently operated on for appendicitis, is rapidly recovering.

To Quarantine All Inebriates.—A meeting of those interested in the treatment of inebriates was held at Government House, Toronto, September 19, Premier G. W. Ross being in the chair. Dr. T. D. Crothers, Hartford, Conn., delivered the principal address, outlining a system for the care and treatment of inebriates. Dr. A. M. Roseburgh, Toronto, told what had been done in Toronto and the province of Ontario. Professor McPhedran of the University of Toronto introduced a resolution to the effect that the time was now ripe for the formation of a society for the reform of inebriates. This was carried and another meeting will be held soon to organize.

Vancouver Hospital.—The report of the house surgeon of the Vancouver General Hospital for August shows that there were 58 in residence at the beginning of the month, and that 37

were admitted during the month. Eighty-one were discharged as cured, three died and sixty-one remained at the end of the month. The number of hospital days was 1,810. The special committee appointed regarding the medical staff reported as follows: That the active staff be composed of 12: Drs. Johnston, S. J. Tunstall, W. D. Brydone-Jack, Weld, Langis, Poole, Drier, Monro, Boyle, R. E. McKechnie and Mills, with one to be appointed by the directors. The following will constitute the consulting staff: Drs. D. H. Wilson, Lefevre, McGuigan, Carroll and Underhill.

Montreal General Hospital.—The regular quarterly meeting of the Montreal General Hospital was held last week, when it was decided to alter the constitution so as to leave the medical board free to engage the officers of the resident medical staff from outside of the British dominions. The clause now reads: "No person shall be eligible as resident medical officer unless he is a graduate or licentiate in medicine of some university or college approved by the medical board." The following is the medical staff for the ensuing year: Drs. J. L. Robinson, J. C. Fyche, W. G. Bicker, J. A. Nutter, L. L. Reford, W. W. Kerr, H. G. Wood, R. B. Forbes, A. C. Rankin and W. E. Ainley. Dr. J. Alex. Hutchison read the medical report for the past quarter which showed that 781 patients were treated to a conclusion. There were 67 deaths, of which 26 occurred within three days of admission, making the mortality for ordinary hospital cases 5.5 per cent. In the out-door departments there were 9,072 consultations.

FOREIGN.

Sanitation in Mexico.—President Diaz, in his annual message, reports the gratifying result of the sanitary campaign against yellow fever, and states that there has been no recurrence of the disease in epidemic form during this year.

Spanish Red Cross Society.—It is reported that the Spanish Red Cross Society voted to send 25,000 pesetas (\$4,750) to aid the Japanese branch of the society. It was proposed to send an equal amount to the Russian branch, but the proposal was rejected almost unanimously.

Gen. Kuropatkin's Gifts to Medicine.—The Military-Medical Academy at St. Petersburg has recently installed a portrait of its honorary member, General Adjutant Kuropatkin, in the main hall as a token of gratitude for his gifts. The academy owes to him the remodeling and enlargement of several of its scientific departments and institutes.

Bubonic Plague.—A recent issue of the public health report of the Marine-Hospital Service records cases of plague in widely separated localities. The disease is present in several towns in Cape Colony and in other parts of Africa. An outbreak of plague is reported from Brazil; in Rio de Janeiro ten new cases were reported in one week.

Public Disinfection in Spain.—A decree has just been issued in Spain ordering undertakers to disinfect the room after a death. The *Siglo Medico* comments on the importance of the decree, especially for the homes of the poor, as the neighbors flock to the funeral, unmindful of danger even in cases of diphtheria, smallpox, tuberculosis, measles or other disease. The authorities order that the disinfection shall be undertaken as soon as the undertakers are notified. Our exchange, however, expresses the fear that the decree will be practically a dead letter, like so many of its predecessors.

The German Training School for the Disinfection Service.—The authorities in Prussia organized last year a number of training schools to fit persons for the public disinfection service. Fourteen have been in operation, each giving a course of at least nine days altogether, and restricting the students at each course to ten. Sixty courses have been given in all, with a total attendance of 601; 585 have passed all the tests and been duly qualified as "graduate disinfectors." The authorities have been so much pleased with the results accomplished that they are urging physicians to call the attention of suitable persons to these courses and advocate their attendance. It is hoped that every district will have one or more of these expert disinfectors residing in it. Special courses for nurses are also planned. It is found that the disinfection service has gained immensely in efficiency in the hands of the graduates of these schools.

To Divert the Young from the Medical Profession.—A circular has been sent by the organized medical chambers of Germany to the high schools, warning the graduates from entering on the study of medicine. A number of these circulars were thus placed in the hands of the principals of 482 academic and

131 technical high schools, with the request that they would distribute them among their pupils. The overcrowded condition of the profession is set forth and the pecuniary stress of the majority of the members, due to overcrowding, to contract practice and to the lack of legislation against the irregular practice of medicine. The circular further cites statistics to show that 31 per cent. of all the physicians in the Brandenburg-Berlin district have an income of less than \$750. In Berlin alone more than \$5,000 had to be distributed to needy physicians during 1902, and in Bavaria 23 physicians in 1902 and 20 in 1903 had to be assisted. In 1901, 138 physicians, 1,387 physicians' widows and 399 orphans were partially supported, and many others who needed assistance refrained from applying for relief. The Berlin Medical Chamber often has occasion to help needy physicians or their widows to obtain positions in libraries or the like. On the other hand are to be considered the scant consideration accorded to the physician in these days and the hardships of a doctor's life. "In addition to all this," the circular concludes, "long years must pass after entering the university before the candidate for the medical profession can even begin to support himself by his practice."

Correspondence.

The Danger of Giving Certificates of Physical Disability to Beggars.

MUSCATINE, IOWA, Sept. 26, 1904.

To the Editor:—A few days ago a man came into my office and asked that I give him a certificate as to the condition of his heart. He told me that he was on his way west to his family and that he was out of money, in a serious condition and was soliciting aid. I examined him and diagnosed aneurism of ascending aorta with mitral insufficiency. He stated that his trouble dated from last February, and that he had been before the medical class at Ann Arbor, Mich., and some other college, and had been told that he could not live long, and had certificates from a number of physicians in good standing. His case was so interesting from a medical standpoint, per auscultation, that I called in a nearby colleague, Dr. A. J. Oliver, who examined him and concurred in my diagnosis, and we signed a certificate to the effect that he had a serious circulatory lesion, but we made no recommendation for charitable assistance. He thanked us for the certificate and went out on the street, where he had a phaeton with a couple of pillows to prop him up and a boy to drive him about. He would stop in front of a business house or office, call out the proprietor, tell him his hard luck story, show his certificate and solicit cash. In this manner he worked the business district with excellent success until he was found to have forged a prominent business man's name to his subscription list for the influence it would have, and the police ordered him out of town. We, of course, were questioned as to our motive in giving him a certificate. While the man is physically a wreck his charitable motive appears questionable. He certainly would not have to solicit in many places as successfully as here until he could travel across the continent in a parlor car. Is he a charitable fraud? He gave his name as Z. V. Good and is a man about 40 years of age, with a conspicuous scar over left orbital bone.

T. F. BEVERIDGE, M.D.

[NOTE:—Newspaper accounts show that this man operated the same scheme in Cedar Rapids.—Ed.]

Life Insurance Examinations.

DES MOINES, IOWA, Sept. 20, 1904.

To the Editor:—In the issue of September 3 Dr. O. A. Rea mildly rebukes the Des Moines physicians for adopting a fee-bill providing for minor charges of \$2 for day visits while a minimum of only \$2 is charged for life insurance examinations.

Permit me to say that I believe his conclusions regarding low fees for life insurance examinations are well founded. A typographical error, however, made the item read \$2 to \$5 for day visits, instead of \$2 to \$3, as provided.

The doctor's remarks might lead one to believe that the fees for life insurance examinations have been reduced, which

is far from being true. On the other hand, the minimum fee has been advanced 100 per cent. A number of fraternal societies doing business here, and in other states, have a fixed rate of \$1 per applicant, which includes, beside a general examination, a chemical urinalysis. Some certificates of health have been issued by physicians to certain societies for even less than \$1, which all must admit is deplorable in the extreme.

While I would not compare the service of the physician to his patient in a matter which concerns the health, or even the life of the latter, to the business proposition relating to a life insurance policy, as does Dr. Rea, it is, nevertheless, true, as the doctor remarks, "heneath the dignity of the profession of medicine" to accept the paltry fees proffered by certain societies and corporations for medical examinations on which the very life of the institutions depend.

A. P. STONER, M.D.

The Medical Profession and the French Chamber of Deputies.

PARIS, Aug. 28, 1904.

My previous letter from here related chiefly to the medical profession as represented in the Senate of France. I have since had an opportunity to investigate some of the facts relative to similar representation in the Chamber of Deputies. This is the popular branch of the French Congress: its members are elected by direct and universal suffrage; each deputy must live in the arrondissement from which he is elected, and, consequently, can not represent two constituencies at the same time, and each chamber, or legislature, as it is called in France, is elected for a period of four years. The basis of representation is one for each 100,000 inhabitants, with an additional representative for each additional 100,000 or fraction thereof. In such instances an arrondissement is divided into circumscriptions like that of Dordogne, for instance, which sends six deputies. The body thus chosen consists of 561 members, of which, in the present legislature, fifty-one are representatives of the medical profession.

It is very interesting indeed to study this body of professional men, particularly when one object of that study is to compare the French with the American profession in their relation to the public life of the respective countries. The first fact, by no means a surprising one, that impresses the student of political affairs in France is the marked evidence of individualism that is displayed in the multiplicity of parties. These exist in such number and with such minor variations of title that, in many instances, their differences can be but little else than doctrinaire, if not metaphysical. No one but a student, native to the soil and an active participant, could split terms with sufficient precision to clear up the melange of definitions. Nor is it necessary for our purpose. We can see how the medical men are moving by recounting the titles they have given themselves as candidates before their respective electorates. Thus, of the one more than a half hundred medical deputies, twenty-one inscribe themselves as "Republican Radical"—which, despite the contradiction of terms, is really the conservative wing of the republican movement; thirteen are "Radical Socialist," which, I am advised, is the really radical party, standing as it does for everything that is embraced in the socialistic program. After this general classification we get into a bewildering maze, in which we find four of our professional colleagues known as "Republican Progressistes"; a similar number simply as "Republican"; two as "Republican Liberal"; and one each as "Republican Collectivist," "Radical," "Radical Democratique," "Socialiste Revisioniste," "Socialist," "Conservateur," and one as "Socialiste Blanquiste," whatever in the world that may mean. No name of a physician occurs under such classifications as "Royaliste," "Droit," "Droite Plebiscitaire," "Rallie," "Republican Catholique," or "Plebiscitaire Antisemite," groups which, in the aggregate, make up the clerical party as opposed to the government in the present controversy with the Vatican, and which stands, in one form or another, for everything in the *status quo ante* of 1870.

If this extraordinary manifestation of individualistic activity were restricted to the medical members the prospect for the

medical profession would be hopeless. But be it remembered that each of these particular classifications represents an idea or a group of ideas for which its adherents stand before the people and in the legislature. Members of the chamber are thus segregated into little groups made up of representatives of various professions and callings. It seems to be impossible, in France, in the absence of a national crisis, to get the people marshalled into two great groups for the settlement of equally great issues. Such a crisis has been presented in the movement to which I have alluded, headed by Minister Combes—a physician—in breaking off relations with the Vatican. In this crisis practical politics has prevailed to such an extent that essentially all of the groups represented by the medical men, have co-operated under the title of "*le bloc*." Aside from emergencies such as this, however, it is comforting to be assured, as I have been repeatedly, by members of the profession in and out of the French Congress that in all matters relating to public health or to medical policy, the medical members have been and are co-operative without reference to variations in state and doctrinal views.

There are other facts, however, that strike one as both interesting and important. Thus, as I noted in my study of the French Senate, it is observable that deputies have generally served an apprenticeship in minor political offices, as mayors or members of cantonal councils, while the talismanic insignia is "70," relating as it does to participation in the fatal war against Germany. But that war, which brought the doom of the empire, brought, likewise, the opportunity of the republic, and the physicians, close to the people, knowing their wants and necessities as no body can know them, were the Republicans of that day as they are of this. Their vantage ground of observation gave them in France, as it gives us in America today, the knowledge by which to speak understandingly on economic and other questions that are beyond settlement by those who are interested disputants.

Where one finds a physician serving as deputy one is very apt to find another medical man representing another circumscription of the same *arrondissement*. Dordogne sends a delegation of six to the Chamber of Deputies, four of them being physicians, while there are two out of six from Puy-de-Dôme; two out of four from the Haute-Loire; two out of five from Correze; two out of nine from Saône-et-Loire, while out of the delegation of fifty from the department of the Seine (Paris) five are physicians. There are other important constituencies, too, that are represented by medical men in the Chamber of Deputies, among them being Maçon, Grenoble, Bordeaux, Lille and Lyon. Medical representatives come, also, from the mountainous districts of the Haute-Savoie, the Hautes-Alpes and the Hautes-Pyrenees, as well as from the teeming valleys of the Marne, the Siene, the Rhone, and the Loire.

Occasionally we hear that one physician has defeated another, showing that candidacies by opposing parties have been assumed by representatives of the profession, which is thereby assured of representation without reference to the partisan results of the election—a policy which has already been urged on our own profession by the National Legislative Committee of the American Medical Association. Until this policy is acted on by the medical profession generally throughout the United States it will not be in position to protect either its own interests or the general social interests which, in the evolution of the community and the state, have become its natural and sacred charges.

However, what about these medical deputies in a personal and professional sense? Are they mere politicians of the pot-house variety or are they men of real respectability in their respective communities, and of real worth in their profession? Well, to begin with, we have Barrios, who has served as a member of his municipal council, and is to-day not only a professor of the medical faculty of Lille, but is a medical writer of force and influence; Villejean, although representing the *arrondissement* of Tonnerre, in the department of Yonne, was a former interne of the hospitals of Paris, is now professor *agrégé* to the faculty, and is a member of the staff of the Hotel Dieu; Borne, deputy from Doubs, has written effectively

on "Pleurisy and the Neuralgia"; Dron, from Nord, has contributed an important work on "Studies on Cancers of the Eye"; Amoudru, from Seine-et-Oise, was a metallist of the Paris hospitals, the distinction having been conferred in part because of the excellence of his thesis; a good half dozen or more are laureates of the academy; a number are officers and more are members of the academy; several bear the decoration of the Legion of Honor.

One of the most interesting facts, however, that is brought to the surface by a study of the bibliography of the medical deputies of France strikingly confirms the position assumed by me at Kansas City last January, and on a number of other public occasions, as well as in this correspondence, to the effect that the education, occupation and general view-point of the physician, enable him to approach sociological questions with a clearness of understanding not enjoyed by other members of society. The confirmation of this view is found in the fact that French physicians, notably those in the Senate and Chamber of Deputies, are careful students and writers on this class of subjects. Thus, Vogeli, from Isère, is one of the best known writers of this class, his contributions having appeared for the most part through the columns of the *Reveil du Dauphin*, of which he was for years the director; he has translated important works from both the English and Portuguese languages, among others those of Agassiz, and as he has had the distinction of serving his country for fourteen years on foreign missions. Vazeille, from Loiret, is extensively known because of his work entitled, "La question Sociale est une question de methode." Baudon, from Oise, has issued a critical work on the relations of church and state that has assumed decided importance in presence of the present crisis between the French government and the Vatican, a crisis which it tended more than a little to precipitate. De Lanessian, from Rhone, has written learnedly, not only on questions of natural science, but has studied and written on sociological and governmental questions connected with the colonial interests of France; particularly on those connected with Indo-China. Dubief, from Saône-et-Loire, has not only been for many years a general councillor and vice-president of the general council, but has been at different times director of two great asylums for the insane, that of the Rhone, and that of St. Pierre at Marseilles, and has also written on social and political themes, having been at one time the editor-in-chief of the important periodical known as the "Union Republicaine de Saône-et-Loire." Dubois, of the Paris delegation, is one of the trenchant writers on social questions in the *Petite Republique*, and is an officer of the academy. Meslier, also of the Paris delegation, is likewise one of the best-known authors of sociological studies. Delbet, of the department of Seine-et-Marne, is so highly esteemed as a student of sociological questions that he was sent by the Societé d'Economie Sociale as a special envoy to Syria, Asia Minor, Egypt, and the further Orient, his reports being to-day accepted as standard contributions to the literature of sociology.

One of the most gratifying features revealed by an examination of the personnel of the Chamber of Deputies is the fact that, although that body, like our House of Representatives, ranks as the lower branch of the national legislature, it embraces among its members many who have held higher rank in the political scale. This is observable among the medical as well as the lay members. The two most conspicuous examples that have been brought to my attention among the medical members are those of de Lanessian, of the department of the Rhone, and de Mahy, deputy for the colonies. The former graduated as a physician in 1872, subsequently served as governor-general of Indo-China, later as minister of marine in the cabinet of the late Waldeck-Rousseau, and now sits as the representative of a modest constituency of less than twelve thousand. The other, de Mahy, is probably a still more striking example; he was given his doctorate in medicine in 1871; served in the National Assembly; accepted the secretaryship of Agriculture consecutively in the cabinets of Freycinet, Duclere, and Fallières, and was subsequently minister of marine in the cabinet of Tirard. Yet, after all these honors, he accepted election to the relatively modest office of deputy, serving

two terms as vice-president of the chamber. He has recently been returned by his constituency at Réunion without opposition. This spirit is certainly to be commended, and is one that may well be emulated in a democracy, which always has certain claims on the wisdom of those on whom it has bestowed its choicest honors. I do not know to what extent these examples may find parallels in our own country, but I at this minute recall that John Quincy Adams did not think it beneath his dignity to serve one or more terms in our National House of Representatives after he had retired from the office of President of the Republic. There can be no valid reason why presidents, members of the cabinet, or senators, after returning to the ranks of plain citizenship should cease to exercise all the rights and duties of citizenship. Nor is there any good reason why physicians, because they are physicians, should not do the same thing.

These are facts that the medical men of America ought to take home to themselves. The time, the eve of a general election, is auspicious for both thought and action. The special food for thought may be found in a brief résumé of the facts brought out in this correspondence:

1. In the French Senate there are thirty-nine medical members; in the United States Senate there are two.

2. In the French Chamber of Deputies—the popular branch of the government—there are fifty-one medical members; in the United States House of Representatives—the corresponding branch of our government—there is not a single medical member.

The duty of the American medical profession, to itself, to society, and to the country, is obvious.

CHARLES A. L. REED.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

DIFFERENTIAL DIAGNOSIS OF PARATYPHOID FEVER.

BATESBURG, S. C., Sept. 21, 1904.

To the Editor:—Can you refer me to a good treatise on paratyphoid fever? Some time ago you commented editorially on its pathology, but I want its symptomatology as well.

THEO. A. QUATTLEBAUM, M.D.

ANSWER.—There is as yet no complete treatise on the subject of paratyphoid fever in English, the nearest approach being an article by Johnston in the *American Journal of Medical Sciences*, 1902, p. 187, in which four cases are reported and the literature to that date reviewed. See also P. Clemens' "Ueber den Paratyphus," *Deutsche med. Woch.*, 1904, pp. 280 and 314. The usual clinical examination does not serve to distinguish positively between typhoid fever and paratyphoid, but it is possible to obtain some suggestive evidence. Bleeding from the nose, a cutaneous eruption, diarrhea, enlarged spleen, intestinal hemorrhages and relapses occur in both diseases. It is stated that the eruption in paratyphoid is often hemorrhagic, and that the course of the disease is usually milder than in typhoid. It is possible that the enlargement of the spleen is not so conspicuous in paratyphoid; "the enlargement can often be made out by percussion, and in a few cases is said to be palpable." The temperature curve in general resembles that of typhoid, but is of a more irregular character, and the average and maximum temperatures are lower. The pulse is that of a mild typhoid. The disease lasts from 12 to 84 days, and convalescence is sometimes remarkably long. In the few cases which have gone to autopsy, the ulcerations of Peyer's patches, so characteristic of typhoid fever, have been lacking. Superficial erosions of the mucosa and enlargement of lymphoid follicles, however, do occur. There are two important diagnostic points in the way of bacteriologic tests. Paratyphoid should give a Widal reaction which, if not absolutely negative, is so low that it makes the diagnosis of typhoid fever unlikely. It is, moreover, possible to differentiate positively by making cultures from the blood of the patient and identifying the organism bacteriologically. Certain cultural characteristics of the paratyphoid bacillus allow it to be differentiated from the bacillus of typhoid fever. Although the treatment of the two diseases is in no sense different, the above means of diagnosis should, for evident reasons, be utilized when circumstances permit.

TINCTURE OF IRONWOOD BARK FOR DIABETES.

NEW CASTLE, IND., Sept. 15, 1904.

To the Editor:—In THE JOURNAL, Sept. 10, page 766, in a résumé of an article from the *Brazil Medico*, Rio de Janeiro, from the pen

of Dr. Freitas, the tincture of *Dialium ferrug* is strongly recommended in the treatment of diabetes. I am anxious to learn more of this matter and desire that you advise me as to Dr. Freitas' address, or as to how I may inform myself in absence of the entire article as published in the Brazil periodical.

HENRY W. GREIST.

ANSWER.—We do not think the preparation can be prepared in this country. The address of the writer was given in connection with the abstract on page 766: Dr. Octavio de Freitas, Pernambuco, Brazil. His communication was presented to the Pernambuco Sociedade de Medicina, July 1, 1904. The tree to which he refers is called *caa ferro* or *quaripitanga* in Portuguese. It belongs to the *Cesalpiniaceae*, and is a pod-bearing tree of the same family which includes the tamarind. It is noted for its hard and beautiful wood. It grows in inland tropical or semitropical regions. He gives the botanical name as the *Dialium ferrug*, *Dialium africanum* (Nahl), and *Araruna guianensis* (Aubllet), but the botanists these as separate trees. The *Dialium arouna* or *Codarium guineense* is the velvet tamarind of Sierra Leone. The botany further states that the general character of this subgroup of the leguminous trees is their purgative properties. The tamarind is used in the confection and the infusion of senega, but some of the pods are edible, as that of the tamarind plum. As stated in the abstract, de Freitas used an alcoholic extract of the inner bark. The common name in Brazil is evidently *caa ferro*, which is, literally, iron wood.

MELANCHOLIA DURING PREGNANCY AND THE PUERPERIUM.

M. A. IL, of DURKING, S. C., sends us an account of a case of melancholia during the puerperium and asks advice. The patient is a ill-para; the melancholia began during pregnancy and persists four months after the birth of the child. The patient is indifferent to the child, talks very little, avoids all company, has a poor and variable appetite and has disturbed sleep. The treatment instituted, comprising good nursing, bathing, nourishing food and the administration of iron, arsenic, strychnin and cascara, is very proper. We would suggest further that the child be removed from the mother, both because she would better not try to nurse it and because there is danger that she might injure it. A total change of scene, if possible, should be recommended. Sometimes travel is beneficial if the circumstances of the patient permit. An ideal place for such a patient is a quiet home in the country where there are no children or other disturbing elements, where there is sufficient diversion and where she can have the care of an intelligent, cheerful and sympathetic companion. Considerable time and patience may be required to effect a cure. The mistake should not be made of allowing a premature return to old associations. If the importance of the case is appreciated and all circumstances and possibilities carefully considered, it will generally be found possible, even with a patient in very limited circumstances, to arrange for such a change of scene.

Marriages.

WILLIAM C. SPANGENBURG, M.D., to Miss Clara Adams, both of Chicago, September 15.

DAVID J. MATTHEWS, M.D., to Miss Louanna Hahn, both of Zanesville, Ohio, September 14.

BURCHARD H. ROARK, M.D., Milwaukee, Wis., to Miss Mabel Florence Bryce, of Indianapolis, Ind., September 21.

CHARLES WHITTIER YOUNG, M.D., Chicago, to Miss Olive Doyle, at Baltimore, September 15.

AUGUSTUS POHLMAN, M.D., Baltimore, to Miss Kathleen Black, at Cincinnati, September 13.

IRA ENGLER WHITEHILL, M.D., to Miss Sara Maynard Smith, at New Windsor, Md., September 14.

DENNIS FRANCIS FITZPATRICK, M.D., to Miss Marie Pauline Murphy, both of Iowa City, September 28.

JOHN FRANKLIN SNYDER, M.D., Monroe Center, Ill., to Miss Veruie Blanche Sheaff of Holcomb, Ill., September 21.

WILLIAM WAYLAND FRAMES, M.D., Baltimore, to Miss Jennie Louisa Whitbread, at Syracuse, N. Y., September 14.

JOHN IRVING MCKELWAY, M.D., King's Park, Long Island, N. Y., to Miss Mabel Sanger Bennett of Binghamton, N. Y., September 17.

Deaths.

James G. Hyndman, M.D., Medical College of Ohio, Cincinnati, 1874, a member of the American Medical Association; for seventeen years secretary of the Medical College of Ohio, and professor of chemistry and laryngology in the institution;

a member of the Ohio State Medical Association and the Academy of Medicine of Cincinnati, one of the most prominent physicians of Cincinnati, died at the Good Samaritan Hospital in that city, September 18, three days after an operation for appendicitis, aged 51. The faculty of the college, at a special meeting, September 20, passed resolutions eulogistic of their departed colleague and bellowed friends.

Charles E. Pease, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1882, of Middletown, Pa., surgeon for the Pennsylvania System and the American Tube and Iron Company, died at the German Hospital, Philadelphia, September 12, from catarrh of the stomach, after an illness of several months and an operation for appendicitis, aged 47.

John A. Wegg, M.D. Western Reserve University Medical Department, Cleveland, Ohio, 1865, a member of the American Medical Association, formerly a leading physician of Sandusky County, Ohio, residing at Rollersville, but who had lived in Cohreville, San Jago de la Vega, Jamaica, British West Indies, died recently at his home in Jamaica.

Francis P. Phelps, M.D. University of Maryland School of Medicine, 1853; surgeon of First Eastern Shore Volunteers from 1861 to 1863; a member of the House of Delegates of Maryland from 1893 to 1895, and a justice of the peace since 1900, died suddenly from acute gastritis at his home in Cambridge, Md., September 17, aged 74.

Henry Ridgely, M.D. Medical Department of the University of Pennsylvania, Philadelphia, 1839, and president of the Farmer's Bank of the state of Delaware, died at his home in Dover, Del., September 17, aged 87. His death occurred suddenly and indirectly was due to hicough, which began several days before.

George P. P. David, M.D. Kentucky School of Medicine, Louisville, 1891, for five years director of a large hospital in San Pedro Sula, Spanish Honduras, died at his home in New Orleans, September 18, suddenly from heart disease, aged 45.

Jacob Chambers, M.D. University of Buffalo, 1875, one of the managers, and surgeon of the City of Kingston Hospital, family physician to Judge Alton Parker, died at his home in Kingston, N. Y., September 16, aged 52.

George Jacob Hirth, M.D. University of Michigan, Department of Medicine and Surgery, 1891, of Milwaukee, died at a sanitarium in Wauwatosa, Wis., September 14, after an illness of a year, from paralysis, aged 38.

Elery G. Fuller, M.D. Starling Medical College, Columbus, Ohio, 1888, died from Bright's disease, September 5, at his home in Sterling Center, N. Y., after an illness of two weeks, aged 46.

Charles Conrad, M.D. Tulane University of Louisiana, New Orleans, 1897, committed suicide by shooting himself through the heart at his home in Cleveland, Ohio, September 19, aged 35.

James H. Benton, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1876, of Newbern, N. C., died at Black Mountain, N. C., September 14, aged 61.

William L. Whitted, M.D. Miami Medical College, Cincinnati, 1878, of Bloomington, Ind., died at Ocean-side, Cal., where he had gone a year ago for his health, September 8.

H. Von Kochring, M.D. Friedrich Wilhelm University, Berlin, Germany, 1865, died at his home in San Antonio, Texas, September 14, from cerebral hemorrhage, aged 58.

Andrew D. Finucane, M.D. Bellevue Hospital Medical College, New York City, 1884, of Chicago, died at the Illinois Northern Hospital for the Insane, Elgin, August 16.

Frederick Dorsey Mitchell, M.D. University of Maryland School of Medicine, Baltimore, 1846, died at his home near Hereford, Md., September 15, aged 80.

Victor Rounds, M.D. Rush Medical College, Chicago, 1882, died recently at his home in Brainerd, Minn., and was buried at Verdale, Minn., September 20.

Allen M. Pierce, M.D. Rush Medical College, Chicago, 1861, an Army surgeon during the Civil War, died at his home in Wyoming, Ill., June 10.

William N. Ash, M.D. Toledo (Ohio) Medical College, 1883, died suddenly at his home in Mount Eaton, Ohio, September 14, aged 45.

G. C. Dortch, M.D. of Clarksville, Tenn., died at the home of his daughter in South Ryegate, Vt., September 10, from heart disease.

William H. Wheeler, M.D. Indiana, 1897, died at his home near Hartford City, Ind., September 14, after a short illness, aged 80.

Willard T. Parsons, M.D., died at the Spencer Hospital, Meadville, Pa., September 4, from an overdose of chloral, aged 49.

Henry F. Campbell, M.D., of Melrose, Mass., died suddenly in Boston, from heart disease, September 14, aged 65.

S. A. Meecham, M.D., died recently at his home in Norden, Neb., from malignant disease of the head, aged 87.

Charles Galloway, M.D. Rush Medical College, Chicago, 1892, died at his home in Libertyville, Ill., September 15.

Julian Fajans, M.D. Jefferson Medical College, Philadelphia, 1866, died at his home in Philadelphia, August 26.

Samuel S. Strayer, M.D. Chicago Medical College, 1872, died at his home in Naperville, Ill., August 18.

William M. Henry, M.D. University of Louisville, 1885, died recently at his home in Onton, Ky., aged 66.

Frank M. Sisson, M.D. New York, 1881, died in Rochester, N. Y., August 23, aged 49.

D. M. Reagan, M.D., died at his home in Buda, Texas, from cancer, August 14, aged 72.

George Clough, M.D., died at his home in Kansas City, Mo., August 23, aged 83.

Deaths Abroad.

Niels R. Finsen, M.D., pioneer in scientific phototherapy, died, September 24, in Copenhagen, aged 43. He was a native of the Faroe Islands. He began his work while a student in the Copenhagen University, from which he was graduated in 1890. Three years later he published an article on "The Influence of Light on the Skin," which aroused general attention because of his assertion that smallpox could be cured by the red-light treatment. This was but one application of the Finsen theory that light rays contained healing powers, and to develop the positive element of his theory he began experimenting with concentrated artificial light rays. As a result of his experiments, he effected a cure for lupus vulgaris. This cure directed great attention to the young investigator, and in 1896 the Municipal Hospital of Copenhagen allowed Professor Finsen several small buildings on its grounds in which to carry on his experiments. The Danish government then became interested in the support of the institution, and this support enabled the institute to be removed to Rosenvaenget, a suburb of Copenhagen, where under the direction of Professor Finsen, with a staff of scientists of national repute, expert electricians, and trained nurses, many cures of cases previously deemed incurable were made. In December, 1903, Professor Finsen was awarded the Nobel prize. For several years he had suffered from dropsy resulting from heart disease, but so intense was his devotion to his work that he hardly spared time from his studies for sleeping and eating, much less to recuperate his health. His death is attributable to an aggravation of the diseases from which he had suffered during his entire adult life by reason of his persistent overwork.

H. Kober, M.D., one of the founders of German dermatology and one of its most prominent representatives, died at Berlin, September 3, aged 66, just a few days before the dermatologists of the world were to gather at Berlin for the fifth international congress of dermatology. Kober founded at Breslau in 1861 the first clinic for skin diseases and syphilis in Germany, and later became director of the clinic established by the university. But was soon compelled to resign on account of his health. He settled in Berlin in 1877, where his dermatologic polyclinic and postgraduate courses were very popular. Among the subjects especially connected with his name are syccosis, mycosis tonsurans, leprosy, drug exanthemata, etc., his works on these and allied subjects having been numerous and important.

State Boards of Registration.

COMING EXAMINATION.

Board of Medical Examiners of the State of California, San Francisco, October 25. Secretary, Charles L. Tisdale, M.D., Alameda.

New Rules in Kentucky.—The State Board of Health of Kentucky, in putting into effect the new law requiring all applicants for license to pass an examination, has adopted rules

and procedures which we reproduce from a circular just issued by the board.

REQUIREMENTS FOR MEDICAL COLLEGES AND STUDENTS.

On and after July 1, 1905, every medical college shall comply with the following requirements as a condition of being recognized as reputable by the State Board of Health of Kentucky:

1. It shall uniformly exact the requirements for matriculation set forth in "Requirements for admission to medical colleges," adopted by the board.
2. It shall literally observe its own published requirements for admission, tuition, time of attendance at the annual sessions and graduation, which must be definitely expressed.
3. It shall have adequate equipment and an active and competent faculty for teaching the science and art of medicine, embracing the following departments, viz.: Anatomy, physiology, chemistry, pathology, histology, bacteriology, surgery, obstetrics, gynecology, ophthalmology, otology, hygiene and state medicine, medical jurisprudence, physical diagnosis and therapeutics and practice in accordance with the system to which the college belongs.
4. It shall have clinical and hospital facilities based on a minimum municipal population at its place of location of not less than 50,000, provided, that this requirement shall not apply to institutions under state control which, by virtue of such control, receive patients gratuitously from all parts of such state.
5. It shall require actual attendance on 80 per cent. of each of four courses of instruction of not less than thirty consecutive weeks, excluding holidays, in four separate years, and shall not hold more than one graduating course in any one year. (It should be noted that no provision is made for giving advanced standing for A.B., B.S., or other degrees.)
6. It shall not accept notes in payment of fees, or offer or accept scholarships, or any reduction in fees, or any form of rebates, except as provided for or required under state laws or under the laws of endowed universities, and no student shall be given credit for attendance, or advanced, or graduated, until all fees have been paid.
7. Colleges may honor official credentials issued by medical colleges of equal requirements, as to students who have complied with the "Requirements for Admission to Medical Colleges," except in the branches of study embraced in the last year of their own curriculum.

REQUIREMENTS FOR ADMISSION TO MEDICAL COLLEGES.

All colleges shall require every medical student applying for matriculation on and after July 1, 1905, to present to it "A Medical Student's Certificate," issued to him by a certified examiner of the state board of health or state board of medical examiners of the state in which the college is located, approved by such board, and a certificate of good moral character.

- The examiner shall require as a basis for his certificate:
- (a) A degree of A.B., B.S., or equivalent, from an approved university, college or academy of arts, science or philosophy.
 - (b) A diploma or certificate of graduation from an approved high school or normal school.
 - (c) A state teacher's permanent or life certificate.
 - (d) A diploma of medical student certificate from any state board of health or examiners embracing equal requirements.
- Or, an examination in writing in the following branches:
- (a) English, submitting a composition in his own handwriting on some subject of general interest embracing not less than two hundred words, which shall be considered with reference to penmanship, spelling, pronunciation, thought and construction.
 - (b) United States history.
 - (c) Arithmetic, vulgar and decimal fractions, percentage and common numbers.
 - (d) Algebra, through equations.
 - (e) Latin, through first year of ordinary course.
 - (f) Physics, the elements of mechanics, hydrostatics, hydraulics, heat, optics and acoustics.

GRANTING OF CONDITIONS.

Applicants failing to obtain a general average of 75 per cent. in the entrance examination and falling below 55 per cent. in but two branches may be conditioned by the official examiner, on a different point of certificate. The examiner shall make a separate list of such conditioned applicants in duplicate, one copy of which shall be sent to the state board of health or examiners and the other retained in his office.

REMOVAL OF CONDITIONS.

Such conditions must be removed by the presentation of a certificate from the examiner that such applicant has passed a satisfactory examination in the branches in which he was formerly found deficient, before he receives credit received and is permitted to enter on his second year of study, and the examiner shall furnish a list of such applicants to the state board of the jurisdiction.

FEES.

Two dollars is hereby fixed as the fee to be collected by the examiner for each certificate in Kentucky. Those examined in special subjects to remove conditions will not be required to pay again but those failing and taking a second examination will pay another fee.

Kentucky Examination Announcement.—The first semi-annual examination by the State Board of Health of Kentucky, under the new medical law, which became operative June 13, 1904, will be held at the School Board Building, corner Center and Walnut streets, Louisville, beginning at 10 a. m., on Monday, Oct. 3, 1904, and continuing for three days. All applications should be sent to the board at Bowling Green at least five days prior to the date fixed for the examinations, and applicants should be present by 9 a. m. of the first day. No one can be examined who is not reputable in the school or system of practice to which he professes to belong, and who does not hold a diploma issued to him by a college located within the United States, recognized as being reputable by this board. Each applicant must present to the secretary, at

the examination, a recent photograph of himself, the reverse side of which shall contain his signature, written in the presence of the secretary, and he shall make oath before such officer that it is his true picture and signature, and that he is the legal holder of the diploma under which the application is made. The filing of an application, or taking an examination, does not authorize the applicant to practice, and no one can legally engage in practice until he has obtained his certificate and registered in the county of his residence. Non-residents and holders of foreign diplomas are not eligible for examination. The fee of ten dollars should be sent to the secretary, Dr. J. N. McCormack, Bowling Green, Ky., with the application.

The Public Service.

Army Changes.

- Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Sept. 24, 1904:
- Bovereux, J. K., asst.-surgeon, left Fort Meade, S. D., with Sixth Cavalry on road march.
- Smart, Charles, asst. surgeon general, Smart, Robert, and Metcalf, H. F., asst.-surgeons, arrived at San Francisco on the *Sherman* from Manila, P. I.
- Church, James R., asst.-surgeon, relieved from duty at Fort Brown, Texas, on expiration of sick leave and ordered to Fort Robinson, Neb.
- Stark, Alexander N., asst.-surgeon, reports on three months' sick leave from date.
- Greenleaf, Henry S., reports on ten days' leave from date on completion of duty at maneuvers.
- Appel, D. M., deputy surgeon general, leave of absence extended to include Oct. 20, 1904.
- McAndrew, P. H., asst.-surgeon, left Jefferson Barracks, Mo., with recruits to San Francisco.
- Keen, Jefferson K., and Kafferty, Ogden, surgeons, detailed to represent Medical Department of the Army at the Thirteenth Annual Meeting of the Association of Military Surgeons of the United States, to be held at St. Louis, Oct. 10-15, 1904.
- Stephenson, Wm., surgeon, granted thirty days' leave, permission to apply for twenty days' extension.
- Smart, Charles, asst.-surgeon general, ordered to proceed from San Francisco to Army and Navy General Hospital, Hot Springs, Ark., for treatment.
- Williams, H. L., asst.-surgeon, relieved from further duty as medical director, Louisiana Purchase Exposition, St. Louis, and in addition to his duties as attending surgeon, headquarters Northern Division, he will perform the duties of examiner of recruits, St. Louis.
- Buck, Carroll D., asst.-surgeon, in addition to his present duties, will perform temporarily the duties of medical director, Philippine Government Board, Louisiana Purchase Exposition, St. Louis.
- Owen, Wm. O., surgeon, discharged from observation and treatment at U. S. Army General Hospital, Presidio of San Francisco.
- Owen, Wm. O., surgeon, relieved from duty in Philippines, and to proceed from San Francisco to Fort Logan, Colo., for duty.
- Steer, Samuel L., asst.-surgeon, granted thirty days' leave of absence.
- Lyster, Wm. J. L., asst.-surgeon, leave of absence extended thirty days.
- Greenleaf, H. S., asst.-surgeon, granted thirty days' leave of absence with permission to apply for thirty days' extension.

Brooks, John D., contract surgeon, ordered to temporary duty at Fort Washakie, Wyo., not later than September 13.

McMillan, Clemens W., contract surgeon, ordered from Fort Niagara, N. Y., to temporary duty at Fort Hamilton, N. Y.

Boak, S. Davis, Lauderdale, Clarence E., Mason, George L., and Wing, Franklin F., contract dental surgeons, arrived at San Francisco September 16 on the transport *Sherman*. They have completed three years' duty in the Philippines, and have been assigned to stations as follows: Dr. Boak, Fort Hancock, N. Y.; Dr. Lauderdale to Fort Sam Houston, Texas; Dr. Mason to Fort McPherson, Ga., and Dr. Wing to Fort Riley, Kan.

Navy Changes.

- Changes in the medical corps, U. S. Navy, for the week ending Sept. 24, 1904:
- Curti, H. C., P. A. surgeon, detached from the *Boston* and ordered to duty in connection with the Isthmian Canal Commission.
- McDonnell, W. N., P. A. surgeon, detached from the Naval Recruiting Station, Baltimore, Md., and ordered home to wait orders.
- Rodman, S. S., P. A. surgeon, detached from the *Pensacola* and ordered to the *Boston*.
- Wilson, H. D., P. A. surgeon, ordered to additional duty on the *Southerly*, September 28.
- The following named asst.-surgeons are detached from the stations indicated and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., September 30: R. G. Heiner, *Southerly*; R. B. Chayson, *Navy Yard*; E. H. Hancock, *S. J. P. Stoops, Naval Hospital, Norfolk, Va.*; F. E. Porter, *Naval Hospital, Norfolk, Va.*; H. F. Hull, *Naval Hospital, Newport, R. I.*; W. D. Owens, *Naval Hospital, Newport, R. I.*; J. L. Belknap, *Naval Hospital, Newport, R. I.*; C. E. Porter, *Naval Hospital, Newport, R. I.*; J. P. McLean, *Naval Hospital, New York*; G. L. Wickes, *Naval Hospital, Philadelphia*; W. J. Zalesky, *Naval Hospital, Philadelphia*; O. J. Mink, *Naval Hospital, Philadelphia*; H. A. May, *U. S. R. S. Franklin*; C. T. Grayson, *Naval Hospital, Washington*; D. C. W. E. Angwin, *Naval Hospital, Mare Island, Cal.*; W. G. Farwell, *Recruiting duty, Portland and Bangor, Maine*.
- Braisted, W. C., surgeon, detached from the *Pensacola* and ordered to the *Ohio*.

McNittouh, F. E., surgeon, ordered to the *Penacola* and to duty at the Naval Training Station, San Francisco.

Kennedy, R. M., surgeon, detached from the *Dacic* and ordered to the *Massart*.

Lovell, J. A., surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., October 3.

Ferebee, N. Melt., medical director, sick leave extended three months from September 20.

Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ended Sept. 21, 1904:

Gassaway, J. M., surgeon, detailed to represent the Service at the meeting of the Association of Military Surgeons at St. Louis October 10-15.

Carmichael, D. A., surgeon, granted leave of absence for one month from October 18.

White, J. H., surgeon, granted leave of absence for six days from September 19.

McIntosh, W. P., surgeon, to proceed to Stonington, Maine, for special temporary duty.

Woodward, R. M., surgeon, Department letter of May 13, 1904, granting leave of absence for three months amended to read two months and twenty-six days from June 14.

Stoner, J. B., surgeon, to proceed to Cape Charles Quarantine Station and assume temporary charge during the absence of Asst.-surgeon J. S. Burgess; granted leave of absence for eight days from September 26.

Wertenbaker, C. P., surgeon, on being relieved from duty at New Orleans, La., by P. A. Surgeon A. C. Smith, to proceed to the Immigration Depot, Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty.

Smith, A. C., P. A. surgeon, on being relieved from duty at New York (Stapleton) by P. A. Surgeon J. A. Nydgerger, to proceed to New Orleans, La., and assume command of the Service, relieving Surgeon C. P. Wertenbaker.

Nydgerger, J. A., P. A. surgeon, relieved from duty at the Immigration Depot, Ellis Island, N. Y., effective Oct. 1, 1904, and directed to proceed to New York (Stapleton) and report to the medical officer in command for duty and assignment to quarters, relieving P. A. Surgeon A. C. Smith.

Foster, M. H., P. A. surgeon, granted extension of leave of absence on account of sickness for thirty days from September 18.

McLaughlin, A. J., asst. surgeon, granted leave of absence for twenty-four days from October 3.

Hamilton, H. J., A. A. surgeon, granted leave of absence for thirty days from October 1.

Richardson, S. W., pharmacist, relieved from special temporary duty in connection with the Louisiana Purchase Exposition at St. Louis, and from duty in the Hygienic Laboratory, Washington, D. C., and directed to proceed to Boston, Mass., and report to the medical officer in command for duty and assignment to quarters.

LaFrance, J. W., pharmacist, Department letter of Aug. 30, 1904, granting leave of absence for twenty-three days from September 15, revoked.

Keen, W. H., pharmacist, Bureau order of Aug. 26, 1904, directing him to proceed to Boston, Mass., and directed to proceed to Chicago and report to the medical officer in command for duty and assignment to quarters.

REINSTATEMENT.

Herman, C. H., New York, reinstated as pharmacist of the third class.

BOARD CONVENED.

Board convened to meet at Stapleton N. Y., Sept. 19, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon A. C. Smith, chairman; P. A. Surgeon C. H. Lavinder, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Sept. 23, 1904:

SMALLPOX—UNITED STATES.

Illinois: Chicago, Sept. 10-17, 14 cases, 2 deaths.
Louisiana: New Orleans, Sept. 16-17, 1 case (imported).
Massachusetts: Sept. 10-17, Lawrence, 1 case; North Adams, 1 case.
Michigan: At 41 places, Sept. 3-10, present.
Minnesota: Morrison County, Sept. 6-13, 1 case
Missouri: St. Louis, Sept. 10-17, 11 cases.
New York: New York City, Sept. 10-17, 2 cases.
Pennsylvania: Philadelphia, Sept. 10-17, 1 case, 1 death.
Rhode Island: Providence, Sept. 10-17, 1 case.
Tennessee: Sept. 10-17, Memphis, 1 case; Nashville, 2 cases.
Wisconsin: Milwaukee, Aug. 27-Sept. 17, 6 cases.

SMALLPOX—FOREIGN.

Belgium: Antwerp, Aug. 27-Sept. 3, 1 case.
Borneo: Brunai, Aug. 8, epidemic.
Brazil: Pernambuco, Aug. 17-31, 28 deaths.
China: Hongkong, July 30-Aug. 6, 2 cases.
France: Paris, Aug. 27-Sept. 3, 29 cases, 1 death.
Great Britain: Bradford, July 31-Aug. 27, 9 cases; Aug. 27-Sept. 3, Bristol, 1 case; London, 2 cases; Manchester, 2 cases; Newcastle-on-Tyne, 3 cases; West Hartlepool, 2 cases; Glasgow, Sept. 2-9, 2 cases, 1 death; Leeds, Sept. 3-10, 1 case.
India: Bombay, Aug. 16-23, 1 death.
Italy: Palermo, Aug. 27-Sept. 3, 9 cases, 2 deaths.
Russia: Moscow, Aug. 16-23, 7 cases, 2 deaths; Odessa, Aug. 3-Sept. 3, 7 cases, 1 death; St. Petersburg, Aug. 20-27, 2 cases, 4 deaths.
Turkey: Beirut, Aug. 20-Sept. 3, present; Constantinople, Aug. 28-Sept. 4, 6 deaths.

YELLOW FEVER.

Mexico: Coahuila, Sept. 3-16, 7 cases, 2 deaths; Sept. 4-10, Merida, 1 case; Tehuantepec, 1 death; Vera Cruz, Aug. 27-Sept. 10, 10 cases.
Panama: Panama, Sept. 5-12, 1 case, 1 death.

CHOLERA.

Borneo: Kodat, Aug. 19, present.
India: Bombay, Aug. 16-23, 12 deaths.
Turkey: Bagdad vicinity, July 23-Aug. 6, 844 cases, 1,023 deaths.

PLAGUE.

China: Hongkong, July 31-Aug. 6, 13 cases, 12 deaths.
Egypt: Aug. 13-20, 10 cases, 7 deaths.
India: Bombay, Aug. 16-23, 59 deaths; Karachi, Aug. 11-21, 4 cases, 2 deaths.
Japan: Formosa, July 23-Aug. 6, 21 cases, 27 deaths.
Turkey: Smyrna, Sept. 5, present.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Colorado State Medical Society, Denver, October 4-6.
Idaho State Medical Society, Lewiston, October, 6-7.
Tennessee Medical Society of Alabama, Georgia and Tennessee, Chattanooga, October 12-14.
Assn. of Military Surgeons of the U. S., St. Louis, October 10-15.
Mississippi Valley Medical Association, Cincinnati, October 11-13.
Vermont State Medical Society, Rutland, October 13-14.
New York State Medical Association, New York, October 17-20.
Medical Society of Virginia, Richmond, October 18-21.
American Confederation of Reciprocity Examining and Licensing Medical Boards, St. Louis, October 25, 1904.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Seventeenth Annual Meeting, held at St. Louis, Sept. 13-16, 1904.

(Continued from page 997.)

Operative Treatment for Painful Menstruation in Young Virgins.

D. WILLIAM A. B. SELLMAN, Baltimore, pointed out the great necessity of giving relief to young unmarried women who suffered from painful menstruation. The forms of dysmenorrhea that could be relieved by operative means were expatiated on at length. These means should not be of a character to unsex the patient nor prevent her from bearing children or from fulfilling her marital relations. The operation should not be one which will endanger life or interfere with the woman's general good health. To illustrate the condition and to demonstrate the manner in which cases could be operated on without unsexing the individual and giving absolute relief for the suffering experienced, he related the following case on which he operated in the early part of June, 1904: Miss H., aged 24, a brilliant vocalist, with a register of three octaves, had been unable to use her voice with any satisfaction for a long period on account of the pain developed in the ovarian region when attacking the high notes. June 7, 1904, under ether anesthesia, the endometrium was curetted and a quantity of congested tissue removed from the cavity of the uterus. He then made an abdominal incision in the median line, and found both ovaries hyperemic and distended. Upon the left side he opened three good-sized cysts and on the right side two medium-sized cysts. He enucleated these with a sharp spoon curette and scraped the walls in order to destroy the membrane. He closed the openings with catgut sutures and used the same material to close the opening in the abdominal wall. The patient made an uninterrupted and rapid convalescence, and had not had the slightest amount of pain in the ovarian region, and no pain during two menstruations which she had passed through since the operation. He thought very many gynecologic surgeons would have removed both ovaries under these conditions, and the result would have been the unsexing of the patient and probably the loss of her voice, especially in the upper register. He had heard her sing, and was certain that her voice had not been impaired. Two physicians present during the operation expressed the opinion that no relief would follow the operation unless he removed the appendages. Resection of the ovary was followed by such successful results that one was not justified in removing the organs unless the complications present gave no opportunity to perform the conservative opera-

tion. Lastly, he spoke of that class of cases in which dysmenorrhea was due to a general systemic neuralgic condition. In these cases one at times afforded great relief by the use of the various forms of electricity. It was doubtful in many of the cases whether removal of the appendages would accomplish anything more than to bring about a premature menopause, and the patient would remain just as nervous as before operation.

DISCUSSION.

DR. H. W. LONGYEAR, Detroit, Mich., stated that in operating, if one could save an ovary or part of an ovary, he should do so. In the majority of cases, one could conserve tissues there with perfect safety and with the result of allowing the woman to menstruate as she would in a normal condition. He would enter a protest against operating on cases of dysmenorrhea that were of short duration in young persons. One should not subject any unmarried woman to an operation if it could be avoided. The minor cases of pain of short duration did not need operative measures.

DR. HERMAN E. HAYD, Buffalo, N. Y., alluded to the importance of examination in these cases, and even after an examination was made one might find that the most distressing cases were the ones that practically had no evident pathology, which could be made out by such an examination. If on examination one should find a retroverted uterus, a prolapsed ovary, a tender sensitive tube, then there was a rational basis on which to work, but simply because a woman had a small os it did not follow that she was going to be the subject of dysmenorrhea, because in all probability most of these cases were simply due to an impoverished condition of the whole system. They were simply functional troubles, and had to be met accordingly. If, however, there was an obstructive dysmenorrhea, and usually these cases were associated with an atrophic condition of the uterus, probably one could institute some operative measures, and the interference which had been most successful in his hands had been dilatation and the wearing of a stem pessary.

DR. WILLIAM H. HUMISTON, Cleveland, Ohio, stated that dysmenorrhea was a common disturbance, and yet he had not been able to find a case that was not accompanied by an inflammatory condition of the mucosa. He had seen cases of narrow, conical os, with the patients menstruating without the least sign of distress, but the moment there was an inflammatory condition of the mucosa added, that moment the patients began to have painful menstruation. In cases of this kind he thoroughly dilated the uterine cavity, curetted, and had the patients wear an Etheridge pessary, closely watching them for several months, and if there was no accompanying disease of the appendages, the cure was decided and complete. In these cases occasionally one would have a failure because of not recognizing an ovary which was smaller than normal, the cirrhotic ovary, which was hard to detect unless an examination was conducted under an anesthetic, and there was no relief afforded except by the removal of these shrivelled, corrugated, smaller than normal ovaries.

DR. D. TOD GILLIAM, Columbus, Ohio, spoke of the undeveloped condition of the uterus as a cause of dysmenorrhea. A great many men had come to the conclusion that it was not a superficial condition; it was not produced by the condition of the mucosa, as a rule; nor the result of stenosis of the internal os or of many of the other orifices of exit, but was due to the undeveloped, unripe condition of the uterine tissues. The uterine tissues were just like unripe fruit, and one of the functions of the uterus was to throw off this membrane at stated intervals, and in doing so there were certain physiologic processes that must work their way or be concerned therewith. The time for the casting off of this membrane was at the menstrual period, a time when this membrane would easily come away, but which could not be removed at any other time without more or less violence. Vessels permeated this dense structure; these vessels were undeveloped; they were unable to accommodate the amount of blood sent there during the menstrual molimen, and this induced distress. The membrane closely adhering to the uterine wall was not ready to be exfoliated, hence it was a source of distress.

DR. JOHN YOUNG BROWN, St. Louis, Mo., said that his experience in dealing with cases of painful menstruation was that unless there was a palpable pathologic condition present, it was better to leave them alone. In looking up the etiology of pelvic disease, he had found in a rather extensive operative experience that the majority of cases that came to operation were of gonorrhoeal or puerperal infection, and those cases that came as the result of infection following minor office gynecologic procedures. He did not feel that a young woman who suffered from painful menstruation should be subjected indiscriminately to operative treatment or even to a gynecologic examination.

DR. L. H. DUNNING, Indianapolis, said that one ought not to approach any case of dysmenorrhea without studying the surroundings very carefully. He should have a complete and thorough history of the case in order to be able to determine the character of the lesion which was present before undertaking the treatment of the case. He had been surprised in studying the collected histories of some two thousand cases to find that in about 15 per cent. of them there was dysmenorrhea at the beginning of menstruation. This, he thought, would go to disprove one statement made by the essayist, that nearly all of the cases were due to inflammation, or that most of them were due to gonorrhoeal infection or some other kindred infection. In the majority of cases in which dysmenorrhea began with menstruation, he thought one would find some errors in the development of the organ or errors in the development of the nervous system which would lead to painful menstruation. Every case should be studied carefully on its merits. Some would be found to be due to nervous conditions, others to hyperemia of the ovaries, and still others to venous congestion of the pelvic organs, including the uterus and ovaries. Obviously, all of these were not cases demanding operative procedures.

DR. SELLMAN stated that the object of his paper was to prevent, if possible, this suffering to women which came on about thirteen times a year. He thought that if any member of the Association had to undergo or endure the pain from which some of these patients suffered, even for only six times a year, he would seek some means of relief. He did not use instruments in all cases, but only in those cases where a truly condition existed.

Pseudo-Membranous Monocystic Tubercular Peritonitis.

DR. H. W. LONGYEAR, Detroit, said that pseudo-membranous monocystic tubercular peritonitis was that form of tubercular peritonitis which was characterized by the formation of a thick, white, fibrinous, pseudo-membrane on all of the tubercular peritoneum, covering the parietal peritoneum and cementing together and covering the intestinal coils in such a manner as to form a sac of greater or less capacity, according to the progress of the disease, which contained straw-colored fluid, with occasionally jelly-like masses and shreds floating therein. He reported three cases of this affection, and stated that the treatment consisted of abdominal section, with evacuation of fluid and the thorough washing out of all shreds and gelatinous masses, with normal salt solution; thorough drainage by glass or rubber tubes, both abdominal and vaginal. This was to be followed by after-treatment, consisting of frequent lavage, with a weak aqueous solution of iodine (tincture iodine, 1 dram; water, 1 pint), until the pseudo-membrane was disintegrated and the purulent discharge that followed had ceased. Internally, the rational treatment of tuberculosis, consisting of the use of creosote, cod-liver oil, etc., a supporting diet, and suitable hygienic surroundings. The prognosis was bad, although a few cases might recover, if not too far advanced, after months of constant drainage and careful nursing.

DISCUSSION.

DR. RUFUS B. HALL, Cincinnati, said he differed from some writers in regard to the different varieties of tubercular peritonitis. He was of the opinion that it was tubercular peritonitis in different stages of development. In dealing with the operative treatment of tubercular peritonitis, ultimate success

depended largely on the variety of the disease, the general condition of the patient, the previous history, the great prostration, etc. Very many were in such a condition that they could not withstand much trauma of any kind. The greatest relief was to be afforded to those cases in which there was an accumulation of cysts by letting out the fluid and draining. He had time and again made section when the patients were in a desperate condition, put in a drain, and in six months or a year later the patients returned, when he removed one or two infected tubes, and cured them, whereas if he had done a prolonged operation at the outset, with the patients in a feeble condition, and unable to withstand trauma, they would not have rallied.

DR. L. H. DUNNING said there were two or three questions which ought to be settled in regard to the treatment of cases of encysted tuberculosis of the peritoneum. First, as to whether one ought to remove the fallopian tubes in all instances. He believed we should. He believed that all cases of encysted dropsy, where the fluid accumulated in the pelvis, as described by Dr. Longyear, were dependent on infection of the tube, and it ought to be removed or a fistula would persist indefinitely. Another question was with reference to drainage. He was in accord with both Dr. Longyear and Dr. Hall that these cases ought to be drained through the abdominal wall. They need not be drained through the vagina if one could possibly drain them in the other direction. Should one in these cases attempt to break up the adhesions? Dr. Price had insisted on breaking up adhesions in all cases of tuberculosis of the intestines, but he believed that this pseudo-membrane, which was an adventitious membrane thrown out, was protective, was conservative, on the part of nature, and that one ought not to attempt to separate adhesions. Another point was whether we were justified in attempting to shorten convalescence in these cases by curettement. In three of his own cases he had curetted sinuses and packed with gauze to the bottom of the cavity, and had had three recoveries. In one instance there was a wide incision in the abdominal wall and pelvis, and with a great deal of timidity he used the curette, but did it carefully, and packed. This was followed by healing of the fistula within a short time.

DR. HELMAN E. HAYD, Buffalo, N. Y., said that usually those cases with simple effusion, or dropsy which was circumscribed, got well if opened, and the opening immediately closed. One did not need to disengage bowel nor disturb the adventitious membrane. Simply the entrance of air was an important factor in the cure of these cases. If there was pathology such as had been pointed out by the essayist, it was necessary to drain. However, he did not agree with Dr. Hall that all cases of tubercular peritonitis should be drained, as his own experience did not bear that out.

DR. J. HENRY CARSTENS, Detroit, thought that all that was necessary in ordinary, simple, encysted cases of this condition was to wash them out and let them alone. One should not try to break up adhesions, as serious complications might follow. In tubercular peritonitis the patients should be let alone as much as possible, and Nature given a chance. He said if he operated on a case of tubercular appendicitis and drained it, he would get trouble, because along the track of his drainage tube there would be tubercular deposits, and he would have a fistula there for a long time. On the other hand, if he took out the appendix, closed up the opening with silkworm-gut sutures *en masse*, tightly, he would have union without the formation of a fistula.

DR. D. TOD GILLIAM did not believe in too much interference in cases of tubercular peritonitis, or in such cases as had been described. He thought many of these patients would be better without operation if their cases were diagnosed accurately beforehand. In some cases of encysted tuberculosis he did not care whether the contents were merely washed out or not; by one method or another, one was likely to have bad results. There were other forms of encysted tuberculosis, however, in which one did not have these bad results, and in such cases it was necessary to open up the cysts. He did not believe in breaking up adhesions and separating viscera.

DR. LONGYEAR did not believe that a case of simple tubercular peritonitis, with a large cyst, and the abdomen full of dropsical fluid, needed to be drained, but agreed with Dr. Hayd that all that was necessary to do was to open it, wash out the cavity, sew up the wound, and the patient would get well. Many of them, however, would have a reformation of the fluid.

Chronic Adhesive Peritoneal Sclerosis.

DR. N. STONE SCOTT, Cleveland, Ohio, stated that among the rarer abnormal conditions found within the abdomen, was one peculiar, interesting, and possibly more frequent than had heretofore been suspected. This condition was progressive, yet was characterized by an absence of active symptoms, including ascites. In the early stages the peritoneum was rigid and contracted; later the connective tissue became excessively hypertrophied, with adhesions between the involved peritoneum and all viscera with which it came in contact. As soon as these adhesions interfered with the functions of any organ, symptoms referable to such interference supervened. When the involvement prevented some important organ from performing its necessary functions, death ensued.

In an illustrative case cited by him only a circumscribed portion of the peritoneum (the pelvis) was affected.

The Relative Value of the Means and Methods Employed in Accouchement Force.

DR. E. GUSTAV ZINKE, Cincinnati, Ohio, read a paper in which he drew the following conclusions: 1. The graduated steel or vulcanite dilators and the ordinary branched or bladed dilators were mainly employed for the purpose of dilating the cervix or os preparatory to digital, manual and bag dilatation. 2. The bag or hydrostatic dilators, of which the Champetier de Ribes balloon and its modifications were the most favored, should be employed only when time was not an important element in the case; when the cervix was thoroughly softened, partly or entirely effaced, and an easy introduction of the balloon possible. This was contraindicated in central placenta previa, and in eclampsia, mild or severe. If, in these cases, it was determined to empty the uterus, deep cervical incisions, vaginal or abdominal hysterectomy, promised the best results for mother and child. To prevent continuation of the cervical incision a suture might be placed in the upper angle of the wound. 3. The manual dilatation of Harris and the bimanual (digital) dilatation of Bonnaire and Edgar. A soft and partially obliterated cervix and dilatation os were absolute prerequisites for this variety of uterine dilatation. It was to be preferred when time constituted an important element. Under this method the life of the fetus was often lost and, unless great care was observed, sepsis, lacerations, hemorrhage, profound shock and sometimes even death of the mother might occur. 4. Deep cervical incisions and Dührssen's vaginal hysterotomy were destined to play a permanent and important rôle in the management of forced labors in the future. Many of the cases now subjected to manual or balloon dilatation would be treated by cervical incisions. It was the method in the presence of sepsis of the vagina, because the operation was short in duration and could be performed under a continuous flow of an antiseptic solution. An intact cervix, whether hard, elongated or not, was always an indication for cervical incision. Vaginal hysterotomy was indicated principally when the cervix was the site of malignancy or extensive cicatrization. If there were a palpable difference between passage and passage, the conservative cesarean section should be the choice of operation. 5. The indications for the conservative cesarean section had been well defined in previous papers and it was needless to repeat them. Cervical incisions and Dührssen's operation would, however, take its place in many instances, notably in cases of marked prematurity. 6. The Bossi and similar metal dilators, if they were not entirely needless, were certainly very dangerous instruments. From what had been said it was safe to predict that rapid and complete metal dilatation would never become a popular method; that sooner or later it would receive universal condemnation and thus reach its final and well-deserved destination—the lumber room of obstetric instruments.

DISCUSSION.

DR. HENRY SCHWARZ, St. Louis, was glad to hear Dr. Zinke's experience in reference to Dührssen's vaginal cesarean section, because personally he had had no experience with that method. He could conceive of exceptional cases of eclamptic convulsions or of placenta previa in which cesarean section might be justifiable in proper hands and under proper surroundings. As a rule, in eclamptic convulsions Dührssen's method should be the one of choice, and there could be very few exceptions where conservative cesarean section was indicated. No one would maintain in a case in which the placenta was eccentric, marginal or low seated, with hemorrhage, that cesarean section should be resorted to. Whenever one made a diagnosis of central placenta previa, the cervix was so far dilated that no one would think of doing anything except to deliver the child through the natural way. He thought Bossi's dilator had a limited sphere of usefulness.

DR. JAMES F. W. ROSS, Toronto, Ontario, said he had done cesarean section three times, in each case with the recovery of the mother and the loss of the child. The question between cesarean section and the Porro operation had been pretty well settled and the conclusion reached that the Porro operation, when cesarean section failed, enabled one to control hemorrhage. The last Porro operation he did was in a case reported to the society where a woman delivered herself up through the vagina into the abdominal cavity, and the fetus and placenta were forced through an enormous rent in the posterior vaginal cul-de-sac. In this case he did a Porro operation to control hemorrhage. He had operated on two cases of rupture of the uterus, with recovery, after having performed the Porro operation, by gauze packing, and he thought this operation in these cases should not be adopted unless there was hemorrhage that could not be controlled.

DR. O. J. ELBRECHT, St. Louis, spoke of Dührssen's incisions, saying that he had had three or four of these cases, in which he had resorted to Dührssen's incisions, with good results.

DR. J. HENRY CARSTENS called attention to the point that many practitioners were too anxious to dilate the cervix in the class of cases under discussion. He had seen them use rubber dilators and dilators of all kinds in working around the uterus for two or three days at intervals, and then finally had to send for someone to help them out of difficulty. Such practitioners wanted to know whether they should do this or do that. In some cases, after he had been called in consultation, he had found that the women were not in labor at all. He thought many of the members of the society had had similar experiences. It was a mistake to suppose that because a woman had a little pain at the approach of labor that she was actually in labor.

DR. EUGENE J. BROWN, Stanford, Ky., said in these days of aseptic surgery, with the results we are having with mechanical and manual dilatation, cesarean section would become more popular, and evidently in selected cases more lives to both mother and child would be saved than by other methods. He had the pleasure of witnessing the operation by Dr. Deaver, referred to in the paper. It was performed on February 23 of this year. The simplicity and ease of the operation impressed him very deeply. The mother and baby got along without any trouble.

DR. M. W. MEYER, Columbia, Mo., spoke of the use of the Bossi dilator. While he admitted there were many men who used this instrument, and recommended its use in cesarean section, those who were not radical in the matter had determined that it was not an instrument to be used in such cases. In fact, one had to go back to the old methods of delivery in cases of placenta previa, namely, to resort to the use of tampons. One could accomplish more with them than in any other way.

DR. ZINKE said that whatever he may have said or written in the past on this subject and presented to-day came from a motive simply to do good in the future, and to get rid of a certain method of practice in obstetrics, which had been the means of rendering families unhappy and because he honestly believed that there was great room for improvement in this practice in spite of all that had been said against it.

Vaginal Cesarean Section in Grave Cases of Puerperal Eclampsia.

DR. J. HENRY CARSTENS, Detroit, said that mild cases of puerperal convulsions ordinarily could be controlled by the treatment generally advocated for this class of cases, but that there was a serious, grave form of puerperal eclampsia where one convulsion followed another in quick succession, and the patient finally died in spite of ordinary, and sometimes even heroic treatment. This severe variety of eclampsia could generally be subdued by immediate delivery. This was accomplished generally by manual dilatation, the use of powerful steel instruments, like that of Bossi, but what was better still was the operation called the vaginal cesarean section, which enabled the obstetrician to deliver the woman in about five minutes with little or no danger. In conclusion he stated that: 1, in grave puerperal eclampsia, as a rule, prompt delivery will save the patients; 2, that manual effort with the fingers and the hand was too slow; 3, powerful steel dilators were not always at hand, and often caused serious injuries; 4, vaginal cesarean section enabled the obstetrician to quickly and safely deliver the woman.

An Unusual Case with Many of the Symptoms of Appendicitis.

DR. MAGNUS A. TATE, Cincinnati, narrated this case, which was of interest because: 1. It presented an unusual history. 2. The symptoms and history of the case following scarlatinal nephritis led him and others to suppose that probably they were dealing with a case having appendicitis as a complication. 3. The patient urinated regularly and at no time was there a dribbling of urine. 4. The presence of adhesions and the enlarged bladder, with its thick walls, had only problematical causes, not explained satisfactorily by the history of the case.

The patient, a boy aged 7, was attended by Dr. L. Linss of Cincinnati for an ordinary attack of scarlet fever from Feb. 25 to March 18, 1904. March 21 Dr. Linss was called to see the boy on account of a swelling of the feet and hands. On the morning of April 1 all edema had disappeared; urine highly colored, but normal in quantity, with no sugar, albumin or casts. That afternoon the patient had a chill, vomited, and was suffering with a pain in the abdomen. Temperature, 99.5; pulse, 90. April 5, the patient had two more attacks of vomiting. Pain in the abdomen was constant, and he had not slept for twenty-four hours; temperature, 102, and pulse, 130. Dr. William Johnson saw the case with Dr. Linss, and on examination of the abdomen they found an uneven swelling which extended to the umbilicus and over the right lumbar region. On palpation exquisite tenderness over the appendix was elicited. A diagnosis of appendicitis was made, but further consultation was asked for. The next day, April 6, Dr. Tate was called. When he saw the patient, six days after the initial vomiting spell and chill, the child had been crying and moaning day and night, and could not sleep; temperature, 102; pulse, 132, very irregular; abdomen swollen, especially on the right side, and such marked tenderness that the child screamed if the slightest pressure was made over the region of the appendix. Bowels constipated and the urine highly colored. The following day there was no improvement, the pulse even worse; temperature remained at 102. Before placing the child on the operating table a bed-pan was placed under him and he passed nearly a pint of urine. Chloroform was administered, and an incision was made on the right side two inches in length, over the most prominent portion of the swelling. It revealed a dark-colored sac and a number of adhesions. The incision was lengthened to three inches. Some adhesions were broken down with the finger, but a few of them were so firm that they had to be cut. The enlarged opening gave a field of about two inches to work in, and the sac in appearance was not unlike that of a gangrenous bowel. They were at a loss to say exactly what it was, and as adhesions limited the field, gauze was packed about the opening, the child turned to the right side, and a half-inch cut was made into the sac. A dark green fluid spurted out, which had a strong, heavy odor of stale urine. About two quarts of fluid was evacuated, and the finger intro-

duced into the sac, which proved to be the bladder. The opening in the bladder was sewed up, adhesions binding the bladder on to the abdominal wall and on the right side to the large and small intestines were broken up, and the enlarged thick-walled bladder dropped back into the abdominal cavity. The appendix and appendiceal region, except for the presence of some adhesions, were normal. An opening was left in the abdomen for gauze drainage, and the rest of the wound closed up. The subsequent history was that the bladder was emptied by means of a retention catheter for forty-eight hours, after that catheterization night and morning for three days. There was a gradual decrease in pulse and temperature, and in seven days both were normal. On the third day a quantity of fluid drained out through the opening, but this gradually ceased, and on April 23, sixteen days after operation, the abdominal wound had closed, and the patient is now in good health.

Gunshot Wound of the Abdomen.

DR. JOHN D. S. DAVIS, Birmingham, Ala., reported a case of gunshot wound of the abdomen, with eighteen perforations, in which he resorted to intestinal resection of five feet seven inches, with use of the metal button, followed by recovery of the patient. The patient, a woman, 23 years of age, while attempting to place a rifle in the rack on the wall, the gun was discharged with the muzzle about eight inches from the abdomen. The bullet, a 32-caliber, entered in the median line midway between the umbilicus and the symphysis pubis, ranging backward, upward and to the right, and was deposited in the muscles of the back on the right side. The ball in traversing the abdomen made eighteen perforations of the gut, and two cuts in the intestine that went to the mucous membrane. Sixteen of the perforations and the two sero-muscular wounds were in the small intestine, and two perforations in the transverse colon. The bullet cut two mesenteric arteries, which caused a large amount of blood to collect in the abdomen. Patient was shot at 4:30 p. m., Feb. 2, 1904, and was brought a distance of eighty miles on a freight train to Birmingham, by her physician, Dr. W. O. Watson, and carried to Hillman Hospital. At 9 o'clock Dr. Davis saw the patient and had her prepared for section. Temperature at this time was 102, and pulse 130. She probably had fever at the time she was shot. A seven-inch incision was made in the median line, a large quantity of blood turned out, and the bleeding vessels controlled by hemostatic forceps. The two perforations in the transverse colon were so near the mesenteric border that he stripped up the mesenteric serosa and turned the mesenteric border in as though the two openings, one on each side, had been one large opening, including mesenteric border, and closed with interrupted silk sutures. He then brought the mesenteric folds back and sutured over the wound. Four perforations and two sero-muscular cuts in the small intestine were turned in and closed with small loop silk sutures. Two perforations were situated so close together that they had to be closed by flexing, pouching or looping the mesenteric border, the bowel being bent on its convexity so that the two wounds could be closed as one large wound by interrupted longitudinal loop sutures—suture with axis of bowel. There were two other perforations that could have been closed by suture, but the openings were between two mesenteric perforations on one side and eight on the other, and he thought it better to lose one more foot of intestine than to do two resections. He resected that part of the intestine containing the ten mesenteric perforations (sixty-seven inches), including the two large perforations in the convexity of the ileum and closed with the third-sized metal button. The resected bowel and its mesentery were removed, the vessels ligated, and the gap in the mesentery closed with interrupted silk sutures. The abdomen was flushed with hot normal salt solution; plain gauze drainage was used, and the abdomen closed with through-and-through silkworm gut sutures. The operation lasted one hour and a half. Drainage was removed on the second day. Patient passed the button on the twenty-first day and left the hospital March 1, 1904. A week later she was doing housework, and was perfectly well.

(To be continued.)

Miscellany.

TRAVEL NOTES.

OUR POSSESSION IN SAMOA FROM A MEDICAL STANDPOINT.

NICHOLAS SENN, M.D.

CHICAGO.

AUCKLAND, NEW ZEALAND, July 25.

We landed at Pago Pago on Thursday, July 21, at 6:30 a. m. The natives were on hand to welcome us, and many a greeting was expressed in the euphonious word "*talofa*" (love to you). The moment the ship was anchored in the harbor a fleet of canoes surrounded it and their brown inmates in native attire—men whose only garment was a breechcloth, women in the loose, comfortable Mother Hubbard calico dress, children with no clothing incumbrances of any kind, all of them with a copious growth of jet black long curly hair freely exposed to sunlight and breeze, with upturned faces and large, gentle, imploring coal black eyes—were soliciting patronage for the products of their charming island. Gaudily painted tapa cloth made of the bark of a tree, coral beads, baskets of various designs and sizes, shells and tropical fruits were the principal articles offered for sale. The competition between the dusky vendors was not a spirited one; it made little difference who reaped the greatest profits, as in a short time the gain of the morning's sales, according to the customs of the island, would soon be shared equally by all. Our time in the harbor being limited to a few hours, I was very anxious to improve every minute in studying the resources of the island, its people and their diseases. By previous appointment I was met on board by Dr. H. E. Odell, P. A. Surgeon U. S. Navy, the medical officer of the training ship *Adams*, now in the harbor (Fig. 1). To this officer I am greatly indebted for many charming courtesies and most valuable information. He took me ashore at once in the government launch and on landing introduced me to Chief Pan Pan of the village Aua, who happened to be present, a man highly esteemed by the natives and whites for his excellent character and good judgment. His distinctive dress consisted of a long white coat, with shoulder-straps of the same color with a narrow border of blue. His whole bearing impressed one with the dignity of his office and firmness of his character. From the time we entered the harbor until we reached the shore I had looked in vain for the American flag. I saw the bare, tall pole in front of the custom-house and was wondering what had happened in international politics since I left San Francisco, that it should have been stripped of our colors. The information came without asking any questions. A few minutes after landing a motley crowd gathered around that pole and presently I had the pleasure of witnessing the hoisting of the American flag (Fig. 2). This is a ceremony that takes place every day at 8 o'clock in the morning. The moment the Stars and Stripes reached the lofty destination, fluttering in the fresh morning breeze, the native band played our national airs, "*My Country, 'Tis of Thee*" and "*Star Spangled Banner*," and the mountains re-echoed the strains of the stirring music so dear to the heart of every American. The ceremony was an impressive one. The native guard, composed of 72 picked men, magnificent specimens of physical development, wearing a red turban, white sweater and blue trousers, stands at attention with arms at rest. The crowd of people, including many children, stood motionless, not a word being spoken until the last strains of the music had died away in the soft, balmy air of the tropics, when the guard shouldered their arms and marched away to their respective posts of duty in a truly soldierly manner and the crowd dispersed as quietly and silently as it had gathered. This beautiful ceremony reminded me that I was on American soil in the midst of the vast trackless Pacific ocean, nearly 5,000 miles from the western limits of the United States.

SKETCH OF THE HISTORY OF THE ISLANDS OF SAMOA.

Not all the people of the United States are aware of the fact that the beautiful island of Tutuila of the Samoan archipelago

is one of our ocean possessions and very few know how it was acquired. In making inquiries among officers and passengers of the *Sierra* regarding this subject I became satisfied how little there is known about it. The history of Samoa, especially the recent part of it, leading up to the time Tutuila was ceded to the United States, is a very interesting one and does not reflect much credit on some of the foreign powers, especially Germany. The extent to which Germany meddled with Samoan affairs and the fact that she now owns the two largest islands, Savaii and Upolu, are matters difficult to explain. The recent history of Samoa is a tangle difficult to unravel without losing the thread owing to the rapidity of succession of events caused by contending internal political factions, complicated by outside interference. Space will permit me only to give a few outlines. The Samoan archipelago, composed of not less than fourteen volcanic islands with numerous adjacent islets, lies nearly east and west between the parallels 13° 31' S. and 14° 31' S., and longitude 172° 45' W. and 168° 9' W. The last volcanic eruption occurred in Savii in 1866. The islands were first seen by Roggeveen, but their discovery is generally accredited to Bougainville, who came there in 1768 and stocked them with domestic animals. He called them Navigator Islands. It is supposed that the islands became populated by Polynesians migrating eastward from Sumatra, via the Philippines and Hawaii, by a party of less than fifty, in seven canoes. Two hundred years later the Tongans invaded the islands and, with the aid of Fijians, drove the Samoans into the mountain retreats. The hardships endured by constant persecution served to strengthen the Samoan forces, who finally gained the upper hand and cleared the two largest islands, and later all of them, of the invaders. Cannibalism was introduced by the Tongans, but was abandoned before the arrival of the explorers. The missionaries came in 1833, and one of the first fruits of their indefatigable labor was the conversion of Malietoa, one of the most powerful chiefs, who was christened Davita. This event gave rise to a religious wave which soon reached the different islands.

Frequent strifes between the different islands and tribes induced the natives to look to the United States as early as 1872 to establish order out of chaos by requesting our government to send Colonel Steinberger of New York as adviser. Two years later President Grant granted the request. The colonel soon improved the administrative affairs of the islands and had the full confidence of the natives. His influence excited the envy of the British and in less than a year he was deported by a British warship, no protest being made by our consul, and the unwarranted action had the full sanction of King Malietoa Laupepa. Insurrection followed and the king was deposed. From now on the political events followed in rapid succession by the aggressive interference on the part of Germany. Talavoa was elected king, but died after a short tumultuous reign, and Laupepa again succeeded to the throne only to be again deposed in 1888, when he was exiled by the German fleet. Insurrection under the leadership of Malietoa Mataafa again unsettled political affairs. At one time the German, English and American warships in the harbor of Apia were ready to clear the decks and begin war between Germany on one side against the other two powers, when the great storm swept them out of existence with the exception of the English gunboat *Calliope*. Active interference on the part of the United States resulted in the Berlin conference, which declared in favor of Laupepa against the protests of the natives. With the assistance of a German and British warship Laupepa defeated the forces of Mataafa near Apia in 1893, who shortly afterward surrendered to the British and was exiled to the island of Jaluit with twenty of his chiefs, where he remains at the present time. On the return to power Laupepa abdicated in favor of Mataafa, but European diplomacy again interfered and he remained on the throne. After Laupepa's death in 1888 came the contest between the exiled Mataafa, who had the German influence, and Tana, the son of the dead king. After a number of fierce contests the matter was referred to Chief Justice Chambers, who decided in favor of the heir to the throne. Finally Admiral Kautz of the battleship

Philadelphia interfered and insisted that both contending parties should lay their claims aside. England now withdrew from the contest, leaving the Germans and Americans in the field to dispose of the islands. A satisfactory agreement was reached by which, on Nov. 8, 1899, the two largest islands, Savaii and Upolu, were ceded to Germany, and Tutuila with its magnificent harbor became the property of the United States.

OUR SAMOA ISLANDS.

Out of the internal dissensions and whirlpool of foreign interventions arose for us, phoenix-like, Tutuila, the most beautiful, and, from a strategic standpoint, the most important of the Samoan Islands. Pago Pago harbor is land-locked, with an average of thirty fathoms in depth and sufficiently large to give protection to a fleet of from six to eight of the largest men-of-war, with a strip of land belonging to it amply large for government buildings, barracks and coal sheds. The harbor is hemmed in by mountains on all sides, from 1,500 to 2,500 feet high, except the narrow gateway communicating with the ocean. These mountains form a safeguard against any hurricane, no matter how severe it might be. The entrance is so narrow that a few mines and a battery on the high hills on each side could keep the largest naval force at bay. The island is 19 miles long and 230 in circumference. A number of islets belonging to it and included in the treaty stretch along the same east and west line, the farthest about sixty miles away. The main and adjacent islands are forest-clad, without a bare spot in the dark green carpet, extending from the shores to the highest mountain peaks. The primitive forests have never been disturbed, as the natives have had no use for timber either for themselves or barter. The forests are dense, almost impenetrable, and some of the trees, especially at the very summit of the mountains, are of prodigious size and would yield hardwood timber of great commercial value. The rim of lowland at the base of the mountains, when it exists, and the valleys near the shore line, are covered with groves of cocoa palms and wherever a sufficient number of these trees are found a hut or a small hamlet of huts may confidently be looked for. The volcanic formation of the entire island is covered with a thick layer of the most fertile black soil, as shown by the size of the trees, the luxuriance of the shrubs and plants and the abundance of nutritious grass. The soil and climate are admirably adapted for the growing of coffee, cacao, taro and all kinds of tropical fruits.

CLIMATE.

The climate of Tutuila is influenced by the unbroken, dense, virgin forest. We see here a very instructive example of what such forests are capable of accomplishing in the way of securing an adequate rainfall. Drought is unknown. The rainy season in the Samoan Islands is supposed to be during the first three months of the year, but in Tutuila it rains more or less throughout the year, rendering the atmosphere damp. The rainfall last year, according to Dr. Odell, reached nearly 200 inches. Every ravine leading from the mountain heights to the sea has its rivulets or small rivers, which drain off the excessive moisture of the saturated soil, furnishing the inhabitants all over the island with a faultless water supply. The climate is uniform, the tropical heat modified by sea and land breezes. The temperature seldom rises above 85 degrees F. and is rarely less than 72 degrees F., although on rare occasions the thermometer has registered as low as 60 degrees F. (Odell). The nights are generally delightfully cool. The climate is, on the whole, very similar to that of Hawaii.

THE PEOPLE.

"They eat, they drink, and in communion sweet quaff immortality and joy."—Milton.

The Samoans are a noble race, simple, honest, affectionate, peaceable and hospitable. The men are splendid specimens of physical development, above average size, and with a courteous and noble bearing. I observed several women who were close to the six-foot mark and as erect as the poles of a bamboo thicket. I noticed that many of the women and some of the men had dark brown hair, which, I was informed, was the result of a process of bleaching with lime, done either with the

intention of ridding it of its living inhabitants or for cosmetic reasons. The women are rather fair-looking when young, but lose their attraction before they reach the age of 30 by premature old age and obesity. Tattooing among men remains as a national custom. It is done as a ceremony as soon as the boys attain virility and the field of operation corresponds with that part of the body covered by their only garment—the breechcloth—so that in the event anything goes wrong with this, the simplest and oldest dress, they should not appear entirely naked. The operation is performed by experts, whose implements consist of a little fine-toothed comb made of the tusk of the wild boar, which is fastened to a small stick in the form of a minute rake. The teeth are dipped into the staining material, and with blows of a little stick on the blunt end of the comb they are made to penetrate deep enough to drive the stain into the deeper layers of the skin. The operation is attended by great pain and lasts, according to the artistic designs employed, from five hours upward. The lines of tattooing are exceedingly fine and the patterns are often quite artistic, as I had an abundance of opportunity to observe. There is very little crime among the Samoans. For four years there has been only one murder in Tutuila with its 6,000 inhabitants. The whites never lock their doors. What we look on as petty thefts, such as taking away without per-



Fig. 1.—Tutuila, Samoa. U. S. Naval Station.

mission a loaf of bread, a fish or any kind of fruit, is not regarded in the light of crime by the childlike Samoan. The next day the neighbor so treated will even up the account in a similar manner. So far as the food supply is concerned, the Samoans constitute one great family, giving and taking as occasion may demand, and the stranger is always welcome to more than his share. Family life is ideal. The father rules supreme; old age is respected; the ties of relationship and friendship are strong. No operation can be performed on a Samoan without a previous family council. If the father is the patient the sons decide the matter; if any other member of the family is concerned the father alone has the power to object to or sanction the operation. The bedside of the sick is never deserted by the immediate members of the family, and anxious relatives and friends are never far away.

The educational advantages of Tutuila are as yet in their infancy, a defect which should soon be remedied, as the children are very fond of school work. The Catholic Sisters have been here, and, as on so many other frontier lines, they are the pioneers in placing within reach of the ignorant children the means of obtaining an education. They have opened a school in a village near Pago Pago, which is already filled to overflowing with the little dusky scholars. All of the inhabitants are nominally Christians, but religion has failed to wipe out

many traces of paganism. There are very few legal marriages consummated. The native custom still prevails. Man and wife consent to live together, and continue to do so as long as the matrimonial sky is clear, but should anything occur contrary to the expectations of the husband the tie is severed by returning the wife to her parents or relatives. The children are always provided for. Unless other arrangements are made which are satisfactory to both parties, the sons remain with their father and the daughters accompany their mother.

The kahuna, or native medicine man, remains, and has not lost his influence among his people. They continue their mysterious ceremonies and the use of herbs and roots in battling with the diseases they are called on to treat. The remarks of Father Damien concerning the native doctors of Hawaii apply to the kahunas of Samoa: "We have to fight their doctors, who are generally nothing but sorcerers. In cases of sickness idolatrous sacrifices are still in use. All diseases are attributed to mysterious causes. It is very hard to disabuse these poor people of such superstitious notions." Superstition remains unshaken by the teachings of the gospel, a strong proof of the truth that

"Nothing has more power over the multitude than superstition; in other respects powerless, ferocious, fickle, when it is once captivated by superstitious notions, it obeys its priests better than its leaders."—Quintus Curtius Rufus.

PRESENT FORM OF GOVERNMENT.

Our government has very wisely interfered as little as possible with native rule. The harbor, with a strip of land belonging to it, is exclusively under the control of the officer in command of the naval force stationed there. He is at the



Fig. 2.—Flag-raising ceremonies.

same time the commandant of the island, to whom the chiefs can appeal in all matters in which they find it necessary to obtain advice, or when they fail to adjust local difficulties in their respective communities. The naval surgeons stationed at Pago Pago have in charge the sanitation of the island and the care of the sick poor natives. They have already succeeded in securing for Pago Pago, a village of 1,500 inhabitants, a pure water supply and many other sanitary improvements. The greatest fault with the Samoans is their inborn laziness. They will not work. The government has now under way many improvements, and, although the wages for this part of the world are large, \$1 a day, it had to import laborers from other islands to do the work. Civilization has rather increased than diminished this inherent repugnance to labor.

KAVA DRINKING.

Kava is the national drink of the Samoans. They have not, like our Indians, an unquenchable desire for alcoholic stimulants. Kava is the fleshy root of *Piper methysticum*, a succulent plant about four feet in height, with large, long petioled leaves. In propagating the plant all that is necessary is to break off one of the leaves at its point of insertion, including the bulbous base of the petiole, and stick it into the moist, rich, black soil. Kava drinking is a ceremony. Dr. Odell was kind enough to

give me an opportunity to observe this ceremony in all its details and to sample the product. Whenever possible the drink is prepared by a young woman, who always regards the task as obligatory, as well as a privilege, if not of distinction. The first young lady that passed Dr. Odell's bachelor quarters was called in, and she went through the entire performance with a grace and elegance that showed that she was no novice in that part of her domestic functions. Formerly the root, fresh or dried, was chewed by young women. Now the dried root is crushed on a stone, and the coarse powder is placed into a shallow bowl of hard wood, supported on very short legs, the pride of every Samoan family; it is to them what the samovar is to the Russians. After pouring cold water on the pulverized root it is stirred vigorously with both hands for about five minutes, when the straining is commenced with a swab of bark fibers, which is continued until all coarse particles are removed from the soapy-looking liquid; the entire time required being about fifteen minutes. The liquid has a peppery, rather pleasant taste. It is served in cups of carved cocoonut shell. This drink suits the place and climate better than any other beverage. In larger quantities it produces a form of slight intoxication, in moderate quantities it is a diuretic and slight soporific.

NATIVE HOUSES.

The natives remain true to their original architecture in the construction of their houses. The houses are circular, open, the round dome-like thatched roof resting on poles. The rafters are made of the bread-fruit tree, held together and fastened to the upright poles with an intricate lacework of bark and twigs. The ground is covered with gravel. The bed consists of tapa mats, and the pillows are bamboo sticks, as large as the arm of an adult, supported by props at each end, about four inches in height. The cooking is done outside. As there is no other furniture in the house the domestic duties of the female part of the family are certainly of the simplest kind. The tapa cloth is made of the thick, soft bark of a tree; it is pounded into thin sheets, dried and painted in figures most pleasing to its future owner. It is the principal article of barter, and its abundance or scarcity constitutes the wealth or poverty of the family. These open houses and the frugal diet are most conducive to the preservation of the native's health. Indoor air, combined with the inherent inactivity of the natives, could not fail in multiplying disease and increasing the death rate.

DISEASES.

Samoa, like all islands of the South Pacific, has lost its full share of population from the effects of the infectious diseases introduced by the whites, notably measles, smallpox and tuberculosis. Vaccination is now generally practiced by the naval surgeons, and the natives subject themselves willingly to this prophylactic measure. The spread of infectious diseases among the natives is favored by their habits. Their affectionate nature and the strong ties of friendship bring relatives, friends, communities and different villages in continuous and frequent contact with the afflicted, and in this manner infection is carried in all directions, and in a remarkably short time by progression from place to place will reach the most remote parts of the island. I imagine that any efforts to cut off free communication between the sick and well would appear as an infliction of cruelty to the natives, and would meet with their displeasure, if not persistent opposition. It is this free intercourse among the people that accounts for the rapid spread of measles and other acute infectious diseases over the entire island. The natives have absolutely no comprehension of the importance, much less of the necessity, of enforcing sanitary precautions.

Tuberculosis affects most frequently the lungs, as this organ becomes most frequently predisposed by catarrhal affections, which are very common; next in frequency are the bones and joints, and lastly the lymphatic glands and intestinal canal. Leprosy is unknown in Tutuila. On the other hand, elephantiasis is very common. It is estimated that of the male population over forty years of age 50 per cent. are suffering from

this disease. It attacks in preference the lower extremities, but not infrequently the upper become involved, and scrofulous elephantiasis is by no means rare. Dr. Odell has operated on a number of cases of scrofulous elephantiasis successfully, in which the mass removed weighed twenty and more pounds. The disease is much more common in men than women, undoubtedly because they are more frequently the subject of lesions, which determine infection. The disease is occasionally met with in children less than ten years of age, and not infrequently in young men at the age of twenty. There are only about 50 whites in the island, and one of them, a German, had been a resident for thirty-two years. He married a native woman and raised a large family of children. He is now 57 years old, and contracted the disease twelve years ago. It affected the right leg, pursued a somewhat acute course, and recently a complicating affection of the knee joint made an amputation of the thigh necessary. He made a good recovery, and will leave the hospital in a short time for his island home. This case, like so many others, proves that a prolonged residence in a tropical climate renders the whites susceptible to infection. Skin affections are very prevalent in the island,



Fig. 3.—Tamasee. Fine specimen of Samoan.

more especially ulcers of the leg. The lack of clothing and footwear is undoubtedly largely responsible for this, exposing the parts to all sorts of mechanical irritation in walking through the dense bush and along the stony, pebbly shore. These ulcers yield promptly to treatment by rest, and the local use of antiseptics. Another common affection is the so-called tropical abscess, a deep-seated, somewhat subacute phlegmonous inflammation, attended by only slight constitutional disturbances. It is undoubtedly the result of infection through surface lesions which are so common, that is, the entrance into the tissues of some mild form of pus microbe through a surface infection—atrium. These abscesses heal very promptly after incision and drainage. The frequency with which hydrocele is met with is attributed by Dr. Odell to *Filaria sanguinis* infection, but he has encountered no difficulty in effecting a radical cure by the usual operative treatment. Among the skin affections yaw figures very largely. Dr. Odell showed me a little girl suffering from this disease. The lips and lower segment of the face were covered with very super-

ficial weeping ulcers. He relies on mercury and chalk incorporated in a salve in its treatment, and has never seen this treatment fail in effecting a speedy healing of the ulcerated surfaces. Venereal diseases are not nearly as common in Samoa as in Hawaii or Tahiti, as the women are more virtuous, especially in their relations with white men. The humidity of the climate, the cool nights, absence of clothing, inadequate cover during sleep, are responsible for the frequency with which diseases of the respiratory organs prevail. Pneumonia occurs in a somewhat mild form, as the mortality is not great. Epidemics of influenza sweep over the island almost every year, and affect young and old, but the disease is mild. Typhoid fever is unknown. Malaria in certain localities is quite common, but always of the mildest type, yielding readily to the internal administration of quinin. Diarrhea among infants and children, caused by improper diet and exposure, is a very common affection throughout the entire year. The question has often occurred to me whether or not appendicitis is as frequent among the people who live largely on breadfruit, bananas, and cocoanut, that is a laxative vegetable diet, as it is with us, who are more imprudent in the matter of diet. That the disease is rare in the islands of the South Pacific I am sure, that it does occur is shown by a case recently operated on at Pago Pago by the predecessor of Dr. Odell. The patient made an excellent recovery. Dr. Odell has been at his present post since December, but so far, has not seen a single case, although his clientele is very large. Dysentery as observed here, is not a common disease, and yields readily to treatment. The island has so far escaped the ravages of scarlatina and diphtheria, the scourges of childhood in most of the civilized countries. The sanitary condition of the island appears to have been improved during the last few years, in consequence of which the population is now increasing.

HOSPITALS.

The plural number of this subheading will undoubtedly astonish the readers. Pago Pago is the only place in the island that affords hospital facilities, and this is a village of not more than 1,500 inhabitants, and our naval force does not exceed 120 men. Nevertheless, it has two distinct hospitals adjoining. One is a small, one-story cottage, with four small rooms, in which all the operating is done and in which the more serious cases and the soldiers are cared for. It would be difficult to crowd into this hospital more than twelve or sixteen cases, and yet it has met, so far, the urgent needs. The second hospital is a unique one. It is nothing more nor less than a large native house, built by the natives, for which the government paid them \$100. The cots furnished by the government are the only articles of furniture. The natives can come and go as they please, as they take care of themselves. Men and women live under the same roof. In case of an emergency about twelve patients could find shelter here. Its greatest merit is the perfect ventilation. At the time of my visit I found here three patients, one woman recently operated on for extrauterine pregnancy, a man affected with elephantiasis, and another one the subject of extensive ulcers of the leg. These patients have no lack of nurses, as a crowd of relatives and friends is always in attendance. Dr. Odell attends to their medical and surgical needs.

The obstetrical work in the island is attended to by neighboring women. The patient, as well as the improvised midwife, have only one thing in view when a new Samoan is on his way into the world, and that is to shorten the ordeal as much as possible by a combination of muscular force on the part of the patient and her attendant. It speaks well for the climate that, notwithstanding even ordinary cleanliness on such occasions is ignored, to say nothing of modern aseptic precautions, and a maximum of force is brought into play, sepsis very seldom follows, and the mother resumes her customary, routine household duties the next day. These strenuous deliveries, as a matter of course, result in extensive lacerations of uterus and perineum.

One death from puerperal sepsis came recently under the care of Dr. Odell. It was a case of retained placenta, in which general sepsis had developed before he was called. In spite of

prompt extraction of the putrid mass, and thorough disinfection, the patient succumbed to acute sepsis. Dr. Odell has performed three successful laparotomies during his residence in Pago Pago: 1. Ovarian tumor. 2. Dermoid of ovary. 3. Ruptured extrauterine pregnancy. Patients take anesthetics well, and wounds heal promptly. Myofibroma of the uterus does not appear to be as common in the women of the South Seas as is generally supposed; on the other hand, lipoma in all its favorite localities is very frequently met with in both sexes. It will, in conclusion, interest the readers to know that our island in the Pacific has a newspaper in the native language, published every month at government expense and distributed gratuitously among the inhabitants. Through this medium they receive the local news and keep in touch with the outside world.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in everyday practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

A Substitute for Milk in Intestinal Diseases of Children.

Helprin, in the *Med. Record*, recommends the following, which may be used in place of barley water when that mixture becomes monotonous or distasteful: "Two tablespoonfuls of ordinary flour in an agate dish retained in an oven till the flour is well browned, then blend or dissolve in a little cold water; this is now gradually added to, and stirred in two pints of water while boiling. This may be given in three-ounce apportionments, and ten feedings. One-half dram, gradually increased to a dram and a half, of condensed milk, can, in the course of a day or two, be judiciously added to each feeding." Other preparations of the same class include cornstarch and granum.

He also recommends the following prescription to be used to hold a diarrhea in check:

R. Bismuthi subnitratris	5v	20
Bismuthi salicylatis	gr. xii	75
Syrupi rhei aromatici	ʒiij	12
Aque dest. q. s. ad	ʒiv	120

M. Sig.: Teaspoonful every two to four hours.

For the same condition Kerley recommends the following:

R. Bismuthi subnitratris	5v	20
Sulphuris sublimatis	gr. xxx	2

M. Ft. chart. No. xxx. Sig.: One powder in a tablespoonful of water every two hours. The effect is soon evidenced, but it is best continued for some time.

Illuminating Gas Poisoning.

Hubbard, in the *Med. Record*, reports a case of poisoning by illuminating gas, and recommends early venesection, followed by a saline infusion. The author believes that this method deserves more recognition than has been accorded it in recent years. Cases have recovered after having been exposed to the gas for from six to twelve hours. The chances of recovery decrease with every hour of delay in operating.

AMOUNT OF BLOOD TO BE TAKEN.

There is no definite rule, the amount must be determined by the condition of the pulse. More often too little is removed than too much. When the pulse becomes feeble it is time to stop. The change in the rate is of no great value as an indicator. The amount of saline to be injected is likewise dependent on the pulse character. When the radial gives a full, steady pulse beat, sufficient infusion has been used.

In regard to the advisability of a second blood-letting the author states that if four or five hours have elapsed with no marked improvement in the respiration, and no return of consciousness, a second venesection may be indicated, more

caution being required in judging the amount of blood to be withdrawn.

Hiccough.

The *Med. Times* suggests the following: Chloral is perhaps the most generally useful drug in idiopathic hiccough, given to an adult in doses of ten grains (or even twenty grains) every hour until from sixty to eighty grains have been used. If after four or five hours the spasms still continue, it will be inadvisable to go on with the chloral. Many times a sharp counter-irritation on the surface of the epigastrium will stop the attack, used with or without the chloral internally. The simple act of sneezing will sometimes promptly check hiccough.

Cerebrospinal Meningitis.

Berg, in a recent number of the *Med. Record*, discusses the clinical and other features of the recent epidemic of this disease, and gives the following outline of treatment:

LUMBAR PUNCTURE.

The lumbar puncture is made and repeated only when, after a period of improvement, the temperature again rises, and symptoms of increased intraspinal and intracranial pressure occur, such as total abolition of the patellar reflex, slowing of the pulse, Macewen's symptom, increase in the Kernig phenomenon, increase in the delirium and stupor. If the cerebrospinal fluid flows from the canula in a continuous stream under tension the withdrawal of 15 to 30 c.c. of fluid will do much good. If it escape drop by drop, or if the puncture be a dry tap, there will be no therapeutic result. Sodium iodid is given in from 5 to 10 grain doses every three hours for a child over a year old, and from 15 to 20 grains every three hours for an adult. In adults, also mercuric ointment in doses of 15 grains is rubbed into the back of the neck twice daily until the gums are red. In older children the amount used is about equal to the size of a bean, and rubbed in several times a day. In children with open fontanelles the oleate of mercury in proper doses is rubbed into the anterior fontanelle.

FEVER.

When below 102 F. no treatment is required, above 103 F. use a warm bath at 80 F. in which the patient remains five minutes, the temperature of the bath is then raised to 90 F., and the patient is allowed to remain five minutes more. The bath not only reduces the temperature, but induces quiet and rest.

GENERAL CARE.

1. Large, light, airy room with thorough ventilation.
2. Care and cleanliness to avoid the occurrence of bedsores.
3. Cleanliness of the nose to prevent deeper infection through the nasal cavities.
4. Daily examination of the ears; a timely paracentesis of the drum membrane in suppurative of the middle ear may prevent a subsequent mastoid disease.
5. Care of an incipient conjunctivitis to prevent a panophthalmitis; the eyes should be protected from the light by means of a shade and not a darkened room.

Pulmonary Tuberculosis.

Pottenger, in a recent number of *Amer. Med.*, discusses the rôle of the general practitioner in the prevention of this disease: There are three factors in the etiology of tuberculosis which must be understood in order to properly and intelligently administer prophylactic treatment.

1. SOIL.—There will be no disease even though the bacilli be present unless the soil is suitable; the body cells must lose their natural resisting power. Under normal conditions the cells are very resistant to the growth of the tubercle bacilli. This fact is proven by the great prevalence of the tubercle bacilli and the great number of healed foci found in postmortem examinations which were of no clinical significance, in fact were never recognized before death.

2. BACILLI.—It is an established fact that the tubercle bacillus is the specific cause of tuberculosis, yet it is very questionable if it is capable of producing the disease in a

healthy individual, unless it be from a very virulent culture or the inoculation be one of great numbers.

3. All influences which lower the normal protective power of the cells must be carefully guarded against. (a) By living a natural hygienic life. Sunshine, fresh air, good food, clean lines, proper regard for the functions of the various bodily organs, and good habits will do much toward preserving the natural defensive powers of the body cells. (b) Avoid those things which actually lower vitality, such as overwork, especially under bad hygienic conditions; overcrowding, in rooms badly ventilated and poorly lighted; underfeeding; excesses, especially alcoholic and venereal; disease; mental disturbances; worry over real or imaginary troubles and depression from other causes.

The author elaborates further by advocating that a maximum number of hours should be designated as a day's work, varying according to the ages of the workers and the character of work done. Workshops, offices and dwellings should have certain requirements as to floor space per occupant. The poor should be encouraged by low rents and cheap and rapid transportation to reside in the suburbs. Greater care should be taken by the physician in the after-care of those diseases which are known to be frequently followed by tuberculosis. e. g., la grippe, typhoid fever, and measles.

DESTRUCTION OF THE BACILLI.

This is largely a matter of education and honor, and its accomplishment depends almost entirely on the medical profession. Physicians should have an accurate knowledge of the method of spread of the infection, which should be combated by instruction, by the family physician in the well-to-do classes, as to the careful disinfection of the sputum and other bacillus-bearing discharges. The patient should be told of the nature of the disease in order to gain his intelligent co-operation. The great majority of cases are among the poorer classes, and the instruction of them should be placed in the hands of the proper health officers. In order for the health officer to obtain results he should assist and be assisted by the family physician:

1. Cases should be reported to the health authorities.
2. Occasional circulars should be issued by the health department and sent to the physicians.
3. Instruction of the poor should be done by the health authorities, in matters of hygiene and disinfection. Several assistants should be appointed who, with the help of a corps of trained nurses, should visit the homes of the tubercular poor and make them hygienic. This work could be materially aided by the establishment of a free dispensary for tuberculosis. Such a dispensary to provide sputum cups and disinfectants and it would be an act of mercy if such foods as milk and eggs could be given to those who were in need of them.

EARLY DIAGNOSIS.

Of the great advantage of early diagnosis the author says: "It is conservative to say that if the disease were diagnosed, as it can be, in its very incipency, at least 75 per cent. could be restored to health by intelligent treatment." Therefore, examine all suspicious cases.

Medicolegal.

Crying as Evidence of Injury.—The Supreme Court of Alabama says, in *Montgomery Street Railway Company vs. Shanks*, a personal injury case brought by the latter party, that crying is often symptomatic of pain, and, in connection with the other evidence of actual hurts received by the plaintiff, the fact that she cried all the afternoon of the accident was admissible in evidence as of the essential circumstances of the injury, as was also the fact that she complained of pain the next morning.

Entitled to Compensation for Pain from Operation.—The Supreme Court of Michigan says that, in the personal injury

case of *Beattie vs. City of Detroit*, testimony was allowed to be given as to the cost of an operation. The jury were also instructed that the plaintiff was entitled to compensation "for the pain she may suffer from an operation, if an operation is deemed necessary." The court holds that there was no error in this, it being the opinion of the physicians who testified in the case that the injury would not yield to medical treatment, but could be cured by surgical operation.

Drinking of Liquor Before Commission of Crime.—The Supreme Court of Iowa says, in the homicide case of *State vs. Busse*, that the crime charged involved the condition of the defendant's mind at the time of the killing and evidence of intoxication could be considered by the jury in determining his mental condition. But the court goes on to say that it knows of no authority holding that the mere fact that an offender drank liquor shortly before committing the crime will constitute such evidence of intoxication as to require the question of its effect on his mental condition to be submitted to the jury. It is the mental confusion produced by liquor which is receivable on the question of intent of premeditation and not the fact of liquor having been taken; for it is a matter of common observation that one man may drink a considerable quantity of liquor without being affected thereby mentally or physically while another may be seriously affected by a small drink.

Expert Evidence and Privilege.—The Supreme Court of Missouri, Division No. 2, says, in the personal injury case of *Holloway vs. Kansas City*, that it was insisted that there was error in admitting in evidence the expert opinion of the plaintiff's physicians as to the cause of her physical condition, based on the previous history of her case as they learned it from her; that the correct method is to prove cause by hypothetical question based on facts in evidence. That the opinion of an expert witness is permissible when based on his personal knowledge of the matter under investigation, or on competent evidence in the case, or on both, the court says, is well settled; but the question here was whether a physician who testifies as an expert should be allowed to express his expert opinion based on the previous history of the patient as he learned it from her personally in consultation with her in respect to her ailments. The conclusion is that it was error to allow an expert witness to give his opinion based on the history of the plaintiff as he learned it from her in diagnosing her case, or while treating her. The court says that the statements of the plaintiff with respect to her past physical condition were mere hearsay, and should not have been considered by the expert in expressing his opinion as a witness as to her physical condition at the time of the trial. The decided weight of authority and the better reason support this contention. But a conversation between a patient and physician in regard to the former's doctor bill, or in regard to a contemplated lawsuit, the court holds is not privileged, it not being "information necessary for the physician to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon," within the purview of the statute. That the plaintiff could not sever her privilege, and waive it in part and retain it in part, the court also thinks clear. And, if she waived it at all, then it ceased to exist. That she did so waive it when she testified that a physician examined her, though not very thoroughly, and asked her about it, and she told him, and he examined her womb and back, is deemed too plain for discussion. However, such waiver should be restricted to such information as the physician acquired from her while attending her in a professional character, and which information was necessary to enable him to prescribe for her as a physician, or to do some act for her as a surgeon; and it is manifest that a conversation in regard to a contemplated lawsuit, or the plaintiff's doctor bill, did not come within the provision of the statute. But the court is not to be understood by these observations as meaning or intimating that the physician was not competent to testify as a witness to what the plaintiff said to him, if anything, in regard to bringing suit against the city for damages, and that if she would go into it they would be able to fix up his bill against her. Such statements were not within the meaning of the statute under consideration. On the other hand, the court does

not agree with the contention that because the plaintiff, after testifying that her health was good, had answered, on cross-examination, that a physician had treated her for headaches, that she waived protection of the statute, and that the defendant had the right to the evidence of the physician for the purpose of contradicting her.

Vested Right of Physician to Payment as Per Contract.—The Supreme Court of Michigan says that, in the case of *Kapp vs. Board of Auditors of Washtenaw County*, the board of health of Freedom township, in said county, made a written contract to pay for the care of indigent persons affected by contagious diseases \$10 per visit and 25 cents per mile going. After the services in question were rendered, but before the bill therefor was allowed, the legislature passed an act, giving it effect March 13, 1903, which provided for a change in the law giving the boards of supervisors authority to pass on the reasonableness of claims for services in caring for indigent persons, by direction of the board of health, whereas, before the allowance by the local board was usually final and conclusive on the board of supervisors. By reason of this the board of auditors refused to allow and pay the bill contracted in this case as above. The Supreme Court says that it was unimportant whether the township board of health might properly agree in advance on the price to be paid for such services or not, for the service was rendered at the request of that board, and the bill was audited and allowed by it. Had this allowance been made before the act took effect, it is clear that the board of auditors must have paid the bill, and that the physician's right could not, in such case, have been affected by the legislature. Did the fact that the allowance was deferred until after such act took effect justify the board of auditors in its action? The court's answer is that the physician rendered services under a law which made the county liable to pay for them on allowance by the local board. The amount was agreed on in advance. He had a vested right to such payment, when lawfully allowed by the local board, and it could not be taken away or impaired by legislation, as it would be if the supervisors were authorized to question its reasonableness. To much the same effect is the second decision of the Supreme Court of Minnesota in the case of *Comstock vs. Board of Commissioners of Lesueur County*, where it overrules the decision reported on page 1590 of THE JOURNAL of June 11, 1904. In this second decision it holds that chapter 238, page 378, Laws of Minnesota of 1901, changing the liability for expenses incurred in preventing the spread of contagious diseases from towns and villages to counties, did not change or abrogate contract relations then existing between individuals and such towns or villages. A contract existing at the time of the passage of that act, and under which an indebtedness against a village arose, may be enforced against it. Again, it says that at the time the contract here involved was entered into and the indebtedness incurred—at least the greater part of it—towns and villages are solely liable for all expenses of this kind. The rights of the parties became vested and fixed at the time the contract was entered into, and it was beyond the power of the legislature to impair its obligation, as between individual creditor and the town or village, by shifting the liability from the town or village to the county. The plaintiff in this action had the right to rely on and seek relief in accordance with the contract between himself and the village.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

September 17.

- 1 *Intermittent Lameness and Other Nervous Symptoms of Peripheral Arterial Disease. Charles W. Burr.
- 2 The Roentgen Rays in Injuries Near the Wrist. M. I. Wilbert.
- 3 Ergotriazin as a Causative Factor in Sinusitis. Wm. L. Phillips.
- 4 Administration of Chloroform and Ether; Comparative Notes of the Two Drugs. Thomas J. Strong.
- 5 Traumatic Emphysema of the Orbit and Lids. H. F. Hansell.

6 Contracture of the Neck of the Bladder. Thomas G. Yonmans.

1. **The Nervous Symptoms of Peripheral Arterial Disease.**—These symptoms may be either paroxysmal or permanent; either motor or sensory. The one constant lesion in intermittent lameness is chronic arteritis. Aneurism, especially of the iliac artery, is not very infrequent. Intermittent lameness bears some resemblance to angina pectoris. Its rarity is apparent rather than real, and due to its not being looked for or thought of. Patients do not always present a typical clinical picture. The most striking thing is the absence of the pulse in the member or members affected. Many cases are thought to be rheumatic or neuritic, or even neurasthenic. Glycosuria is a frequent complication in both slight and severe cases. Often the disease resembles paralysis agitans without tremor, without festination and without speech defect, but with the wooden face and the waxy rigidity of movement. The morbid anatomy of the disease is much disputed. Some of these cases are spinal in origin, and there is found an overgrowth of the neuroglia and minute areas of softening, due to disease of the blood vessels in the spinal cord, but at other times there is only sclerosis of the peripheral arteries, with little or no spinal disease.

Boston Medical and Surgical Journal.

September 15.

7 *Obstructive Renal Retention with Anuria, and Its Treatment. Francis S. Watson.

8 Remarks on the General Principles of Management of Pulmonary Tuberculosis. S. G. Bonney.

9 The Gynecological Aspect of Mental Overstrain at Puberty and Its Influence on Development. Wm. Edgar Darnall.

7. **Renal Retention with Anuria.**—Watson's paper deals with those forms of renal retention only with which anuria is associated, and which originate in complete closure of the ureter or of the outlet of the renal pelvis. He presents an analysis of 200 cases published by different writers. Cases in which the diagnosis is reasonably assured, apart from the surgical treatment, subcutaneous injections of saline solution are useful with a view to delaying or mitigating uremic symptoms. In cases of calculus obstruction, hot hip baths and manipulation aid the passage of the stone. When the obstruction is due to a kink of the ureter produced by movable kidney, the patient's hips should be raised, the abdomen relaxed and an effort made to replace the organ in its normal position. As to operative treatment, a quickly performed lumbar nephrotomy is the operation which will best fulfill all the requirements. Speed in the performance of the operation is of the highest importance.

Medical Record, New York.

September 7.

10 *Malignant Disease of the Larynx. D. B. Delavan.

11 *Post-typhoid Perichondritis of the Larynx. E. Mayer.

12 *The Treatment of Pulmonary Hemorrhage. W. B. McLaughlin.

13 *Non-operative Treatment of Trachoma. Frank J. Parker.

14 *Malaria. R. Cadwallader.

15 Practical Hygiene in the Public Schools. R. S. Wilcox.

10. **Malignant Disease of the Larynx.**—Delavan's paper indicates the progress recently made in the study and care of malignant disease of the larynx and calls attention to certain special points of treatment which seem of sufficient value to demand investigation and discussion, such as the use of the x-ray and other means of producing radiant energy. Laryngectomy and tracheotomy are discussed in all their phases, and the author concludes that in properly selected cases early preliminary tracheotomy is without doubt a valuable measure. Improved technic, special skill and early recognition of the disease will continue to improve the results obtained from this operation.

11. **Post-Typhoid Laryngeal Perichondritis.**—Mayer refers to a case of this kind, which was published, in part, last year, in which a complete cure was effected by means of intubation. The special points of interest in the case are: 1. The unusual nature of its origin, a gradually increasing dyspnea requiring a tracheotomy one month after the patient was discharged as cured of the typhoid fever. Three months later an O'Dwyer tube was introduced, which was worn for six weeks. 2. The length of time the tube was worn—for three months, continu-

ously. 3. The ease of deglutition after an intubation. 4. The use of the child's size O'Dwyer tube for a short time toward the last. 5. The cure by intubation. Nine months after the last extubation the patient's general condition is good; she has increased in weight and attends to her usual duties.

12. **Pulmonary Hemorrhage.**—McLaughlin's treatment of pulmonary hemorrhage is as follows: Immediately on the occurrence of the hemorrhage the patient is given a hypodermic injection of 1/100 grain nitroglycerin and 1/4 grain morphin. Adhesive straps are applied to the side of the chest from which the hemorrhage is coming and the patient is instructed to lie on that side. Six hours after, if the hemorrhage has ceased, the patient is moved to a summer house which has no sides and is practically out of doors. At the end of four days the straps are removed and the patient is given a week of rest cure in the open. Seven cases have been treated in this manner; four were of moderate severity and two very severe; one was not severe as to the amount of blood lost in a given time, but the bleeding extended constantly over a period of more than seven weeks, during which time all the coughed-up matter was stained with blood. In all cases the hemorrhage was promptly and permanently controlled, and in none of these was there any secondary rise of temperature.

13. **Trachoma.**—Parker says that the cases for operation should be selected carefully, inasmuch as much harm may be done by indiscriminate operation. Operation is not a radical cure, but merely a means to a cure and a shortening of the time of treatment. Post-operative treatment is of the greatest importance; without it there may occur relapses which are as bad or worse than the first attack. The general condition of the patient is of importance. Proper feeding and out-of-door life should be urged. Adenoids and other hindrances to development should be removed. The treatment should be continued until the patient is cured. An effort should be made to prevent the spread of the infection and to arouse the patient's interest in doing so. For this purpose Parker gives the following printed instructions to his trachoma patients: Trachoma is a contagious disease of the eyelids, which if neglected will cause suffering and injury to the sight. To avoid infecting others, those having the disease should observe the following instructions: 1. They should have their own towels, handkerchiefs, washcloths and toilet articles, and under no circumstances should they be used by others. 2. They should sleep alone. 3. Avoid rubbing or touching the eyes, as the contagion may be carried on the fingers and infect others through articles handled. 4. The hands should be cleaned often with soap and water. 5. Treatment should be attended to regularly and continued until pronounced cured by the physician. Parker's non-operative treatment consists of bichlorid rubbing, with the use of one of the organic silver solutions, night and morning: in the hard variety, he uses copper sulphate in place of the bichlorid.

14. **Malaria.**—Cadwallader gives a summary of our present knowledge of the etiology of malaria, and reports several cases, calling attention to a number of interesting clinical features. He believes that a pre-requisite to infection, or at least to symptoms, is a watery condition of the blood, and just in proportion to the total fluid in the body will be the severity of the disease.

New York Medical Journal.

September 17.

16 Suggestions on the Medical College Library. Eugene F. Cordell.

17 *Postmortem Examinations for Medicolegal Purposes. I. L. Polozker.

18 The Present Condition of Tenoplasty. (Continued.) Professor Vulpius.

19 *Trachoma and Some Diseases Resembling It. James A. Nydegger.

20 Notes on Uremia, Urea and the Urea Tests. F. L. Wachenheim.

21 *The Non-susceptibility of the Newborn to Measles. Edwin E. Graham.

22 *Insufficient Motility of the Stomach and Its Treatment. Dudley Fulton.

23 *Gonorrhoea (?) in the Male. John Flanagan.

24 *Elevation of the Hips in the Treatment of Placenta Previa. Alfred King.

25 Our Relation to One Another. John M. Kennedy.

17. **Medicolegal Postmortems.**—Polozker believes that it is absolutely necessary that this subject should be taught in medical colleges, and from the practical standpoint only. The difference between the medicolegal postmortem and the pathologic postmortem should be emphasized. The modern methods of the coroner and the police department in the conduction of a murder case are deprecated, and a remedy for the evil is pointed out.

19. **Trachoma.**—Nydegger refers to the confusion in diagnosis between trachoma and other diseases of the conjunctiva, such as papillary conjunctivitis and follicular conjunctivitis. The subject of trachoma is reviewed in full.

21. **Non-Susceptibility of New-born to Measles.**—Graham reports a case which he believes shows the non-susceptibility of the infant at full term to measles. A woman, ill with a well-developed case of measles, gave birth to a healthy child presenting no abnormal conditions or symptoms. At no time was the child isolated from its mother; it was kept in the same bed, nursed at intervals of two hours, and treated exactly the same as if it were not exposed to the contagion of the measles. Although an older child developed a typical case of measles, the infant, six weeks after birth, presented no evidences of having contracted the disease.

22. **Insufficient Motility of the Stomach.**—Fulton's treatment of this condition is hygienic, medicinal and mechanical. The diet should be one that spares the motor powers of the stomach, and, therefore, the more feeble the motility the more liquid the diet, especially when there is obstruction of the pylorus. The feedings should be small and frequent, although each case is a guide as to the number of feedings per day that should be given. The medicinal treatment comprises the administration of 1/24 grain of strychnin, three times a day; dilute hydrochloric acid, freely diluted, in 20 or 30-drop doses after meals; teaspoonful doses of burned magnesia and sodium bicarbonate one or two hours after eating when excessive acidity exists. Fulton has obtained good results in these cases by giving a pill containing from 1/2 to 1 grain of creosote, with 1 grain each of pulverized rhubarb and soap. Of the mechanical measures, he uses abdominal bandages, lavage and internal faradization of the stomach. Cases which do not improve under this treatment should be relieved by operative procedure before the strength of the patient is entirely spent.

23. **Gonorrhoea.**—Flanagan emphasizes the fact that many cases of suppurative urethritis are diagnosed as specific and subjected to treatment which may prove harmful rather than otherwise. Treating a case of urethral inflammation, the physician should know exactly the nature of the trouble and use such treatment as the exigencies of the case demand.

24. **Placenta Previa.**—King briefly discusses the value of elevation of the hips in the treatment of placenta previa. The method is also applicable in excision of the rectum and abdominal hysterectomy, gravity operating in these cases as a great blood saver. The method is not described in text-books. It consists in inclining the patient's body to an angle of 45 degrees. This is really the Trendelenburg position, with the legs of the patient in the same plane as the body.

Medical News, New York.

September 17.

- 26 *Polyuria in Typhoid Fever. M. H. Fussell, H. S. Carmany and H. Hudson.
- 27 *Treatment of Acute Middle-ear Disease. John A. Donovan.
- 28 *Value of Early Incision of the Membrana Tympani in the Treatment of Acute Suppuration of the Middle Ear. Francis R. Packard.
- 29 *Contributions to the Pathology and Treatment of Acute Gonorrhoea. Ludwig Weiss.
- 30 *The Diagnosis of Incipient Pulmonary Tuberculosis. G. W. Norris.
- 31 *Diagnosis of Advanced Tuberculosis. Frank A. Craig.
- 32 *Differential Diagnosis Between Pulmonary Tuberculosis and Conditions Resembling It. H. R. M. Landis.
- 33 *History Taking in Cases of Pulmonary Tuberculosis. Charles J. Hatfield.

26.—See abstract in THE JOURNAL, xlii, p. 1376.

27. **Acute Middle-Ear Disease.**—For the treatment of this condition Donovan prefers the curette, finger nail or nail

curette. He considers ether and nitrous oxid far superior to chloroform for anesthetizing infants and young children. In older children and adults he uses cocaine; in fact, a single application of 5 per cent. may be used safely even in young children. To affect a thorough cure, it is necessary to remove all hypertrophied lymph tissues, such as adenoids and enlarged lingual tonsils. The prophylactic treatment is all-important and should not be overlooked. In all diseases affecting the nasal pharynx reasonable precautions should be used to avoid tubal infection. With the first symptoms of earache he advises the use of heat and dehydrating remedies. If these do not produce beneficial results in a few hours, treat surgically. When possible, with a catheter, use a mild continuous stream of hot air early, and repeat in eight or ten hours. If these measures fail to relieve the symptoms within ten to twenty-four hours, make a free incision through the entire drum or extend into upper canal wall, if necessary. Use aseptic gauze drainage and outside pad for absorption. Patients should never be allowed to suffer for more than forty-eight hours and remain exposed to the risks of complication.

28. **Incision of the Membrana Tympani.**—Packard emphasizes the great value of early incision of the membrana tympani in the treatment of acute suppurative otitis media, and the many advantages possessed by the so-called dry treatment, and by practicing efficient gauze drainage. Douching the ear is distinctly contraindicated, except when it is done by a skilled aurist, who can properly dry the ear after such procedures.

29. **Acute Gonorrhoea.**—Weiss continues his discussion of this subject; the various silver compounds, their advantages and disadvantages, are considered at length. The treatment of the mucosa should at all times conform to the microscopic findings.

30-33. **Tuberculosis.**—These four articles are an epitome of what is known of the questions dealt with in the papers, and serve to emphasize the importance of an early diagnosis, the necessity of careful differentiation between pulmonary tuberculosis and conditions resembling it, and the value of taking complete histories of each case.

Cincinnati Lancet-Clinic.

September 17.

- 34 Physiologic Therapeutics vs. Drugs in the Treatment of Diseases of Infancy and Childhood. J. Morton Howell.
- 35 Hypodermoclysis. Charles T. Souther.
- 36 Parachin Injections for Overcoming Wrinkles and Minor Facial Imperfections. Charles C. Miller.

Annals of Surgery, Philadelphia.

September.

- 37 *Contribution to the Surgery of Neurofibroma of the Acoustic Nerve. Joseph Fraenkel, J. Ramsay Hunt, George Woolsey and Charles A. Elsherg.
- 38 *Adenoma of the Mucous Glands of the Lips as a Cause of Macrochelia. D. N. Eisendrath.
- 39 *Lingual Goiter. Henry R. Storrs.
- 40 Purulent Mastoiditis. J. A. C. Macewen.
- 41 Removal of a Foreign Body from the Bronchus with the Electromagnet. A. J. Hosmer.
- 42 Removal by Gastrostomy of a Hatpin Swallowed by a Twenty-months-old Child. A. F. Holden.
- 43 Details of the Technique of a Posterior Gastro-entrostomy. Charles L. Sudder.
- 44 Gangrene of the Hollow Viscera. V. Keerson.
- 45 Results in Abdominal-wall Suture. Charles Davison.
- 46 *A Posterior Excision in Certain Appendicitis Operations. John G. Sheldon.
- 47 Inflamed Appendix in the Sac of the Femoral Hernia. A. R. Shands.
- 48 Radical Operation for Malignant Neoplasm of the Urinary Bladder. A. Berg.
- 49 *Repair of the Urethra by Transplantation of the Urethra of Animals. J. H. Pringle.
- 50 The Formation of an Artificial Vagina by Intestinal Transplantation. J. P. Baldwin.
- 51 The Use of Electricity in Skin Grafting. J. D. Rushmore.

37. **Neurofibroma of the Acoustic Nerve.**—Fraenkel and Hunt are of the opinion that the symptoms of tumor of the acoustic nerve are so well defined that a diagnosis can be made with practical certainty in every case; not only with reference to its location, but also its nature and comparative size. However, other slowly growing pathologic conditions in the posterior fossa might closely simulate this condition. The slow and essentially benign nature of the growth, its non-infiltrating character and enucleability all favor surgical interference.

But its deep situation at the base of the brain, in immediate proximity to vital centers offers very serious obstacles. From personal observation the authors conclude that the surgical technic should be perfected along the following lines: 1. The avoidance of undue concussion in the removal of the bone and the enlargement of the trephine opening. 2. A method of extirpation by which the tumor could be extirpated without undue manipulation of the surrounding parts. 3. The division of the operation into stages, as recommended by Horsley, and celerity of execution.

38. **Macrocheilia.**—Eisenrath adds a second case to the literature of macrocheilia due to adenoma of the mucous glands of the lid, the diagnosis having been confirmed by a microscopic examination. The case improved remarkably after operation, and there has been no recurrence in a year.

39. **Lingual Goiter.**—Storrs reports a case of lingual goiter, the tissue involved being accessory thyroids at the base of the tongue which are embryonic remnants of the atrophied thyroglossal duct. Only 32 cases of this kind are recorded in the literature, 29 in women and 3 in men. These lingual tumors usually are situated on the dorsum of the tongue, generally just behind and below the foramen cecum, but sometimes enclosing it in their growth on the median line, as a rule, but perhaps a little to the right or left. In shape they are round or ovoid, their size ranging from that of a cherry to that of a man's fist. The tumor is encapsulated and may project about the surface of the tongue or be almost buried in the muscles of this organ. There is no inflammation or infiltration of the surrounding tissues, and at operation the tumor is enucleated easily. Its surface is covered with the mucous membrane of the tongue; it is smooth and shiny, and in color is darker than that of the surrounding mucous membrane, due to the great infiltration of blood vessels. These vessels cover the surface of the goiter and penetrate deeply into its tissue, and cause the profuse hemorrhages which occur at operation. This rich vascularization is of great value in differential diagnosis. The tumor may or may not be movable; its consistency is variable. The troubles caused by it are purely functional, and these vary with the size of the tumor. With one exception, the patients were in the best of health. It has all the characteristics of a benign tumor. The prognosis is favorable. The only rational method of treatment is removal, either by the use of the galvano-cautery loop, or by incision with enucleation. The latter operation is preferable and is performed easily. The tumor may be reached either through the buccal cavity or through an incision in the suprahyoid region, which may be simple or include the hyoid bone or inferior maxilla.

46. **Posterior Incision for Appendicitis.**—Sheldon describes a method by which the appendix is reached through Petit's triangle. The patient is placed on the left side and a large support put under the left loin, thus bringing the appendix nearer the incision by depressing the right side of the pelvis. An incision is made from a point one-half an inch behind the highest point of the crest of the ileum toward the tip of the twelfth rib. The length of the incision depends on the obesity and the body form of the patient. The anterior border of the latissimus dorsi muscle is located, freed by blunt dissecting and retracted posteriorly. This exposes the outer border of the quadratus lumborum muscle, the lumbar fascia, and the aponeurosis of the transversalis. A transverse incision, one-half to one inch above the crest of the ileum, is made, beginning at the outer border of the quadratus lumborum and extending forward parallel to the fibers of the transversalis, as far as is necessary to secure sufficient room to operate quickly. The subperitoneal fat is pushed aside with the finger, covered with a piece of gauze. The peritoneum is opened near the forward part of the incision and the peritoneal incision enlarged in a posterior direction. On opening the peritoneum the cecum presents itself in the wound. The appendix is amputated in the usual manner and when drainage is not necessary the wound is sutured in layers, with catgut and silkworm gut. Sheldon has never found it necessary to ligate a vessel during the operation, and seldom has it been necessary to check tem-

porary bleeding with hemostats. In clean cases the operation has no advantages over the method ordinarily employed, except that it is followed by less shock and abdominal distress than is a laparotomy through an anterior incision. In obese cases the operation is more rapid and is less likely to be followed by hernia. In all cases requiring drainage the operation is preferable to the old method. The abscess is opened in the most dependent part and the infected area can be treated without coming in contact with the omentum or small intestines. Retroperitoneal infection is drained much more efficiently than is possible through an anterior incision. Sheldon has operated on 58 cases by this method and has found no disadvantages.

49. **Urethral Transplantation.**—Pringle describes three cases in which defects of the urethra have been treated by grafting portions of the urethra of an ox. Two of the patients so treated had sustained a complete and extensive rupture of the urethra in the perineum; the third patient had a hypospadias, there being a deficiency of the floor of the urethra for the whole of the penile portion of the channel. The operation in each case was a success, the grafted tissue remaining alive and furnishing a patent channel. In two of the patients the procedure had to be repeated, but in each of them, at the time of the second operation, the tissue which had been grafted on the former occasion was found to be present.

Post-Graduate, New York.

September.

- 52 Primipara in Obstetric Practice. F. A. Dorman.
- 53 Recent Advances in Genito-urinary Surgery. James Federsen.
- 54 Acute Rheumatism in Children. H. B. Sheffield.
- 55 Tumors. R. Lanzerehans.
- 56 Communicability of Pneumonia by Contact. L. Weber.

54. **Acute Rheumatism in Children.**—Sheffield considers rheumatism in children a grave infection, one that requires active treatment particularly, in order to prevent serious complications. Rest in bed is the most important therapeutic measure in this direction, and should be enjoined during the entire course of the disease. Dieting he considers to be nothing but a myth. During the febrile stage the diet should, of course, be limited to the ordinary "fever diet." In older children he uses the salicylates combined with small doses of pepsin or ingluvin. For younger children he prefers aspirin, or the salicylates obtained from the wintergreen plant, in doses of 5 grains, to be repeated every two hours the first day and every four hours the following days. For the relief of articular pain and swelling the joint should be wrapped in absorbent cotton wrung out of a warm saturated solution of bicarbonate of soda. The compress should be covered with oiled silk and a flannel bandage, and changed as soon as it becomes dry. After disappearance of the acute symptoms the stiffness and lameness generally yield to gentle massage with an ointment containing 1 dram each of oil of gaultheria and ichthylol in 1 ounce of lanolin. Later on it is advantageous to supplement the local treatment by gentle general massage. The iodids should not be lost sight of in protracted cases.

55. **Tumors.**—This is a translation of that portion of Langerhans' work on pathologic anatomy which describes lipoma, myxoma, chondroma, osteoma, psammoma, melanoma and glioma.

St. Louis Courier of Medicine.

September.

- 57 Some Useful Anatomical Landmarks as a Guide to the Operation for Opening the Mastoid Antrum. Selden Spencer.
 - 58 Infection—An Overlooked Disseminator. E. A. Babler.
 - 59 Scarlet Fever Treated with Antistreptococcc Serum. H. N. Chapman.
 - 60 Two Unusual Ovarian Cysts. A. H. Melsebach.
58. **Infection.**—Babler refers to an overlooked disseminator of infection—the garment that drags on the floor of the home, that collects the filth and disease of the pavement, the steps, the darkened passageway, the street, the alley, or wherever its wearer may chance to go—and asks that every practitioner consider this matter carefully and do what he can to remedy this evil.
59. **Antistreptococcc Serum in Scarlet Fever.**—Chapman reports a case of scarlet fever which yielded promptly to anti-

streptococci serum. Within ten hours after injecting 10 c.c. the temperature dropped 4 degrees. The dose was repeated every twenty-four hours, and the temperature reached normal ten hours after the fourth injection. The only other treatment was hydrogen peroxid for a throat wash and benzoate of soda internally, tonics and calomel.

Bulletin of the Johns Hopkins Hospital, Baltimore.

September.

- 61 The Training of the Surgeon. Wm. S. Halsted.
 62 Notes Suggested by the Franklin-Deberden Pamphlet of 1759. Henry K. Cushing.
 63 Vesico-vaginal Fistula Following Hysterectomy for Carcinoma Cervicis Uteri, with Special Reference to Their Origin and Closure. John A. Sampson.
 64 The Piezometer, an Instrument for Measuring Resistances. Howard A. Kelly.
 65 Dr. Richard Brooke, the First Scientific Observer in Maryland. Bernard C. Steiner.

63. Vesico-Vaginal Fistula Following Hysterectomy.—Sampson says that the anatomic relation between the cervix and bladder is such that the anterior extension of carcinoma cervicis uteri soon invades the bladder wall, as shown by vesico-vaginal fistula, which may occur in the advanced cases; accidental injuries to the bladder during hysterectomy for cancer; cystitis following these operations. The surgeon who attempts to separate a carcinomatous cervix which has become adherent to the bladder usually leaves cancer tissue behind and the disease returns; so injures the bladder wall that a vesico-vaginal fistula may form, which, if recognized and repaired at the time, is apt to fail to unite because the fistula is situated in a portion of the bladder wall whose outer coats have been torn and whose blood supply has been injured by the operation. If he does not produce a fistula the injured portion of the bladder may be unable to resist infection and a severe cystitis may result. Because of this, if the cervix is adherent to the bladder, the portion of bladder wall adherent should be excised in order that a wider excision of the primary growth may be made; that the injured bladder wall may be repaired properly, and that the bladder may be better able to resist infection. Post-operative vesico-vaginal fistula may occur from undiscovered accidental injuries to the bladder, or the failure to repair injuries recognized at the time of operation: from the intentional formation of such fistulae at the time of the operation in order to relieve intra-vesical tension and give the bladder a rest, and also the formation of fistula after the operation, in order to minimize the dangers of post-operative cystitis. Frequently post-operative vesico-vaginal fistulae close spontaneously. Apparently the early operative closure of such fistulae, unless in healthy bladder tissue, is difficult and operative measures should not be undertaken until the tissue has had a chance to regain its natural blood supply—after about two months. The radical operations for cancer of the uterus diminish the sensibility of the vagina and bladder to pain, so that post-operative vesico-vaginal fistulae may be closed without the use of a general or local anesthetic. The following principles should be employed in the closure of these and all vesico-vaginal fistulae: 1, approximation without tension; 2, a broad area of denudation exposing healthy bladder tissue; 3, accurate approximation with inversion of the bladder mucosa; 4, tying the ligatures so as not to strangulate the tissue. Very fine silver wire, fastened by means of perforated shot, forms a very satisfactory suture material, and if a small piece of rubber tubing is placed between the shot and the vaginal mucosa, a most efficient "splinting" suture is formed, which, through the elasticity of the rubber tubing, maintains accurate approximation without strangulation.

64. The Piezometer.—Kelly designed this instrument for the purpose of aiding in outlining an abdominal tumor, and to estimate the degree of rigidity in the right iliac fossa in a doubtful appendicitis by comparing the rigidity of the right and left oblique muscles. The instrument may also be used as an algometer to determine how much pressure is necessary to elicit tenderness over the appendix. It should also have a field of value in teaching physical diagnosis, since it is far more delicate than the untrained sense of touch, and varying degrees of resistance can be demonstrated by means of it. The instrument

is intended not to replace palpation, but to supplement or confirm the results obtained by it.

Kansas City Medical Index-Lancet.

September.

- 66 Seasickness. Richard J. Tivnen.
 67 Chronic Bright's Disease. T. N. Bogart.
 68 Yohimbine. J. W. Sherrin.
 69 Treatment of Pneumonia. Calvin Atkins.
 70 Etiology and Treatment of Nervous States. O. L. McKillop.
 66. Seasickness.—Tivnen reviews the treatment of seasickness and concludes that while little may be expected from any particular treatment, further travel may confer a certain amount of immunity.
 67. Chronic Bright's Disease.—Bogart discusses this subject, and, in connection with other treatment, advocates the free use of diuretic and laxative waters.

Northwestern Lancet, Minneapolis.

September 1.

- 71 Therapeutic Facts and Principles. Christian Johnson.
 72 Scientific Methods in Medical Education. R. O. Beard.
 73 Prognosis and Treatment of Chronic Myocarditis. J. W. Bell.
 71. Therapeutic Facts and Principles.—Johnson advances the following outline for a rational system of therapeutics: 1, the self-preservative power of living organisms; 2, medicine is to assist nature, to correct aberrant function; 3, the selective affinity of drugs for the different tissues; 4, biologic chemistry; 5, physics and therapeutics; 6, psychologic forces in therapeutics.
 72. Medical Education.—Beard discusses higher standards of preliminary fitness, the combined scientific and medical course, the concentration system, the practical value of clinics and the specialties in medicine.

Annals of Otology, Rhinology and Laryngology, St. Louis.

June.

- 74 A Study of the Development of the Nose and Its Accessory Cavities. J. M. Ingersoll.
 75 Final History of a Supposed Case of "Vocal Nodule"—Epithelioma of the Larynx. Charles H. Knight.
 76 Malignant Growths at the Base of the Tongue. Richard H. Johnston.
 77 Nasal Hydrorhea. John Edwin Rhodes.
 78 The Pathologic and Pathologic-anatomic Investigation of the Diseased Middle Ear During the Last Decade, and the Change in Our Views of Its Therapy Caused Thereby. J. Grunert.
 79 Chronic Non-specific Laryngitis: Clinical Forms; Treatment. Albert Kuatt.
 75. "Vocal Nodules."—Knight reports the outcome of a case of epithelioma of the larynx which he reported several years ago as one of "vocal nodules." Later a thyrotomy was done, the patient succumbing a few hours after the operation. This case emphasized the following points: 1, A stimulation to activity of malignant disease by endolaryngeal manipulations. We should always be prepared for this event, and, if possible, have the full consent of the patient to resort to whatever further operative procedures may seem advisable. 2, The testimony of the microscope is not to be depended on unless the whole thickness of suspected tissue at several points can be secured. It is seldom possible to obtain a satisfactory microscopic specimen by means of forceps passed through the mouth. 3, The question of transformation of a benign growth into one of malignant character has apparently been decided in the negative by statistics, yet in the case reported the appearance and history of the lesion continued absolutely benign for more than two years. In many cases a longer period of quiescence has been observed. There was nothing whatever in the course of the disease that justified a suspicion of malignancy until after the use of the snare. It is not supposed that the latter did more than excite the virulence of the morbid process. 4, We are still in the dark as to positive signs by which to identify malignancy at its inception. At present the only way in some cases in which to determine the character of a doubtful laryngeal lesion is by its complete exposure to an external wound. The picture in the laryngeal mirror is often indecisive as to the character of the lesion and misleading as to its extent. Although the prognosis in intrinsic cancer of the larynx is more favorable than that of malignant disease in almost

any other region of the body yet our guiding principle here as elsewhere should be early operation to include by a wide margin every vestige of morbid tissue.

76. **Malignant Growths of the Tongue.**—Johnston reports a case of sarcoma of the tongue and another of epithelioma, both tumors appearing at the base of the organ.

77. **Nasal Hydrorrhea.**—Rhodes reports a case, the patient being a woman aged 44, in which the following plan of treatment was pursued: She was given a pill containing zinc phosphid, nux vomica and quinin for her constitutional condition. Locally he used at first a 5 per cent. protargol solution, then 50 per cent. argyrol, and a spray of adrenals, 1 to 5,000, and Dobell's solution to use at home. He tried in succession cocaine, adrenalin, cauterization, zinc salts, strong applications of menthol in alcohol, and internally belladonna, aconite, etc., without the slightest benefit. Finally he used a solution of argentic nitrate in small quantities, 60 gr. to the ounce, and over a portion only of the nasal cavity. This caused some pain and a little headache, but immediately following there was a cessation of the dripping for a few moments. This treatment was continued until finally the discharge ceased entirely and has not returned.

Annals of Gynecology and Pediatrics, Boston.

August.

- 80 *Uterine Hemorrhages and Their Cause. Thomas S. Cullen.
81 Recent Developments in European Gynecology. W. W. Chipman.
82 Cholera Infantum. R. M. Sterrett.

80. **Uterine Hemorrhages.**—Cullen groups the various causes of uterine hemorrhages in such a manner that they can be easily understood, but offers nothing new.

American Journal of Obstetrics, New York.

September.

- 83 *The Ultimate Results of Induced Labor for Minor Degrees of Pelvic Contraction. Richard C. Norris.
84 The Introduction of the Clinical Teaching of Obstetrics in the United States. J. Whitridge Williams.
85 A Statistical Study of the Albuminuria of Pregnancy, Labor and the Puerperium. Herbert M. Little.
86 Chorio-epithelioma Malignum: Report of a Case in Good Health Fourteen Months After Operation. Wm. F. Metcalf and H. E. Safford.
87 *Sympyiotomy in Persistent Mento-posterior (Face) Presentation. E. B. Montgomery.
88 *Post-operative Intestinal Paresis. Daniel H. Craig.
89 A Case of Epithelioma of the Vulva. A. P. Reed.
90 *Fathing During the Menstrual Period. J. Clifton Edgar.
91 A Study of Intestinal Perforation and Peritonitis in Typhoid Fever, with a Report of Three Successful Operations and a Statistical Investigation of 295 Operative Cases. Wm. D. Haggard.
92 *Primary Repair of Lacerations of the Cervix Uteri. Edward P. Davis.
93 Adenomatous Hyperplasia of the Cervical Lymph Appendage of Gaertner's Duct. Richard R. Smith.
94 Some Remarks on Pus Collections in the Female Pelvic Cavity and Their Treatment. A. P. Stoner.

83. **Results of Induced Labor.**—Norris says that the excellent results for mother and child following the elective cesarean section for pelvic deformity have induced many operators to unnecessarily perform that operation for the lesser degree of pelvic contraction. He exploits the usefulness of inducing labor in the lesser degrees of contraction in order to give Nature the little assistance she may need to save the children that without this aid are frequently lost after version or a difficult forceps extraction at term. When the patient is first seen, too late to induce labor at the most suitable time, it is his practice never to allow such a case to go to, or beyond, null term, but to terminate the pregnancy at once and deliver the case as may seem best after the test of labor. An operative delivery, version or forceps after the induction of premature labor adds a distinct risk to the child, and, when possible, should be avoided. After true labor pains have begun and the cervix has dilated, it is an advantage to place the patient in the combined Trendelenburg-Walcher position. This is an important practical point to be remembered not only for induced labors, but for minor degrees of pelvic contraction when first encountered at term. The method of dilation used by Norris is the proper introduction of a bougie, followed by partial dilation of the cervix, if required, and then by the insertion of the largest size Vorhees' bag, on the stem of which

more or less continuous traction is made by means of a cord and weight, if necessary, to awaken pains and aid in the dilation of the cervix. The time required to obtain sufficient dilation to accomplish spontaneous or artificial delivery varies from six and a half to fifty-three hours, the average being twenty-nine and one-quarter hours. In 30 cases of induced labor for the lesser degrees of pelvic contraction there was neither maternal mortality nor morbidity. Seven infants died; 2 were still-born, 1 from craniotomy after eversion and occiput rotating backward with the chin impacted above the symphysis. The other still-born infant was the result of a prolapsed cord, pulseless when the accident was discovered, and after delivery disclosed a large spina bifida incompatible with life. Two infants died from prematurity, the result of too early interruption of pregnancy. One infant died on the fifteenth day from infection of the navel; one on the third day from a sudden and rapidly fatal intraperitoneal hemorrhage, and one on the fifth day from aspiration pneumonia.

87.—See abstract in THE JOURNAL, xlii, p. 1511.

88. **Post-Operative Intestinal Paresis.**—Several months ago Craig published an article on the use of eserin salicylate in preventing intestinal paresis by inhibiting the inhibitory impulses ordinarily sent to the intestinal musculature by way of the splanchnics as a reflex result of peripheral irritation. Also that, through its powerful stimulant action, either directly on the muscular fibers of the intestine or the nerve terminations therein, the intestinal nerve plexuses are saved a vast amount of work, reaching in cases of actual paresis complete exhaustion. Further observation has shown Craig that under the use of eserin the post-operative conduct of the intestines is the same as though the abdomen had not been opened. In emergency operations following the use of eserin any marked accumulation of fecal matter not removed previous to operation is promptly expelled after operation. In many cases the bowels move freely and easily in from twelve to forty-eight hours after the return of the patient to her bed. When the bowels have been adequately prepared, an absence of movement during the same period is abundant testimony to the thoroughness of the preparation. During this interval both nurses and surgeon should be eternally vigilant and watch for signs and symptoms of intestinal paresis or adynamic ileus, because eserin may occasionally fail to manifest the expected therapeutic action, or sepsis may supervene and no method of treatment can wholly overcome the results of accidental infection nor of unclean, careless or slovenly technic; or obstruction may supervene, which is mechanical and not merely parietic. Eserin salicylate should never be kept in solution because of its deterioration. On the evening of the day succeeding operation Craig administers a tablet containing aloin, gr. 1/5; extract belladonna, gr. 1/4; strychnin sulphate, gr. 1/60; eserin salicylate, gr. 1/100, the same dose to be given each night. He emphasizes the importance of becoming thoroughly familiar with the physiologic action of eserin and its source so as to avoid untoward effects.

90.—See abstract in THE JOURNAL, xlii, p. 1585.

92.—Ibid., p. 1584.

Journal of the Michigan State Medical Society, Detroit.

September.

- 95 Appendicitis (Summary). A. J. Ochsner.
96 Vascular Disease as a Factor in the Etiology of Epilepsy. Wm. J. Herlman.
97 Advantages of Early Operation in Hip Joint Disease. E. C. Taylor.
98 The Prevention of Drug Habits. W. J. Wilson, Jr.
99 Gastroptosis—Dilatation and Prolapse of the Stomach. W. E. Nowmark.
100 Laryngeal Complications of Typhoid Fever. W. L. Wilson.

California State Journal of Medicine, San Francisco.

September.

- 101 The Role of the General Practitioner in the Prevention of Consumption. F. M. Pottinger.
102 Observations on Sanatoria for Pulmonary Tuberculosis. John C. King.
103 Healed and Quiescent Pulmonary Tuberculosis: an Analysis of 500 Cases, with Remarks on Pleural Tubercles. George Blumer and August J. Lartigan.
104 The Advantage of Mules' Operation Over Simple Enucleation. Redmond Payne.

- 105 Operative Fistula of the Male Urethra. R. L. Rigdon.
106 The Symptoms of Glaucoma. Albert B. McKee.

Pennsylvania Medical Journal, Pittsburgh.

August.

- 107 *One Year's Work in Appendicitis. John B. Deaver.
108 Differences in the Management of Appendicitis and Salpingitis. George E. Shoemaker.
109 The Management of the Pus Appendix. George W. Guthrie.
110 Value of Differential and Absolute Leucocyte Count in Cases of Simulating Appendicitis. A. Bar Sniely.
111 Left-sided Appendicitis. Edmund W. Holmes.
112 Treatment of Suppurative Appendicitis. Ernest Laplace.
113 Clinical Course and Diagnosis of Arteriosclerosis. Alfred Stengel.
114 Laryngeal Tuberculosis. Ross H. Skillern.
115 Diphtheria Antitoxin Employed in the Treatment of Scarlet Fever. C. D. Miller.
116 Simultaneous Subacromial Dislocation of Both Shoulders. A. Stewart.
107.—See abstract in THE JOURNAL, xli, p. 1105.

Toledo Medical and Surgical Reporter.

September.

- 117 Early Diagnosis and Treatment of Diphtheria. W. D. Stewart.
118 Intestinal Parasites in Children. C. E. Monroe.
119 What Should the General Practitioner Know About the Ear? W. H. Snyder.
120 Group. William F. Waugh.

International Journal of Surgery, New York.

September.

- 121 Suprapubic Enucleation of the Prostate. H. O. Walker.
122 The Treatment of Puerperal Infection. J. T. Altman.
123 Sepsis. Its Clinical Aspect and Treatment. (Continued.) J. Bennett Morrison.

Maryland Medical Journal, Baltimore.

September.

- 124 Remarks on the Etiology and Treatment of Diabetes Mellitus. (To be continued.) Thomas H. Fletcher.
125 Antitoxin for Hay Fever and Rose Cold. Leonard K. Hirschberg.

Albany Medical Annals.

September.

- 126 Is Nursing a Profession? Henry M. Hurd.
127 Acute Purulent Otitis Media. Some Suggestions as to Its Therapeutic Management and the Prevention of Its Complications. Frederick T. Clark.
128 Associated Cases of Staphylococcus Pyogenes Aureus Infection. George E. Bellby.

Brooklyn Medical Journal.

September.

- 129 Factors in the Destruction of Primitive Man. Frederick A. Cook.
130 Historical Résumé of Clinical Teaching. William Schroeder.
131 Benzoyl-acetyl peroxid in the Treatment of Typhoid Fever. W. W. Ross.

Medical Review of Reviews, New York.

August 25.

- 132 Aphasia and Agraphia. Edward D. Fisher.

Illinois Medical Journal, Springfield.

September.

- 133 The Diagnosis of Pulmonary Tuberculosis. Frank Billings.
134 The Duty of the State in Restricting Tuberculosis. Harold N. Meyer.
135 The Treatment of Pulmonary Tuberculosis. Robert B. Prehle.
136 The Annual Economic Loss to Illinois from Tuberculosis. Homer M. Thomas.
137 Mortality from Tuberculosis in Illinois for the Years 1902 and 1903. George W. Webster.
138 Factors Causing Consumption and Furthering Its Spread—Suggestions for Its Prevention. Charles L. Mix.
139 *Leukemia; with the Consideration of Its Treatment by the Roentgen Rays. Everett J. Brown.
140 The Subcutaneous Injection of Paraffin. More Particularly for the Correction of Nasal Deformities. James T. Campbell.
141 *Symphysiomyia in Persistent Meno- posterior Face Presentations; with Report of a Case. E. B. Montgomery.
142 Report of Three Cases of Penetrating Wounds of the Chest. Involving the Diaphragm and Abdominal Viscera. Daniel H. Williams.
143 *The Pneumonia Problem. Arnold C. Klebs.

139.—This article has appeared elsewhere. See THE JOURNAL of July 23, '60, p. 284.

141.—See abstract in THE JOURNAL, xlii, p. 1511.

143.—Ibid., p. 1441.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The Lancet, London.

September 19.

1. Address on the Anatomy of Study. Alexander MacCall.
2. *Human Piroplasmosis. C. Donovan.

3. *Epibulbar Melanotic Sarcoma. J. Gray Clegg and I. Walker Hall.
4. Treatment of Ruptured Ecthruxia by Combined Drainage (Suprapubic and per Urethram). Henry Rutherford.
5. *Case of Pseudo-leukemia (Lymphosarcoma) in a Young Child. John J. Redfern and Wm. Hunter.
6. Tender Spots on the Spine in Relation to Pain in Various Parts of the Body. St. Clair B. Shadwell.
7. Rupture of the Uterus During Labor; Laparotomy; Recovery of Mother and Child. Edgar Down.
8. Case of Tumor of the Centrum Ovale with Cerebellar Symptoms; Difficulties of Diagnosis. W. L. Aacherson.
9. *Treatment of Rectal Prolapse by the Submucous Injection of Paraffin. Arthur H. Burgess.
10. Cases of Appendicitis with Perforating Duodenal and Gastric Ulcer. H. A. Ledlard.
11. The Evolution of Man's Diet. Harry Campbell.

2. Human Piroplasmosis.—Donovan gives a full description of the maladies as observed by him, the causative animal parasite and the postmortem findings. He is convinced of the identity of this disease and kala-azar, the exciting cause in both being the same.

3. Epibulbar Melanotic Sarcoma.—Clegg and Hall add two cases of pigmented epibulbar tumors situated at the limbus to the literature on this subject. Of 520,523 out-patients who have attended at the Manchester Royal Eye Hospital during the last thirty-three years, only 3 were cases of pure melanotic sarcoma of the limbus, although general "orbital melanosis" has been noted more frequently. One case disappeared after operation; the other 2 recovered completely. In 1 case the eye was removed, in the other 2 the tumor was excised. Of the latter the one patient remaining under observation regained perfect vision, and is in robust health.

5. Pseudoleukemia in a Child.—Redfern reports a case of pseudoleukemia occurring in a child two years and nine months old, with no history of previous illness. The case terminated fatally by syncope after about eight weeks' illness. Only the cervical glands were enlarged, but they were not painful or tender on pressure. The axillary and anterior mediastinal glands became enlarged later. Dyspnea was marked. There was unilateral perspiration on the left side of the body, face and limbs. The left pupil was more dilated than the right. The general nutrition was maintained until death. There was no family history of syphilis or tuberculosis. The blood condition was as follows: Red corpuscles, 4,080,000; leucocytes, 8,000; lymphocytes, 30 per cent; hyalin leucocytes, 10 per cent; polymorphonuclear cells, 68 per cent; eosinophile cells, 2 per cent.

9. Injection of Paraffin in Rectal Prolapse.—Burgess has treated 18 cases of rectal prolapse by the submucous injection of paraffin having a melting point of 111. Of the 18 cases the ages ranged from 3 to 48 years, and the size of the prolapse from 1½ to 5 inches in length. In all of them the prolapse descended with almost every bowel movement, and remained down until replaced. Two were associated with excoriation and ulceration of the mucous membrane; 2 had been previously treated by linear cauterization without success, and 2 had recurred after the excision of the lower part of the rectum. The injection treatment has been extremely satisfactory in all the cases, not a single instance of recurrence having occurred. Paraffin masses can readily be distinguished after two months, feeling like nodules of cartilage. The technic of the operation is as follows: The paraffin is kept melted by placing the container in water at a temperature of about 120. The syringe has its barrel covered with rubber to retain the heat longer. The instrument is placed in the hot water bath for a few minutes, is then filled with melted paraffin, and replaced in the bath until the moment it is required to be used. The patient is anesthetized and placed in a lithotomy position; the prolapse is drawn out to the fullest possible extent. The apex of the prolapse is seized with artery forceps, at three points equi-distant along its circumference, so selected that two forceps will be placed anteriorly and the third in the posterior median line. By gentle traction the mucous membrane is raised into three ridges forming an equilateral triangle. The needle of the syringe is inserted in turn into the middle of each side of this triangle, from 2 to 3 c.c. of paraffin being introduced on each occasion. As this solidifies, the mucous membrane bulges inward, converting the lumen of the

bowel into a more or less tri-radiate slit. The forceps are removed, the apex of the prolapse is reduced, and the mucous membrane is again seized with forceps about $1\frac{1}{2}$ in. from the original apex, as before, except that at this time, two are placed posteriorly, and one anteriorly. The paraffin is injected as before, with the result that the lumen of the bowel is again converted into a tri-radiate slit, the radii, however, corresponding to the intervals between the radii of the tier above. This portion of the prolapse is now reduced and the forceps re-applied, as at the first time, and the process is repeated until the anus is reached. As a rule, three tiers are sufficient, but in a very long prolapse four may be introduced safely. In order that straining may not cause the prolapse to re-descend before the paraffin has firmly set, Burgess inserts a stout silkworm-gut suture through the buttocks on either side, tying it firmly over a pad of gauze placed over the anal orifice. This suture is removed at the end of twenty-four hours. No special after-treatment is required. The patient is kept in bed for four or five days. The bowels have usually been allowed to act spontaneously. Autopsy shows that the paraffin remains strictly localized to the area of its introduction and undergoes no change. However, the masses become encapsulated by fibrous tissue. The rectum is fixed firmly in its normal situation, and can not be drawn down to constitute a prolapse, even after considerable pressure.

British Medical Journal, London.

September 10.

- 12 Discussion on Immunity. J. Ritchie, R. Muir, H. Noguichi, A. Ruffer, A. E. Wright and others.
13 Discussion on the Role of the Lymphocyte. G. L. Gulland, J. M. Beattie, W. G. MacCallum, T. Houston and others

Journal of Tropical Medicine, London.

September 1.

- 14 *Onyati: a Disease of Central Africa. A. Yale Massey.
15 *Antityphoid or Anti enteric Inoculation. F. Smith.

14. **Onyalia.**—Under this name Massey describes a disease found among the blacks of Portuguese West Africa. It is rarely ever fatal. The only clinical evidence is the appearance on the hard palate and buccal mucous membranes of vesicles distended with blood, ranging from one-quarter to half an inch in diameter. Sometimes these vessels are uniloculated; they can not be emptied easily; they have a tendency to appear in clots. There is no fever, the patient complaining only of discomfort in the mouth and a general feeling of lassitude. The duration of the disease is about ten days. Treatment consisted of the administration of 60 grains of bicarbonate of soda and half an ounce of unpurified codliver oil internally each day. Calcium chlorid was not given a trial.

15. **Antityphoid Inoculation.**—Smith has made a careful study of this question and summarizes his paper as follows:

1. Antityphoid inoculation has a distinct value in protecting the human organism from attacks of typhoid fever.
2. To obtain the fullest measure of protection the operation should be done, by the best methods before exposure to infection.
3. Even when inoculation is performed shortly before exposure to infection it is a beneficial procedure on the whole.
4. The protective influence is exerted for some years, long enough probably to tide over the most vulnerable age of youth and earlier manhood.
5. The protection afforded is in the proportion of 3 to 1.
6. The proportion of protection is much less than that of efficient vaccination for smallpox.
7. Vaccination against smallpox is about ten times as effective as antityphoid inoculation.
8. Typhoid under normal conditions at home and in some foreign stations is not a very common disease, such as smallpox used to be.
9. Typhoid among soldiers—in active service in most places, and when on peace service abroad, especially in India, South Africa, Egypt, Bermuda, Mauritius and Malta—is a very common and fatal disorder.
10. Typhoid is a danger to which nurses and hospital subordinates generally are specially exposed.

The final conclusions reached as regards the practical value of antityphoid inoculation are:

1. It is not at present of sufficient practical value to warrant its general adoption by the nation at large.
2. It is of distinct practical value to any community in which typhoid breaks out in an epidemic form.
3. It is of practical value to those who have much to do with typhoid patients.
4. It is of utility for general adoption among newcomers in certain special endemic areas abroad, such as some Indian stations and Malta.
5. It is of great practical value at all times to soldiers serving in India, South Africa and Malta; also, but in a less marked degree, in Gibraltar and other places.

6. It is certainly of the greatest practical value to soldiers about to take the field in any tropical or subtropical country where typhoid is known to prevail.

Medical Press and Circular, London.

August 31.

- 14 *Preventive Treatment of Scarlet Fever by Isolation (Aggregation) Hospitals. H. E. J. Biss.
17 Hospital Isolation and Scarlet Fever: the Statistical Aspect. C. K. Millard.

16. **Preventive Treatment of Scarlet Fever.**—Biss calls attention to the fact that isolation of the patient, except in the case of smallpox, has proven ineffectual so far as stamping out scarlet fever is concerned. If scarlet fever is to stand a chance of eradication by isolation, a prodigious number of cases of slight sore throat, of anomalous blishes of the skin, of ill-defined shagginess of the fingers, must be isolated, or a large proportion of real sources of infection will be left unrestrained. This would entail imprisonment and serious loss to many not suffering from scarlet fever, but whose illness could not be diagnosed with certainty. Any system that seeks to eliminate the personal element in scarlet fever infection must rest for its success on the separation of all cases, or of such a large percentage that a very sensible reduction in the total number of infections would be apparent. Such can never be the case until the diagnosis has improved to such a point that practically all cases, however mild, are recognized and dealt with in hospital or at home. It is doubtful whether individual elimination is likely ever to be of much service as a prophylactic measure.

Dublin Medical Journal.

September 1.

- 18 On the Need for Family Care of Persons of Unsound Mind in Ireland. Conolly Norman.
19 Suggestions for the Prevention of Puerperal Infection in Private Practice. John W. Byers.
20 Some Remarks on the Epiphyses of the Long Bones and Their Bearings on the Operation of Resection. John Knott.
21 *Burning Foot, or Erythromelalgia Tropica. P. N. Gerrard.

21. **Erythromelalgia Tropica.**—Gerrard reports six cases of burning foot, or erythromelalgia, a disease of the plantar nervous or arterial supply, which occurs in the natives of the Malay peninsula who are accustomed to work barefooted on roads and plantations. It commences, usually, with a "pins and needles" sensation, affecting the soles of the feet. It then progresses to an acute burning sensation, which in the majority of cases is so severe as to prevent the patient walking, and frequently necessitates the administration of narcotics to produce sleep. In some cases the patient is enabled to walk on the heels with the aid of a stick, while in others no progress nor attempt can be made. Although a previous history of malaria can usually be obtained, no history of malaria occurring during the progress of the disease has been found in any case. It is possible, therefore, that the disease may be a neuritis of malarial origin in which the blood supply to the nerves implicated may have become cut off by means of a deposit of malarial pigment. Another etiologic factor to be considered is "arteriole fatigue." The treatment was varied. Some relief was obtained in two cases by immersing the feet in hot water containing a quantity of salt. Various liniments and ointments were unsuccessfully tried, and general tonics, with or without strychnin, also failed to give permanent relief. Narcotics and sedatives of all kinds only relieved the disease for the period of their action.

Presse Médicale, Paris.

- 22 (No. 69.) *Du principe phospho-organique des graines végétales: L'acide anhydrido oxyméthylène-diphosphorique. Son action biologique. A. Gilbert and A. Lippmann.
23 Functional Impotence of Shoulder in Industrial Insurance. P. Mally.—Impotences fonctionnelles de l'articulation de l'épaule au point de vue des accidents du travail.
24 (No. 70.) *Chlorose et tuberculose. M. Labbé.
25 *Les hernies diaphragmatiques congénitales. Plauchu.
26 Complications des extractions de dents (of teeth). G. Mahé.

22. **Organic Phosphorus in Therapeutics.**—Phosphorus is needed by the organism, not only for its nutritive but also for its dynamic properties, Gilbert remarks. Recent research has shown the constant absence of mineral phosphates from human milk, and has also shown the remarkable abundance of phospho-

organic compounds in the soft parts of the organism. Aside from the skeleton—in which they serve a purely mechanical purpose—the mineral phosphates are found in the organism only in the excreta, where they mainly represent the detritus left from the destruction of the organic compounds of phosphorus. The use of mineral phosphates in therapeutics is irrational. The organic phosphates, on the other hand, offer a promising field for therapeutics. Among these organic phosphates, the phospho-organic reserve found by Posternals in all chlorophyll plants seems best adapted for the purpose. It is found in all the vegetables and cereals, and contains a large percentage of organic phosphorus. He called it anhydro-oxymethylene-diphosphoric acid, and has isolated it and combined it to form a neutral sodium salt and an acid calcium salt. The acid is extracted from grains and contains nearly 22 per cent. of phosphorus in an organic combination. In the clinic it is proving the most rapid, the most effectual and the most constant in its action of any phosphorus medication known by the writers to date.

24. **Chlorosis and Tuberculosis.**—Labbé regards chlorosis as merely a symptom of some other affection, usually tuberculosis, nephritis, syphilis or some gastric lesion. When no other cause can be determined, it is almost invariably the first manifestation of latent tuberculosis, as he shows by a number of typical examples. He regards the existence of chlorosis at puberty as testimony in favor of tuberculosis later, as much so as a history of pleurisy. The chlorosis can be cured the same as the pleurisy, and the tuberculosis may be averted, but its tuberculous nature is not contradicted by the patient's recovery. The recovery depends on the cure with which the chlorosis or pleurisy is treated. If the subjects can have the benefit of country air and hygienic surroundings, the chances are in favor of a return to health. These chlorotic subjects with a suspicion of tuberculosis are the ones that will be benefited most by sanatorium treatment. They should remain in the sanatorium until the blood is completely restored to normal.

25. **Congenital Diaphragmatic Hernia.**—Planchu describes 2 cases, and mentions that 258 have been published. In his cases the necropsy showed that the hernia was absolutely incompatible with life.

Berliner klinische Wochenschrift.

- 27 (XLI, No. 35.) *Myasthenia pseudoparalytica* (Erb'sche Krankheit) mit Zungen-Atrophie nach Überanstrengung (after overexertion). P. K. Fel (Amsterdam).
 28 *Eigenartiger Symptom-Complex nach Schlafenschuss* (bullet in temple). Köpflin (Westphalia's clinic, Greifswald).
 29 **Enuresis der Kinder* (in children). J. G. Rey (Aix).
 30 **Filtering Paper in Hematology.* T. W. Tallqvist (Helsingfors).—*Ueber die Anwendung des Filtrirpapiers im Dienst der praktischen Hematologie.*
 31 **Kosmetische Massage.* J. Zabloudski (director of official University Massage Institute, Berlin).

29. **Enuresis in Children.**—Rey has been studying 52 cases of enuresis in children. He found that chemical analysis almost invariably demonstrated that the urine of such children was abnormally irritating or that there was some lesion in the urinary apparatus. In 19 of the 52 cases examined he found the urine turbid from enormous quantities of colon bacilli present. They were in bunches like granules floating in the opalescent urine. Such urine has generally an acid reaction and smells stale. Prolonged treatment of the entire uropoietic system was required to cure these cases of bacteriuria. Long continued use of salol, with a strict milk diet and regularity of meals, proves more successful than irrigation of the bladder. In 2 cases of recurring hydronephrosis with high fever, in girls aged 16 and 3, the palpable tumor vanished as a large amount of turbid urine was evacuated, and the fever subsided. These conditions kept recurring until the bacteriuria was conquered or checked by long salol and urotropin medication. Internal treatment is alone able to reach and cure such cases. Latent cholecystitis is particularly frequent in girls, and is not seldom the cause of the pale, depressed and irritable condition of the children who suffer from enuresis. As such cholecystitis rarely induces marked bladder symptoms, it is generally overlooked. Twenty-four of his series of 52 bed-wetters belonged to the category of simple mucous cystitis due to general acid intoxication.

The strongly ammoniacal urine irritates the bladder lining and induces a condition similar to that of "irritable bladder." Infants in this condition are liable to scream every time they urinate, and hold back all the urine they can. Frequently the trouble is ascribed to phimosis, but salol and dieting will in many instances cure it without an operation. In case a phimosis operation is undertaken, the irritating urine is liable to prevent healing or cause such complications that surgical intervention should be strictly contraindicated. In 3 other children there was pronounced phosphaturia, in another excessive uric acid output. The first were treated with milk diet and avoidance of vegetables, the latter by being put on a vegetable diet, all promptly recovering. In 3 other cases the enuresis was conquered by blunt detaching of the prepuce and removal of clumps of smegma in the corona glandis. The remaining 2 children in his series were affected with oxyuria. Some writers attribute the enuresis at night to fright in bad dreams, but Rey thinks that the bad dreams are probably the result of the impulse to urinate, or of emission of irritating urine. He thinks it is possible that the enuresis of early infancy, due to irritation of the bladder, may possibly survive its cause. These are the cases of sudden cure after faradization, epidural injection, etc. When the bladder irritation still persists, all such measures will be futile. Chemical and bacteriologic examinations should be made in every puzzling case of enuresis, and more attention should be paid to the catarrh of the bladder in infants, with cystoscopy of girl infants and older boys.

30. **The Filtering Paper in Practical Hematology.**—Tallqvist reviews the various points to be learned from his method of examining the blood taken up on filtering paper, comparing it with a standard scale. In case of leukemia, the aspect of the blood spot differs from all those in the scale. In sharp contrast, we see that the drop of blood is very slowly absorbed by the paper. Some time is required before it spreads enough for examination. The color of the spot is irregular. Nothing but an intense increase in the white corpuscles affects the behavior of the drop of blood in this way, evidently altering its physical characteristics.

31. **Cosmetic Massage.**—Two or three years ago the University of Berlin established a massage institute, in charge of Prof. J. Zabloudski. He is a frequent contributor to medical literature, as readers of these columns are aware. In this communication he discusses the subject of "beauty doctoring," as well as cosmetic massage in general. In the first place, he emphasizes the fact that rational cosmetics is synonymous to a large extent with individual hygiene. Also that cosmetic massage is far from meaning massage of the exposed parts of the body alone. Its sphere is restricted to restoring what is partially lost or warding off impending loss. Over-fat faces can be reduced, angular faces can be rounded, and recent morbid products or recently morbidly altered tissues will be found more responsive to massage than the normal elements of the organism or long-established morbid elements. But the massage should seldom be restricted to local manipulations alone, but should be extended over large areas. Nothing would be accomplished in case of a double chin, for example, if the massage were restricted to the chin. It is worked on both directly and indirectly by toning up the general system with massage and therapeutic active and passive movements. In the same way, the tendency to wrinkles is opposed by measures to improve the general nutrition, supplemented by kneading and stroking massage of the part. An emaciated part of a muscle in the brow, for instance, contracts readily when the inhibiting action of the missing subcutaneous fat tissue is lost. As soon as the nutrition of the muscle is improved by local and general massage, the muscle becomes thicker and does not contract so readily. The nerves in the part become more resistant and do not respond so easily to minimal irritations. The skin above becomes smooth and does not wrinkle so readily. Massage treatment, in his experience, has frequently abolished nervous twitchings and ties in the face. Another class of cases benefited is the climacteric congestions in the face. The circulation can be regulated by massage of large surfaces of the body. Still another class of patients benefited are those following

a special diet with irritating restrictions. At times massage may be effectually substituted for the dietetic restrictions. Zabłudowski describes his mode of massaging, using sometimes a vibrator or a vacuum pump, with a cup 3 to 5 cm. in diameter, applied for a minute or two. Both pump and vibrator are run by a motor like a dentist's drill. Digital self-massage is impracticable, as it is impossible for it to go deep enough, the hands tire soon, and so many parts are inaccessible. He recommends, however, a small apparatus for vibration massage which is worked by electricity or by turning a crank. Steaming the face is injurious, as it renders the skin sensitive to weather influences. If a salve or paste is not decidedly slippery it merely irritates the skin when massaged into it. Unless the skin is very dry or the hands very rough, the massage is best done without any medium, but if one is needed, the best lubricant is natural white vaselin (Virginia vaselina alba), made without evaporating all the water in it. It becomes unsuitable if left exposed to the air for a day or two, as the needed water dries out. He never massages more than 15 minutes at a time for the face, and 30 minutes for general massage. He aims to make it rapid, thorough and not disagreeable. The work is done with the hand and arm rather than with the fingers.

Centralblatt f. Chirurgie, Leipzig.

Last indexed page 763.

- 32 (XXXI, No. 33.) Gallstone Operations. W. Sereuin (Moscow).—Erlautes zu den Gallensteinoperationen.
- 33 (No. 34.) *Zur subcutanen Gestaltung der linearen Osteotomie. O. Heine (Dortmund).
- 34 Zur Artbroden-Bildung. O. Hagen-Torn (St. Petersburg).
- 35 (No. 35.) *Zur Technik der Transplantation nach Thiersch. C. Lauenstein (Hamburg).
- 36 Eblige Bemerkungen zur Frage über die sogenannte congenitale Hüftgelenksverrenkung (hip joint dislocation). O. Hagen-Torn.
33. Subcutaneous Osteotomy.—Heine applies the principles of subcutaneous tenotomy to osteotomy. There are two or three ways of doing this, but the best is to pull the skin along so that the part normally over the bone is drawn away to a distance, and the incision is made through a part which subsides afterward to its proper place remote from the point of the cut into the bone. Such a technic is particularly advantageous for children, especially in operations on a rachitic leg. The part of the skin incised is that which lies normally over the tibialis anticus and the extensor tendons. The operation is much shorter; the incision need not be longer than the breadth of the chisel; air is excluded; the result of the operation resembles the conditions in an uncomplicated fracture, and the skin wound and the cut into the bone are far apart.

35. Improved Technic of Thiersch Grafting.—Lauenstein does not freshen the surface to be transplanted, but merely rubs it with a gauze pad until it becomes slightly bloody. He uses one pad to each area the size of the palm. The Thiersch flaps are then applied, and they heal in place much more rapidly than by the old method of freshening with the curette. The first case on which he tried this technic was an extensive defect on the arm, extending over the shoulder, the patient very much debilitated. The wound was dressed with Credé's silver gauze, and when the dressings were changed a week later the entire grafted material had healed faultlessly in place.

Centralblatt f. Gynäkologie, Leipzig.

Last indexed page 763.

- 37 (XXVIII, No. 32.) *Zur mikroskopischen Diagnose des Abortus. P. Hirschmann (Schwaba's clinic, Vienna).
- 38 *Zur Frage der Tuben-Menstruation. W. Thorn.
- 39 Modifizierte Kugelzange (ball forceps). O. Frankl (Vienna).
- 40 *Can Fatal Infections Be Avoided in Maternities Utilized for Teaching? F. Ahlfeld.—Lassen sich Infektionen mit tödlichem Ausgange in Entbindungsanstalten, die dem Lehrzweck dienen, verhüten?
- 41 Ueber die Beteiligung des Endometriums an der gonorrhöischen Vulvo-Vaginitis der Kinder (in children). F. Jung.
- 42 Septot bei Gebärmutterblutungen (uterine hemorrhages). K. Wittbauer.
- 43 (No. 34.) Akute gelbe Leber-Atrophie im Puerperium (yellow atrophy of liver). R. Cohn.
- 44 Fall von vaginaler Sarcinotoma ovaria bei Eklampsie. G. W. Malz.
- 45 Bemerkungen zur Frage der Konvulsionen nephrektomierter Kaninchen (rabbits). B. Wolf.
- 46 Zur schnellen Erweiterung der Cervix (rapid dilatation). V. Frommer.
- 47 (No. 35.) Korrektur von Deviationen des Uterus durch verkürzende Plastik der Lig. rotunda und Lig. sacro-uterina

per laparotomiam (fibro-fibröse, indirekte Fixierung) M. Sperling (Königsberg).

- 48 Automatic Double Retractor. K. Reifferscheid (Bonn).—Ein selbsttätiger Wundklammer.

37. Microscopic Diagnosis of Abortion.—Hirschmann describes a case in which the young ovum was found intact while the glands showed no evidence of the changes which some have asserted are characteristic of an abortion. In another case he found the characteristic glands, but there had been no pregnancy. He is inclined to regard these changes in the glands as liable to be induced by menstruation alone. He also believes that a membranous dysmenorrhea may cause changes in the connective tissue which simulate decidua cells. He cites a suggestive case in which a typical dysmenorrhæic membrane was examined in a large series of sections, with finally the discovery of a minute ovum, not projecting above the surface, and surrounded by decidua cells only in its immediate vicinity.

38. Tubal Menstruation.—Thorn describes two cases of pathologic tubes in one of which hemorrhage from the tubes accompanied normal menstruation; in the other it substituted the latter.

40. Infection in Teaching Maternities.—Ahlfeld states that there have been 7,000 deliveries in the Marburg maternity in his charge, and that fully fifty thousand times have the students made examinations of the women before and during delivery, and yet only a single death has occurred from infection after a normal, spontaneous birth. In this one instance the examination had been done after thirty minutes' disinfection of the hands under skilled supervision. The circumstances suggested that the woman had infected herself with her own fingers, a possibility to which not enough attention has been paid hitherto. In his clinical experience of twenty-three years, with 7,000 deliveries and the training of 1,000 medical graduates and 2,000 midwives or obstetric nurses, he thinks he has not had a single case of fatal septic infection traceable to the use of the clinical material for teaching purposes. Self infection in puerperio, with fatal outcome, is extremely rare in well-conducted institutions, but self infection in partu, especially in case of a tedious, long-protracted birth, is of much more frequent occurrence and can scarcely be avoided.

Deutsche medicinische Wochenschrift, Berlin and Leipzig.

- 49 (XXX, No. 34.) *Zur etiologischen Diagnose des Abdominal-Typhus. Jürgens (Berlin).
- 50 *Sweating for Relief of Kidneys. H. Strauss (Senator's clinic, Berlin).—Ueber Nieren-entlastung durch Schwitzen.
- 51 Weitere Untersuchungen über Eriwise-precipitate (albumin precipitates). L. Michaelis (von Leyden's clinic, Berlin).
- 52 Zur Immunisierung gegen Tuberkulose. E. Neufeld (Infectious Institute, Berlin). (Supplement to article in No. 18.)
- 53 *Carbonic Oxid Poisoning. E. Knoch (Dresden).—Zur Kenntnis der Erkrankungen des Nerven-Systems nach Kohlenoxydvergiftung.
- 54 Ein neuer Infusions-Apparat. Ansin (Demmio).
- 55 Die Akademie für praktische Medicin in Göttingen.
- 56 Tribute to Koch.—Ehngang Robert Koch's. See page 823.
- 57 (No. 35.) *Extraction of the Urates and Joint Capsule from a Gouty Toe. Riedel (Jena).—Die Entfernung der Uratsäure und der Gelenkkapsel aus dem an Podagra erkrankten Grosszehelende.
- 58 2 Fälle von akuter Pancreatitis mit disseminierter Fett-Nekrose, geheilt nach Laparotomie. Wiesinger (Hamburg).
- 59 *Zur Frage der Spontan-Heilung des Krebses (Spontaneous cure of cancer). R. Bornmann.
- 60 Buttermilch Conserven. F. Gernsheim.—Einige Bemerkungen zur Kopfes Erfahrungen mit einer Buttermilch-Konserven als Säuglingsnahrung.
- 61 Sigmoiditis acuta. Walcha.
- 62 *Typischer Fall von Menstruation Praecox. A. Stein.
- 63 New Spring-Trap. W. Körner (Schwabisch Gmünd).—Ein neues Bruchband ohne Feder.
- 64 *Remedy for Mosquitoes. Schill.
- 65 *Madeira as a Health Resort. Wolff (Reiboldsgrün).
- 66 Reform in Pharmacy System. Klose.—Reform des Arzneiverordnungs-wesens.
- 67 Medical-legal Decisions in Insurance Questions. Lass.—Die neuere Rechtsprechung des Reichs-Versicherungsamts auf dem Gebiete der sozialen Medizin. (First part in No. 13.)
- 68 *Ueber die von mir an Waldeck-Rousseau vorgenommene Operation. H. Keller.
- 69 Early Reaction After Röntgen Exposure. A. Köhler.—Frühreaktion nach R.-Bestrahlung.
- 70 (No. 26.) *Ueber die Beck'sche Methode der Hypospadien-Operation. C. Böttcher (Giessen).
- 71 *Rupture of Bladder During a Bottini Operation on the Prostate. P. Rosenstein.—Physikalische Versuche zur Erklärung der von mir nicht gewürdigten Gefahr der Bottinischen Operation.
- 72 Zur Kasuistik des Morbus maculosus Werthofii. O. Moritz.
- 73 Ueber infectiösen, fieberhaften Icterus (Morbus Weilli), im Kindesalter, zugleich ein Beitrag zur Pathogenese des Bacillus proteus fluorescens. H. Brüning (Leipzig). (Continued in No. 35.)

74 Iron Light Treatment of Alopecia Areata. Supplement to article in No. 31.

75 Karl Welgert. Nekrolog.

49. **Etiologic Diagnosis of Typhoid Fever.**—Jürgens comments on the facts that healthy persons can shelter the typhoid bacillus, and that typhoid bacilli are liable to be found in the stools of convalescents even long afterward. These facts discredit the value of bacteriologic examination. The serum reaction is, further, not absolutely reliable evidence in regard to the etiology of a given affection supposed to be typhoid, as its findings vary so inexplicably. He remarks that "the confusion that can be induced by inadequate clinical observation and uncritical etiologic diagnosis is well shown by the literature published during the last few years on paratyphoid affections. Most of these paratyphoid cases are not typhoids with a special etiology, but merely affections interesting on account of the peculiar reaction on the part of the blood serum. Some were probably ordinary typhoid, others had nothing whatever to do with typhoid. Other cases have been observed which did not differ from typhoid in any respect, although they were caused by the Schottmüller instead of the Eberth bacillus. Typhoid fever is thus apparently not an etiologic unit, and it is merely splitting hairs whether we call the cases of typhoid not caused by the Eberth bacilli, paratyphoid, or whether we include them in the term typhoid with merely some additional term to express their etiologic peculiarity. We can speak of a typhoid with a special etiology only when the symptoms of typhoid are present and Eberth's bacillus as the cause of the disease can be definitely excluded. This is the only means to bring order out of the present confusion, the result of insufficient clinical observation and over-hasty deductions, and show whether typhoid fever should be separated into several distinct diseases."

50. **Relief of the Kidneys by Sweating.**—Strauss has been studying this subject on a large amount of material, comparing the findings by groups of patients with various affections. He obtained the sweat for the purpose by the use of dry heat, a rubber sleeve fitting over the arm, a faucet in the sleeve bag allowing all the accumulated fluid to be drawn out into a vessel below. Out of 200 tests he was able to obtain enough sweat for comparative research only in 80. In 25 of these 80 subjects some serious renal trouble existed; the others were patients for whom sweating procedures had been ordered generally on account of some neuralgic or rheumatic trouble. The findings showed that the molecular concentration of the blood was frequently higher in the nephritic than in the non-nephritic subjects, especially in the uræmic nephritics. The retention of water in cases of purely nephrogenic edema fulfills a compensatory purpose, as it serves to dilute the retained salts and other debris of metabolism. The end products of nitrogen metabolism are not so important for the origin of the edema as the salts, yet the poisonous substances which cause the uræmia must be sought among them, although we are not yet able to define them. The pathologic importance of the retention of salts is demonstrated in another direction from that of the retention of the end products of nitrogen metabolism. There is scarcely any department of internal medicine in which such opposite views prevail as in this question of the efficacy of sweating procedures for the elimination of nitrogenous molecules. In the tests here described these molecules were in proportions in half the cases of nephritis far beyond that attained in three-quarters of the non-nephritic cases. The amount of total nitrogen was generally somewhat larger than in the subjects with sound kidneys. The practical conclusions of the research reported are to the effect that sweating procedures are liable to be beneficial in nephritis, and that uræmic accidents need not be specially feared. It is advisable, however, to supplement the sweating by copious ingestion of water to prevent evil consequences from the diaphoresis in uræmic subjects. If the edema increases, this is a minor ill, and the superfluous fluid can be easily tapped. Strauss' experience has not shown that sweating had any influence in favoring the outbreak of uræmic accidents. On the contrary, his impression is that uræmic subjects are improved by it, his empiric observation confirming the results of his research here presented.

53. **Carbonic Oxid Poisoning.**—In the first of the 2 cases reported the man had worked in an imperfectly ventilated room in which coke stoves were burning. He suddenly presented symptoms suggesting a focus of softening or hemorrhage in the left hemisphere. The permanent motor aphasia justifies the assumption that this focus involved the region of the foot of the anterior central convolution. A history of mild syphilis a few years before suggests that the part may have been predisposed. In the second case, the symptoms were about the same but rapidly retrogressed. An accident to the woman's skull a year or so before may have afforded a predisposition. She exhibited likewise cyanosis and edema of both hands, knee and forearms, with pemphigus-like blisters, subsiding by the tenth day, all but two rows of blisters on the right forearm, which terminated in necrosis, healing finally after several weeks. They were evidently due to a neuritic process. The poisoning occurred in consequence of shutting the damper in the stove pipe. She and her husband were taking coffee together, when she lost consciousness and was not found until after twenty-six hours. The husband was dead.

57. **Removal of Urates and Capsule from Gouty Toe.**—In 1882 Riedel was summoned to operate on a great toe which had suddenly become swollen and intensely painful after a day's hunting, the subject a previously entirely healthy man of 45. The aspect of the toe suggested hallux valgus and suppurative in a bursa. Under narcosis Riedel incised, searching for the assumed bursa, but nothing of the kind was found, merely a typical gouty deposit of urates, the capsule congested and set with pointed urate crystals. He was horrified to find that he had operated on a gouty toe, but, having it open before him, proceeded to remove all the urates and extirpated also the capsule. The patient was relieved at one stroke from his excruciating pain, and during the twenty-two years since has had no further trouble of the kind. He was so grateful that he went about advising other subjects with podagra to submit to an operation, but none heeded him and twelve years passed before Riedel had an opportunity to operate on another case of the kind. The diagnosis in this second case had been similarly mistaken, bursitis with secondary suppurative having been assumed. The results were as perfect as in the first case. Of course this operative treatment should be restricted to isolated podagra, involving only a single toe. But the results were so encouraging in his 2 cases that he can not refrain from advocating such a procedure in case of rebellious, excruciatingly painful gout, isolated at a single point. The great toe is easily accessible, and at the same time very resistant. Extensive detachment of the capsule does not impair its nutrition if the wound is left open. In a gouty joint the inflammation is aseptic, the exudate merely serous. If a recurrence should develop, the simple operation could be readily repeated. In any event, the patient can count on years of peace in the interim.

59. **Spontaneous Healing of Cancer.**—Borrmann has examined histologically 265 cutaneous carcinomata, with over 2,000 microscopic sections, and has frequently found the so-called foreign body giant-cells. But he does not admit that these giant-cells are an indication of healing of the lesion. They do not take up living cells, but merely form around dead detritus. They were seldom or never found among the living cells of the cancer. In 80 cases the lesion was an ulcer rodens, and giant-cells were numerous, yet these lesions are inevitably slowly progressive. In his experience the giant-cells were more numerous in the rapidly growing cancers. Deported cancer cells undergo horny transformation, and when killed by this process are then taken up by the giant-cells. The latter respect them so long as they are alive.

62. **Menstruatio Precox.**—Stein was called to a babe of 6 months, as genital hemorrhage was noted. It recurred regularly month after month under the aspect of menstruatio precox. He gives an illustration of the child at fourteen months, the menstruation having recurred eight times, and, curiously, always coinciding with that of the mother.

64. **For Mosquito Bites.**—Schill recommends to apply a little sodium bicarbonate, moistened to a paste, to take the sting out

of a mosquito bite. It may be used in a concentrated solution. To drive the insects away, he swabs the exposed parts with a 2 per cent. solution of thymol. He has found these measures very effective against mosquitoes and gnats.

65. **Madeira as a Health Resort.**—The Madeira Islands offer a combination of sea air, hill and mountain climate, freedom from dust and climatic vicissitudes, remarkably beautiful scenery and luxuriant vegetation, which make it a most promising health resort. As has been mentioned in the news columns, a company has been formed to exploit Madeira for this purpose. It will be possible there to have a tuberculous subject try different climates and altitudes under the supervision of a single physician, to determine which is best suited for him. No research of this kind has yet been undertaken. It is planned to make the sanitation of the island chosen ideal, to have three sanatorium hotels at different elevations, with possibly a floating sanatorium, and to spare no pains to make it a perfect health resort, according to the most advanced ideas. The names of Pannwitz and Wölff guarantee the high scientific character of the undertaking.

68. **Kehr's Operation on Waldeck-Rousseau.**—(See page 823.) The patient was a man of 58, always healthy until icterus developed suddenly last fall after a violent emotion. There was no pain, but the icterus continued with varying intensity until the spring, when there was gradual loss of appetite and strength. An operation was undertaken, the abdomen opened, and through a small incision at the outer margin of the right rectus the surgeons (Poirier and Terrier) palpated a small, hard lump in the head of the pancreas. Without further exposure of the cystic and bile duct or of the pancreas, they made an anastomosis between the gall bladder and the jejunum. The gall bladder was large and adherent and its contents were thick and gelatinous. A week later there were three cholemic hemorrhages from the wound, but the icterus, pruritis and lack of appetite persisted. Two months after the operation the icterus was still the same as before, the only change being that the patient was weaker and more miserable. When Kehr was summoned he found an emaciated, extremely icteric patient, drowsy and already standing under the sign of cholemic intoxication. No pain could be elicited by palpation, the liver was enlarged but smooth and nowhere hard; there was no ascites and no tumor. The pulse was regular and strong. 84. The urine contained a large proportion of bile pigment, but no sugar nor albumin; the feces were completely decolored. The family physicians said that the heart and lungs were sound. Kehr diagnosed chronic occlusion of the common bile duct, but whether from a stone or tumor, pancreatitis or adhesions it was impossible to say. His experience with 947 gall-stone operations had been that a cancer had been found in 70 per cent., a stone in 10 per cent. and chronic pancreatitis in 20 per cent. The findings in the case showed that the anastomosis of the previous operation had not accomplished its purpose. The cystic duct may have been compressed by adhesions, which would explain the non-functioning of the anastomosis. Kehr's practice is always to aspirate the contents of the gall bladder before opening it. It is then incised and its contents evacuated. Only when bile flows from the cystic duct is anastomosis permissible. If the cystic duct be impermeable, then cystostomy, or, better still, choledochoduodenostomy should be considered. Eventually cholecystectomy may be done, supplemented by an anastomosis between the common duct and the duodenum. In any event, a long incision should be made to enable the conditions in the ducts to be ascertained correctly. In the case in question the cystic duct may have been impermeable at the time of the first incision or may have become so later. The patient had not lost his icterus, and an operation was the only resource left, as he and his friends appreciated. The age and sex spoke in favor of carcinoma, also the almost painless course of the trouble (possible likewise in case of stones), the severe icterus (possible in case of stone in the papilla), and the cachexia (possible also in case of occlusion from stone). Evidence against cancer was the sudden appearance of the icterus, its fluctuations and the comparatively long course of the affection. Cases of scirrhus of the pancreas

are known which have run a two-year course. The patient was doomed without an operation, and if the trouble was of a non-malignant nature it might cure, and, if malignant, it might prove palliative. The chances were 30 per cent. in favor of the former. The patient was too weak to be taken to a hospital. The abdomen was opened and a rather hard tumor was found in the pancreas behind the duodenum, studded with nodules, in all probability a carcinoma. But, as chronic pancreatitis can induce a similar tumor formation, there was a possibility of this, especially as the glands were not enlarged and there was no trace of ascites. On the strength of this possibility Kehr regarded it as his duty to provide for the evacuation of the stagnating bile. A lobe of the liver presented and was taken for the gall bladder and incised, the 1 cm. incision lengthening the operation by five minutes. The gall bladder was found lax and almost empty, containing merely a little secretion and an undigested scrap of melon. The cystic duct was completely occluded. It had taken an hour to reach this point, and the patient showed signs of collapse. A tube was inserted in the gall bladder and an incision made in the common duct above the duodenum, the bile spurting in a stream. At this sudden evacuation of the liver the signs of collapse increased, and the intended choledochoduodenostomy or anastomosis between the gall bladder and common duct had to be abandoned. Kehr had to content himself with draining the hepatic duct, tamponing and closing the abdomen, concluding the intervention in seventy-five minutes. On account of the extensive adhesions it was one of the most difficult operations he has ever done. The patient was placed in bed, the pulse grew a little stronger, but after an hour disappeared, and death ensued before the second hour. One of the lessons learned from this instructive case, he adds, is the value of a hospital environment. Everything had presumably been prepared, but the surgeon felt the lack of light from above; he missed his adjustable operating table and the oxygen-chloroform apparatus to which he was accustomed, although he had brought his own anæsthetic with him.

70. **Beck's Method of Operating on Hypospadias.**—Bötticher reviews 10 cases in which Beck's method was followed, the results compelling him to urgently corroborate König's assertion that the Beck technic has superseded all other methods of treating hypospadias. The results are just as brilliant in very young children, but on account of the soiling of the parts during infancy the Giessen clinic has adopted the rule not to operate in cases of hypospadias until after the child is in its third year.

71. **Rupture of Bladder During Bottini Electrolysis of Prostate.**—Rosenstein describes a case of prostatic retention treated at Israel's clinic by Bottini electrolysis according to the usual technic. During the process the bladder ruptured with the sound of an explosion. Experimental research since suggests that the steam generated by the heat of the cautery was responsible for the explosion of the bladder. He reproduced similar conditions in glass vessels and in rabbits' bladders, and found that an explosion followed the "Leidenfrost" phenomenon (the dancing of the drops of moisture on the white-hot knife, isolated by their steam), and the sudden evaporation into steam as soon as the knife is cooled to a certain point by contact with the tissues. He sees no way to obviate this disaster in performing the Bottini operation, and thinks that the danger from it should turn the scale in favor of prostatectomy.

Gazzetta degli Ospedali, Milan.

Last indexed page 926.

- 76 *XXV, No. 61.) Honors to C. Bozzoli.
 77 Sulla presenza del peptone du Kibine nell'urina. L. Barelli.
 78 *Sul potere saccarificante del sangue in condizioni normali e patologiche. R. Vignani.
 79 Contributo allo studio dei tumori maligni nei seno mammellare (in male breast). V. Inzardi.
 80 *Varia sintomatologia del carcinoma gastrico. G. Marelli.
 81 (No. 64.) *Sull'ictizio anomalo di alcune infezioni. A. Campari.
 82 La dissociazione delle sensibilita elementari nell'epilepsia. P. Ferri.
 83 Contributo alla cura ed alla etiologia del vomito incoercibile delle gravidie. F. Scaramucci.
 84 Gravissimi riflessi nervosi in gravidanza fisiologica. Oport erapia tiroidea Guariglione. V. Valerio.

- 85 (No. 67.) *Per la ricerca dei bacilli tubercolari. C. Tarchetti.
 86 La sinuria ossea nelle fratture della clavicola. G. Baroni.
 87 *Nuovo contributo alla tecnica della ipodermoclasti e delle iniezioni endovenose. L. A. Oliva (Genoa).
 88 Sull'umido corrosivo e tubercolosi. A. Monari.
 89 Contributo clinico allo studio dell'osteite vertebrale post-tifosa. A. Germani.
 90 (No. 70.) *Sull'iperglobulia dei tubercolosi. S. Mircoli.
 91 *Sulla genesi tubercolinica delle iperglobulie tubercolari. S. Rebaldi and L. Alfonso.
 92 Di un epidemia di disturbi intestinali da un colibacillo virulento nell'acqua potabile. L. Vincenzo.
 93 Il siero Maragliano Nella prolassi e nei casi incipienti della tubercolosi. S. Calasunno.
 94 Le infezioni intracraniali di antipirina nelle nevralgie ischiole. S. Pascholetti.
 95 Goller and Fatigue. T. di Giuseppe. Gozzo e fatica.
 96 Contributo alla diagnosi di eclampsia in gravidanza. S. Pascholetti.
 97 Azione antinevralgica e antitemperica della morfina nelle nevralgie tubercolari. M. Bellotti.

78. **Increase in Sugar-Forming Property of Blood.**—Vigliani does not attempt to explain this phenomenon, but states that it occurred constantly in his experiments. By modifying the metabolism, either with phloridzin or phosphorus, the sugar-forming property of the blood serum was much augmented.

80. **Symptomatology of Gastric Cancer.**—Several puzzling cases are described. In one there was no absence of HCl, while no tumor nor specific formed elements could be discovered. The diagnosis was based on the lack of appetite, repugnance for meat, absence of the signs of perforation and of vomiting after eating, the dry, straw-colored skin, the cachexia and progressive character of the symptoms which suggested gastric ulcer. In a second case the symptoms indicated stenosis of the pylorus, but there was no vomiting and no HCl. In a third case the symptoms were those of pernicious anemia, but the progressive cachexia, the difficulty in ingesting solid foods and the pains in the intrascapular region suggested a cancer in the lesser curvature. The cancer in his fourth patient induced intermittent fever, probably from absorption of toxic products. A psychosis was the first signal of trouble in this case, soon followed by the discovery of a tumor in the stomach.

81. **Unusual Onset of Certain Infections.**—Several cases of typhoid, pneumonia and erysipelas are described, in all of which the first manifestations were identical, all of a gastro-nervous type. They included vomiting, diarrhea, colic, unconsciousness, pupil inertia, clonic convulsions, etc. Notwithstanding the severity of the onset, the after-course was unusually mild in some of the cases.

85. **Simple Stain for Tubercle Bacilli.**—Among the causes of failure to show up tubercle bacilli, Tarchetti mentions defective preparation of the material, imperfect staining and the unfounded notion that a contrast stain is necessary. He uses a simple technic, which includes spreading the material in a thin, even layer on cover-glasses, fixation with heat, staining with phenic fuchsln or Ziehl's (fuchsln, 1 part; alcohol, 10; phenic acid, 5, and water, 100), applied hot for ten to fifteen minutes, rinsing, decoloring for one or two minutes in a concentrated alcoholic solution of picric acid, changing the liquid once. The process concludes with brief rinsing, drying and mounting in balsam. The advantages of this technic are its simplicity and the mild action of the picric acid, while the persistence of the yellow stain gives the impression of contrast-staining.

87. **Technic of Subcutaneous and Intravenous Injections.**—Oliva described, two years ago, an instrument for this purpose, and his experience has impressed him more and more with its advantages. The needle is enclosed in a canula, which protects against its penetrating too far. The tube connecting it with the fluid to be injected is enclosed in a larger tube through which there is a constant flow of hot water. The simple apparatus is illustrated in detail.

90. **Hyperglobulia in Tuberculosis.**—This article has been noticed editorially, page 742. Mircoli noticed that a certain patient with incipient tuberculosis had six million red corpuscles. The aspect suggested anemia rather than hyperglobulia. These findings were repeated in a number of other cases of slight sclerosis of the apices. Pondering on this remarkable hyperglobulia in apparently anemic subjects, he came to the conclusion that it was due to the action of small amounts of

tuberculin, such as are produced by a small, circumscribed, inactive tuberculous focus. Arsenic in small amounts promotes the regeneration of the blood, and he queried whether tuberculin might not have a similar action. Experimental research on animals treated with small doses of tuberculin have confirmed the correctness of this assumption. He refers to Swan's report of hyperglobulia observed in 8 out of 26 tuberculous subjects examined (THE JOURNAL, xlii, March 12), and explains the scarcity of such findings by the general impression that the pallor of consumptives is evidence against hyperglobulia. In reality, the color of the skin depends on the pigmentation and the activity of the capillary circulation. It has nothing to do with the number of the red corpuscles. Another reason is that the blood is seldom examined in the incipient phases of tuberculosis. When the patients come to the clinics this phase is long past. Many influences are known that reduce the number of reds, and there is nothing strange in the fact that other influences may increase them. Among such influences must be reckoned the action of the tuberculin generated in some small, torpid process in the spleen or lungs. In a recent case a patient with sclerosis of the apices had hemoptysis of a pint of blood twice, with ten days' interval. The day after the second hemorrhage the reds numbered 5,600,000. Hyperglobulia in incipient tuberculosis is a means of differentiating an active from a torpid process. The hyperglobulia that follows hemoptysis is an argument in favor of venesection as an effectual measure against certain of the symptoms of tuberculosis.

91. **Tuberculin as Stimulus to Production of Red Corpuscles.**—This article relates the particulars of the research referred to in the preceding abstract. The writers found that large doses of tuberculin injected into guinea-pigs had a very destructive action on the reds. Moderate doses had no apparent effect on the reds, but repeated, small doses induce pronounced hyperglobulia. The hemoglobin increased parallel with the number of the reds. This effect was apparent in a few days, and persisted for some time. It was so marked that the writers suggest that it might be utilized in the therapeutics of non-tuberculous affections. Subcutaneous injection of minute "refractory" doses of tuberculin might prove an effective measure in combating non-tuberculous anemia and chlorosis. In such small doses tuberculin is perfectly harmless, and it is being tested now in the clinic.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

HANDBOOK OF SURGICAL ANATOMY. By G. A. Wright, B.A., M.B. (Oxon.), F.R.C.S., Professor of Systematic Surgery in the Owens College, and C. H. Preston, M.D., B.S. (Lond.), F.R.C.S., L.D.S. (Eng.). Lecturer on Dental Anatomy in the Owens College. Cloth, pp. 202. Price, \$1.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

REGIONAL MINOR SURGERY. Describing the Treatment of Those Conditions Daily Encountered by the General Practitioner. By George Gray Van Schaick, M.D., Consulting Surgeon to the French Hospital, X. Y. Cloth, pp. 226. Price, \$1.50. New York: International Journal of Surgery Co.

EPITOME OF NERVOUS AND MENTAL DISEASES. A Manual for Students and Physicians. By Joseph Darwin Nagel, M.D., Consulting Physician to the French Hospital, New York. With 46 Illustrations. Cloth, pp. 276. Price, \$1.00 net. Philadelphia and New York: Lea Brothers & Co. 1904.

KIRK'S HANDBOOK OF PHYSIOLOGY. Revised by Frederick C. Busch, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo. Fifth American Revision. With 535 Illustrations. Cloth, pp. 862. Price, \$3.00. New York: Wm. Wood & Co. 1904.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints. Paper. Volume II, 1904. Bacteriological and Clinical Studies of the Diarrheal Diseases of Infancy with Reference to the Bacillus Dysenteriae (Shiga). Edited by Simon Flexner, M.D., and L. Emmett Holt, 1904.

STRABISMUS, OR SCISSOR, LATENT AND FIXED. A Supplement to the Errors of Refraction. By Francis Vaik, M.D., Professor of Diseases of the Eye, New York Post-graduate School and Hospital. Cloth, pp. 171. Price, \$1.75. New York and London: G. P. Putnam's Son. 1904.

EIGHTH ANNUAL REPORT OF THE MANHATTAN STATE HOSPITAL at New York to the State Commission in Lunacy, for the Year Ending Sept. 30, 1903. Albany: J. B. Lyon Co. 1904.

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Original Articles.

THE PATHOGENESIS OF UREMIA AND ECLAMPSIA.*

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Under a rather hackneyed title, it is my purpose to discuss very briefly a subject that will always be of interest until the mystery which surrounds the direct causal influences of uremia and eclampsia is entirely and finally dispelled.

None of the theories offered up to the present time has been thoroughly satisfactory in explaining either the uremic state, which seems to be associated always with renal insufficiency, or that of eclampsia, which may or may not be preceded by signs of renal disability, but presents an almost identical clinical picture. I think it fair to state that I have never seen a case of eclampsia in which the urine, drawn by catheter during the coma or the convulsive period, failed to give abundant evidence of a serious renal involvement. I have seen this statement borne out in cases in which there was neither a trace of albumin nor a single form of renal sediment distinguishable by the microscope prior to the onset of the convulsive seizure.

Often the renal insufficiency proved to be temporary, out the regularity with which it has occurred has led me to believe more strongly with each new case that uremia and eclampsia are identical states, brought about in similar ways, though under many widely variant conditions. This does not mean (and I would emphasize the point) that they are necessarily the result of kidney disease. It may be that even constipation, or an abnormal condition of the thyroid gland or of the placenta, may in certain instances influence the particular case more forcibly than the impairment or integrity of the renal function.

It is not my object, however, to discuss the similarity of uremia and eclampsia, but to suggest a coincidence of two causes for both conditions which have been brought forward separately by more than one writer and studied by very many.

The first of these is the action of a toxin or of toxins on what Landois calls the psychomotor centers of the brain, while the second is a mechanical pressure on the same cortical centers, acting either in combination with the toxin, or occasionally alone, but not in the manner held by Traube, viz., an effusion into the ventricles and consequent anemia of the brain.

That toxins, and even certain substances which can

hardly be placed in this category, may produce by their local action the complete symptom-complex of uremia, including coma or convulsions, followed by death or recovery, has been shown beyond a peradventure by the exhaustive research of Landois.¹ Weisenberg's² recent report of extensive chromatolysis of the Betz cells of the paracentral lobule, especially on the side opposite the paralysis, in two cases of uremic hemiplegia, is another indication of the presence and action of a poison destructive to the central nervous system. The cells in the anterior horns of the cord, also in the medulla, and in the cerebellum, were found to show positive alteration, as well as the fibers of one motor tract. The extensive lesion in the posterior portion of the left hemisphere of Case 3 of the series cited in this paper was more than possibly a gross destructive process of the same nature. Among many clinical evidences is the form of amaurosis which can occur in both uremia and eclampsia in the absence of any evident antemortem or postmortem lesion of the nerve. It has been shown that even the injection of large quantities of common salt solution into the blood may produce the symptoms of uremia.

I have found it equally true that many of the symptoms noted in both uremia and eclampsia resemble pressure symptoms, and can be controlled at once by relieving pressure on the central nervous system. I am led to believe, therefore, that while the toxin theory may provide a partial explanation of the uremic state, there is at times, or perhaps always, another important influence at work in the form of intracranial and probably localized pressure on the psychomotor centers. Among the symptoms that may be ascribed to intracranial pressure are the following, all familiar to the student of uremia and eclampsia alike: Headache (sometimes unilateral), sleepiness, dizziness, nausea and vomiting, neuralgias, tinnitus aurium, coma, convulsions, cyanosis, paresis, paralysis (sometimes hemiplegia), aphasia, loss of control of bladder and intestines, and, most sudden and startling of all, amaurosis.

The following three cases, briefly cited, illustrate partially the "pressure theory" and the results of therapeutics based on the same:

CASE 1.—M. R., a woman of 50 years, was admitted to the Philadelphia Hospital in March, 1904.

Symptoms.—Her feet and legs were edematous, her breath was urinous, control of the sphincters was lost and the patient was semicomatose. The temperature was 97 F. The urine contained 3.2 grams of albumin per liter, and many hyaline and hyalogramular casts. Two days later the temperature rose to 103, the breathing became very labored, and death seemed imminent.

Treatment.—Lumbar puncture was performed, and nearly 12 c.c. of colorless, clear fluid withdrawn from the spinal canal.

1. Uremia, 1891, second edition.

2. Proceedings Path. Soc. Philadelphia, February, 1904

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

The respirations at once became easy, the pulse fell from 110 to 84, and, although the patient was past all help when the puncture was performed, the cerebral relief was evident during the last two hours of her life.

Examination of Fluid.—The spinal fluid was examined by Dr. Rosenberger and was found sterile. Small quantities were injected into guinea-pigs, intraperitoneally, but with no untoward result.

CASE 2.—R. B., a man, about 40 years of age. His mother died of nephritis. The patient had syphilis fifteen years before. Seemed fairly well until two weeks before admission to the Philadelphia Hospital in April last.

Symptoms.—He was then dyspneic and had extensive edema of the feet and legs, and to a lesser degree of the entire body. Just after entering the ward he developed a pulmonary congestion, expectorated traces of blood, etc., and became very dyspneic. This condition decidedly improved during the following two days, in spite of a double valvular cardiac lesion (mitral and aortic). He began to complain of severe headaches, and then gradually developed a uremic condition. At times he was comatose, and again so delirious as to require restraint in bed. The breath was urinous, the feces were at times involuntary, the reflexes almost disappeared, the pupils contracted, and Cheyne-Stokes breathing made its appearance. The urine contained large quantities of albumin and numerous pale granular and hyalogramular casts.

Treatment.—Lumbar puncture was performed. Prior to performing the operation the pulse was 90 and the respiratory rate 33. Fifteen cubic centimeters of clear fluid were drawn, and three hours later the pulse was 50 and the respirations 23.

Result.—Immediately following the puncture the patient began to breathe quietly and more regularly, and a peaceful sleep ensued. The opening into the spinal canal, though covered with compresses, continued to drain and at such a rate as to wet the bedclothes for more than two days. During this time there was a decided general improvement, the patient being conscious and fairly comfortable. He then went into delirium and died during the ensuing night.

Autopsy.—The autopsy in this case showed aortic and mitral insufficiency, atelectasis of the lower left lobe, subacute parenchymatous nephritis and red atrophy of the liver.

The spinal fluid was cultured, and, like that of Case 1, proved sterile. Injections were also made into guinea-pigs, but proved innocuous.

CASE 3.—B. P., a colored clergyman, aged 50. His father died of a malignant tumor. His own early history was negative until two years ago, when he had a "slight stroke of paralysis" (probably a uremic seizure) in the right arm and leg. He was in the hospital three weeks, and then was discharged with the free use of his right side. He had recently had headaches for two months, especially severe during the last week. Eighteen hours prior to admission there was severe vomiting, followed by unconsciousness, from which he could not be aroused.

Symptoms.—On admission he was unconscious, his breathing stertorous, the pupils slightly dilated (later contracted); the pulse rapid and of high tension, his temporal arteries resembling fibrous cords both as the result of sclerotic change and of the tension. The second cardiac sound was loud and metallic, the legs slightly edematous, the breath urinous. He was restless and swallowed fluids with difficulty. The catheter obtained six ounces of pale urine which contained large quantities of albumin, no sugar, many hyalin and hyalogramular casts. There was also incontinence of urine. The respirations assumed the Cheyne-Stokes rhythm soon after admission, to the ward.

Treatment.—The patient on admission received two hot packs, following which all his symptoms were more pronounced. He was thoroughly purged from the start, was bled twice, and received one high enema of magnesium sulphate solution. During his last thirty-six hours his skin was bathed in a profuse perspiration. Nitroglycerin was administered hypodermically during the last twenty-four hours. In short, every reasonable treatment was resorted to except the use of acetone, which I would certainly employ in another similar

case. Lumbar puncture was performed the following morning. The spinal fluid at first spurted out, instead of dropping, as is usually the case. It was clear and soon began to drop, continuing to do so for over an hour. About 25 cubic centimeters were withdrawn. Before the fluid had ceased to flow the Cheyne-Stokes respirations had been replaced by slow, full breathing; the patient was quiet, and on replacing him on his back his attention could easily be attracted by the voice or by the finger moving before his eyes.

The wound in the tissues was allowed to bleed profusely in the hope of further reducing the vascular and systemic tension, and a pint of blood, approximately, was withdrawn in this way.

On the following morning his condition was fairly good, though coma had again set in. Lumbar puncture was again performed, and on this occasion only 10 c.c. dropped slowly into the tube. The same result was noted, however, and following the procedure the patient was partially out of his coma, and the pulse, temperature and respirations soon began to fall. Prior to the puncture he lay stupid, with the left eyelid ptosed, evidently parietic, and with the right eye wide open, but unresponsive to the finger touching the cornea. Following the withdrawal of the fluid both eyelids opened wide and the eyeballs followed the finger. On the third morning the coma was as deep as at any time. Even less fluid was obtained by the third puncture (less than 10 c.c.); it contained blood and dropped with great slowness. There was an even more decided fall of temperature and of the respiratory rate, but the pulse rapidly rose, and the patient died at 9 p. m. on the same evening.

Autopsy.—The autopsy showed a most interesting state of affairs. The heart was of the *cor bovis* type, the wall of the left ventricle measuring 4 cm. in diameter and that of the right ventricle 2 cm. The coronary arteries were sclerosed and lined with yellow patches of atheromatous change. The kidneys showed an extensive chronic diffuse inflammation, the cortex being greatly reduced, and the parenchyma showing many small cicatrices due to fibrous change. The brain was of normal size and presented a large degenerative cyst, mainly of the parietal lobe, but also including a portion both of the temporosphenoidal and occipital lobes, entirely posterior to the fissure of Rolando. The cyst contained a considerable quantity of serous fluid, together with a small clot of dark red blood. The cyst cavity communicated with the posterior horn of the left lateral ventricle, though whether as the result of trauma to the friable and degenerated tissues, sustained in removing the brain, or whether it existed *in vitro*, can not accurately be determined. The right lateral ventricle was also greatly dilated, especially the posterior horn, which contained, when opened, considerable serous fluid. The arteries of the base were brittle and remained gaping and open when incised. This was also a feature of the renal arteries, including the smaller branches within the organ.

From my experience in the foregoing cases, I am, already stated, compelled to pause before accepting Landois' well-known statement that "uremia is the result of the toxic influence of certain substances on the brain," as a complete and satisfactory explanation for the uremic and eclamptic states. This reluctance extends equally to the theories under favorable consideration at the present time, as, for instance, that of Novi dependent on concentration of the blood and cerebral anemia, and that based on the experiments of Weighard with syncytiolysins, and the still more recent and fascinating idea that impairment of the thyroid functions is at the bottom of the eclamptic condition. Any one or all of these conditions may have something to do with the complete and typical picture presented in the uremic state. In fact, I suspect that in certain instances more than one may play a part. Certainly, however, we must reckon with another factor, namely, intracranial pressure, and it may be that further study will show that

this is the most potent of all. In favor of this view we have first, the immediate, although temporary, alleviation of symptoms in each of the three cases reported in this paper, and a less prompt but similar (and permanent) betterment in cases reported by other observers."

In Cases 1 and 2 the improvement could be ascribed to relief from some form of fluid pressure only. Case 3, while more interesting because of the complicating cyst, presents a doubt as to whether the relief was one from local pressure on the psychomotor centers only, or from that pressure exerted by the fluid contained in the cyst cavity. If the cyst did indeed communicate with the left lateral ventricle, as was probably true, the effect of spinal drainage was a double one, and lowered the general and local intracranial pressure at the same time. The previous hemiplegia, so evidently uremic, renders the nature of the second attack more plain than it would otherwise be, even in a subject with so evident a renal disability.

Among the symptoms from which relief was afforded, presumably by the flow of cerebrospinal fluid, were in Case 1 the rapid pulse, the labored respirations and the restlessness; the delirium, coma and dyspnea in Case 2; the coma, ptosis of the eyelid, temperature, pulse, respiratory rate and character (Cheyne-Stokes-type) in Case 3.

So far back as 1850 R. B. Todd⁴ cited a case showing a low delirium, then a paralysis of the arm and leg, coma, and death. At the postmortem examination there was found an effusion of lymph in the "arachnoid sac of the left side, covering the upper and inner surface of the hemisphere to the level of the base, but ceasing there abruptly so that not the smallest particle of lymph was found on the arachnoid of the base. An accumulation of fluid had taken place in a cavity, circumscribed by lymph, on the outer side of the left ventricle, near the position of the fissure of Sylvius. The fluid which had accumulated there compressed the brain on the left side, and formed a complete depression on its surface."

The autopsy findings in Case 3 differed from the foregoing only in the location of the fluid and the surrounding degeneration of the brain substance. There was in both cases the same form of intracranial pressure from fluid, the presence of which was most easily and naturally referable to the cause of the general condition. The only wonder must be that this pressure in Case 3 could be exerted so close to the motor centers, and yet spare the functions of the extremities and the musculature in general. Such cases prove, in any event, that serous fluid may be in excess, either locally or generally, in the cranial cavity, and by its presence may at least assist in causing the uremic picture. No reference is made in this statement, of course, to the serum frequently found between the convolutions in the brains of senile subjects. We know, further, that the uremic state occasionally presents complete paralysis of one portion, or even of the entire half of the body. Case 3 had already exhibited the hemiplegia, and during his last attack there was present a probable paresis of the oculomotor nerve.

In studying these suggestive series of facts, it would appear certain that in drawing the cerebrospinal fluid, with either prompt or delayed, but positive, relief from symptoms which we know may be caused by localized intracranial pressure, we relieve these symptoms by depleting the excess of fluid, whether contained in the

ventricular cavities or in the brain tissue itself, or in spaces made by the fluid for its own accommodation. Gowers⁵ has called attention to the fact that a dog becomes unconscious "when there is a pressure on the surface of the brain equal to a column of mercury 130 mm. high." Moreover, the autopsy frequently shows in cases of uremia and eclampsia an edema of the cerebral tissues. It is easily conceivable from a study of these cases that sometimes the edema may involve the cortex more seriously than other portions of the brain, or even one psychomotor center more positively than another, and thus produce aphasia, paresis or paralysis of the extremities, headache, coma or convulsions. A decrease in the intracranial fluid pressure resulting from the withdrawal of from 20 to 30 c.c. of cerebrospinal fluid, may relieve just such a localized edema and alleviate strictly local symptoms. The evacuation of the normal quantity of cerebrospinal fluid may have the same beneficial effect, when an abnormal quantity or some other cause of intracranial pressure is in evidence. We have seen an effusion form and reform after tapping, and can thus understand the early recurrence of pressure signs in hopeless cases of this nature.

The word hopeless leads me directly to the remark that we must again agree that intracranial pressure is not only the influence at work in the production of the uremic and eclamptic states. Otherwise a case that has been freely purged and still more freely bled, and from which all the obtainable cerebrospinal fluid has been withdrawn, should secure a permanent rather than a temporary relief from serious symptoms and death. The effect of toxic substances could not, of course, be gone away with, even for a time, by lumbar puncture; none the less, symptoms due to pressure only should be more easily and lastingly amenable to treatment. In short, there are too many indications of a toxic influence on and in the system, such as the dry skin, the itching, the hypertension of the vessels, etc., and above all, the results of local applications of chemical substances to the psychomotor centers, as already quoted, for us to ignore the likelihood of a systemic and local intoxication. Thomson claims that at least one particular poison present resembles adrenalin in its action, constricting and increasing the tension in the vessels, and the result of clinical study would seem to bear out his belief. Landois has produced the complete picture of uremia, including coma and convulsions, by applying to the cerebral cortex creatin, creatinin, acid ammonium urate, leucin, sodium chlorid, etc. With the absorption of the substance the attacks grew slighter and slighter, and perfect recovery at times ensued.

Weighard also claims to have produced similar results by the injection of artificially prepared syncytiolysins in blood serum, and in his subjects he found post-mortem typical lesions of uremia and eclampsia, anemic and hemorrhagic liver necroses, thromboses of the small vessels, and cloudy swelling of the renal epithelium. Novi has accomplished almost as much by the injection of a 10 per cent. solution of sodium chlorid, until the blood attained a concentration twice that of the normal.

It is interesting to note that in spite of these facts the injection of the cerebrospinal fluid from uremic subjects into small animals seems to have no deleterious effect.

CONCLUSIONS.

In conclusion, it may be said that we consider:

1. That it is probable there are at work in the

3. McVall: Brit. Med. Jour., 1903, et al.

4. Linnlein lecture, p. 42.

5. 1893, vol. II, p. 102.

cerebrum, as well as throughout the system of uremic subjects, at least one, and probably several toxic substances which exert their influence more or less locally on the cortex.

2. That it is equally certain that other portions of the brain than the cortex are also acted on, as in the production of coma, etc.

3. That no small part in the production of the uremic and eclamptic condition is played by intracranial pressure, due to a temporary excess of fluid, whether acting independently of or in conjunction with the toxic substances already mentioned.

4. That lumbar puncture will at least temporarily relieve certain of the symptoms most readily ascribed to localized intracranial pressure, and that in cases in which the pressure is the main factor, drainage of the spinal canal may save life. The procedure, together with free bleeding, purging and diuresis, should be added to our routine treatment of the condition.

5. That transfusion of normal salt solution by intravenous injection or hypodermoclysis, except in cases presenting anuria, or a greatly diminished urinary secretion, is contra-indicated as tending to increase the liability to saturation of the tissues.

6. That the results of lumbar puncture in the three cases cited in this paper will not warrant the assumption that relief of intraspinal or intracranial pressure can alone be depended on to cure the uremic or eclamptic condition, provided the toxic influence is the prominent one in the particular case.

DISCUSSION.

DR. JAMES TYSON, Philadelphia.—Dr. Willson's paper has given a fair presentation of this long-disputed subject. Pressure has long been held by some authorities to have an influence in the production of eclampsia, chiefly, however, on theoretical grounds. Dr. Willson has adduced some experimental evidence, of the value of which I am not prepared to judge without further study. I am not ready, however, to concede that there is not a toxic agent which plays a certain rôle in producing the phenomena of eclampsia. It has been a great many years since I prepared a paper to prove that puerperal eclampsia is due to a nephritis, the toxic products of which are responsible for the eclamptic symptoms. I think the same reasoning still holds at the present day. We must admit, too, that puerperal eclampsia, in very rare cases, may be a reflex phenomenon, just as convulsions in children may be a reflex event due to such irritation as teething, and the like. Convulsions thus caused usually occur in primipara after long and painful labors.

DR. ALEXANDER LAMBERT, New York City.—Has any fatty degeneration of the liver been noted in these cases? In eclampsia the lesions are identical with those of acute yellow atrophy of the liver. In my experience and also the experience of the staff of the hospital, we have been struck with the fact of the apparent identity of the condition of the liver in uremia and in acute yellow atrophy. Even in the hyperemesis of pregnancy changes will appear in the urine with the development of leucin and tyrosin. There is no doubt that Dr. Willson clearly and carefully drew attention to the fact that the convulsive seizures were due to tension; but what is the cause of this intracranial tension? That is a question probably far behind that of toxemia. It is the same toxemia that kills in acute yellow atrophy. In eclampsia there are two types; that type with high tension, convulsive seizures predominating; the other type with a flat compressible pulse, and these patients die in spite of anything we may do for them. It is not uremic, but something back of the uremia. I have had experiences in which I have found acute yellow atrophy of the liver, and I think perhaps we have failed to recognize the frequency of the occurrence of that disease.

DR. ROBERT N. WILLSON.—The subject is an interesting one.

especially from the fact that many may hold that these patients would have had a better chance of recovery if the procedure had not been carried out. In each of my cases in which lumbar puncture was done the patient died; in each, however, there was an immediate and positive improvement for a time. Vail has reported three cases, all of which recovered, the only treatment being lumbar puncture and rest in bed. Seiffert has also reported successful cases. It therefore seems to me certain that in some cases the dominant influence is pressure due to toxic or other causes. Dr. Lambert has referred to the resemblance between the pathologic findings in eclamptic cases and in acute yellow atrophy. I think there is no question as to the accuracy of his statement. In short, there are cases overwhelmingly toxic, while others appear to be overwhelmingly due to pressure. In the latter lumbar puncture may be a means of saving life.

I will refer to another matter that is rather interesting. Dr. Riesman has called my attention to the fact that all of his fatal cases gave a bloody cerebrospinal fluid. It would appear that when the fluid is clear, the case is much more apt to recover. In one of my own cases the fluid was clear after the first two punctures, but bloody after the third. All of these patients died. Vail mentions the fact that the fluid from his favorable cases was clear. Whenever failure has been experienced in getting into the canal it was due to the use of too short a needle. I now use a four-inch small trochar and cannula, applied through an incision in the skin and subcutaneous tissues. I have never failed to get within the canal if I kept close to the spinous process with the needle point.

AMEBIC DYSENTERY.

ITS LOCAL LESIONS AND TREATMENT.*

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Our views of dysentery have greatly altered since the days when we considered it "inflammation of the bowels" without knowing exactly what we meant by the term inflammation. These changes of views are the result of pathologic studies and are in line with the great changes made in our views of surgical etiology and pathology.

With regard to dysentery they began in the discovery by Losch of the ameba coli, and the association of this germ with the disease by Councilman and Laffeur; for a while after this the profession accepted that ameba coli, afterward called "*Amaba dysenterica*," as the established cause of the disease. In 1894 and 1895 the reports of Shiga, Flexner, Harris and others, seemed to establish the fact that at least in the epidemics of Japan and the Philippines the ameba was not always present, but there was a bacillus of a peculiar type universally present and to this they gave the name *Bacillus dysenteria* and established its etiologic relations to that form of the disease.

After this various efforts were made to establish the unity of dysenteries and to prove that this bacillus was the only cause; that the presence of amebæ in dysentery was accidental. Clinical observations, however, have failed to justify such sweeping conclusions. The best authorities have finally concluded that not only are there cases of pure bacillary dysentery and cases of pure amebic dysentery, but there are also cases at least with the typical symptoms of dysentery in which neither the bacillus nor the ameba can be found. We therefore recognize these three types: simple catarrhal dysentery, bacillie dysentery and amebic dysentery.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

It is to this last form of the disease that I wish to direct attention. What I have to say is based on personal experiences of seventy-four cases of amebic dysentery, together with what knowledge I may have gained from reading. In every case observed, with the exception of one, the diagnosis has been made on the finding of living motile *Amœba dysenteria* in the stools or scrapings. To some it has seemed a presumption to look on the amœbæ as the cause of ulcers and dysentery, but the fact that they are present with other pathogenic agents in all cases, and the fact that the dysenteric symptoms and local lesions disappear only when the amœbæ have been eradicated and recur when the amœbæ reappear is positive proof, it seems to me, of their etiologic influence in this disease. I, therefore, assume that amebic dysentery has been proved and we may proceed to consider its cause, its symptoms, its local lesions and its treatment.

ETIOLOGY.

The cause of the disease is the infection or invasion of the colon by *Amœba dysenteria*. These amœbæ consist of irregular oval masses of plasmodium, gelatinous in their appearance, scarcely visible when not moving, containing in their beds certain granular masses or vacuoles and appearing to be more or less refractile. They may be found in the mucus which is discharged in the stools, as well as in the scrapings from the ulcers in the rectum and sigmoid. Their source is unknown, nor is there any accepted theory with regard to it. The behavior of amœbæ found in dysentery differs greatly from that of those found in fresh water, when exposed to heat or cold; it is this point alone that positively distinguishes the two. The latter remain motile at high and low degrees while the former are viable only at temperatures near that of the human body. Some have claimed that there was a difference in size, but my observation does not justify such an opinion, as the size of the amœbæ varies greatly in different cases and even in the same case.

METHOD OF REPRODUCTION.

As to the method of production: It was formerly supposed that amœbæ multiplied by binary division, after the manner of leucocytes in the blood. According to Craig of the United States Army, Dofflein and others, it is now claimed this reproduction occurs through ovulation and sporulation; the spots in the amœbæ which stain deep blue with Wright's solution represent spores, and those which stain very faintly the vacuoles from which spores have been discharged. There is one point in Craig's experiments in which an assumption is necessary, viz., that the bodies observed stained are the same as those observed in the living state before the staining, for it is impossible to stain and preserve the amœbæ motile. In fact, one can hardly positively distinguish non-motile amœbæ from other substances in the stools. If, however, this assumption is admitted, the method of reproduction by sporulation would seem fairly well established, and it is confirmed by the clinical experience of recurrences long after the motile amœbæ have entirely disappeared from the stools.

TEMPERATURE AND OTHER CONDITIONS AFFECTING THE AMEBÆ.

The fact that we have been unable to isolate or obtain a pure culture of this amœba renders its study more difficult than that of ordinary pathogenic agents. Its behavior, however, under certain circumstances has been observed clinically, and from this we may formulate some of its characteristics. At the temperature of the body, or slightly higher, the life of the amœba is indefin-

ite; if, however, the temperature of the vessel in which it is obtained gets below that of 70 degrees F., the motility and life of the amœba become extinct and no amount of heat will restore the same.

Bichlorid of mercury 1-10,000, at the temperature of the body, checks the motility but does not destroy it except after very prolonged contact. Rogers states that a solution of quinin 1-1,000, at the temperature of the body, failed to destroy the amœbæ after several hours' contact, but that a 1-500 solution stopped all movements in from five to fifteen minutes; when the amœbæ were in the tissues, however, they were only destroyed by prolonged soaking in 1-500 or 1-100 solution of quinin. Saline solutions at the temperature of the body will not destroy the motility. According to Harris of Atlanta, peroxid of hydrogen is fatal to the germ. He does not state, however, whether this fluid was used cold or warm. Five per cent. of the 15 volume peroxid of hydrogen in water, however, does not seem to destroy the amœbæ at a temperature of the body. Nitrate of silver in 1 per cent. solution checks the motility but does not seem to destroy the germ. All these solutions, however, when used at a temperature below 70 degrees, are fatal to the motility and life of the amœbæ. In at least twelve of the cases which have been under my care the stools had been examined in vain for amœbæ before they came to me. In every instance the failure to find the bodies has been due to the fact that the stools were examined after they had cooled off. In order to recognize the amœbæ with any certainty the examination must be made while the stools are still warm and on warm slides. In my office these examinations are made from scrapings obtained from ulcers in the rectum and from the mucus collected on the rectal wall. These are placed at once on warm slides, put under a microscope and slightly heated now and then in order to maintain the temperature at about 98 degrees F. In the hospital or laboratory the stools are collected in warm pans, transferred immediately to the oven of the laboratory and kept there until an examination can be made at the temperature of the human body. These precautions are absolutely necessary to make an accurate diagnosis.

CHARACTERISTICS OF THE DISEASE.

Amebic dysentery is characterized by an insidious onset, variable but usually mild constitutional symptoms, frequent recurrences, extreme chronicity and latent existence. It may begin as an acute diarrhea, with blood and mucus in the stools and burning in the rectum, or it may come on as a simple looseness of the bowels, some of the stools being practically normal while others are thin and contain much mucus, with or without blood, and causing little or no pain. The acute cases are associated with burning in the rectum and frequent desire to defecate, loss of appetite, and slight elevation of temperature. The stools may be very frequent; the demand to defecate is imperative, but they are not associated with tormina nor excessive burning in the rectum. In most instances castor oil or salines, followed by moderate doses of opium and bismuth, control the disease for the time being. In two instances in the series of cases observed periods of quiescence lasting for six months in one and four months in the other have been observed. We must make some allowances with regard to the statements of these patients regarding these periods of absolute quiescence, for they are only periods of comparative activity of the amœbæ. In a few instances the patients have actually become constipated during these periods, but such cases are exceptionally rare. In al-

most every instance the patients have reported periods of feeling greatly improved at times, but when we have carefully pinned them down to the facts these patients have considered themselves practically well when they were having two to four mucous stools a day without any pain.

LATENT DYSENTERY.

By latent dysentery we refer to the condition in which *Amoeba dysenteria* are present in the intestine, without the diarrheal symptoms or the local manifestations in the form of rectal and sigmoidal ulcers. Rogers has established this fact, and I have myself observed four cases in which there was no diarrhea and yet there was amebic colitis with malaise, loss of flesh and strength and moderate temperature at night. One of these cases suffered from abscess of the liver, which recurred from time to time and which was operated on twice in five years. He could not recall ever having had a diarrhea. He was referred to me with the view of discovering some cause for these recurring abscesses of the liver in possible ulcers in the rectum and infection from these through the portal circulation. No ulcers were found in the rectum, but certain small cicatrices and some fetid mucus suggested a careful examination of the stools; these we found swarming with *Amoeba dysenteria*. Two other cases with tenderness over the caecum coli, loss of appetite and gradual decline in weight, mucous colitis but no diarrhea, have been observed, in each of which the stools contained *Amoeba dysenteria* in abundance. In one of these cases amebic ulcers were found in the rectum, and in the other two small ulcers were observed in the sigmoid. The fact, therefore, that the patient does not have frequent, bloody, mucous stools does not prove that he is absolutely free from *Amoeba dysenteria*. From cases recently observed, I am inclined to believe that no inconsiderable number of the sufferers from mucous colitis are the victims of amebic infection notwithstanding the absence of diarrhea.

GEOGRAPHICAL DISTRIBUTION OF THE DISEASE.

The locations in which amebic dysentery is likely to be found are worthy of consideration. Formerly the disease was called "tropical dysentery" under the false impression that it was only found in the tropical zones. While it is a fact that it is more frequently found in warm climates, yet it is well known that it may also occur in almost any climate. I have seen three cases of acute amebic dysentery in patients who have never been more than fifty miles south of New York and fifteen cases in which the patients have always resided above the thirty-seventh degree of latitude. The majority of the seventy-four cases observed, however, have contracted the disease in the Philippines, the West Indies and the extreme southern portions of the United States. The possibility of amebic dysentery can not, therefore, be eliminated on account of the patient's residence. The disease is nearly always sporadic even in the tropical zones, and may thus be distinguished clinically from bacillary dysentery, which is generally epidemic.

LOCAL LESIONS OF AMEBIC DYSENTERY.

The local lesions occurring in amebic dysentery differ in the acute and chronic forms. The disease is practically confined to the colon, although there are instances in which the small intestine has been involved for a short distance above the ileocecal valve. In some cases the disease begins in the rectum and travels upward, while in others it follows the reverse course. Rogers

and Fletcher state that the typical cases of infection begin in the caecum coli and travel down. At all events the rectum and sigmoid flexure become involved sooner or later in almost every case. In the three acute cases observed the mucous membrane at the anus was pouting, bright red and swollen, the radial folds were edematous and painful; the walls of the rectum were in close apposition with each other, hot and tender to the touch, bright red in appearance and in one case there were several patches of pseudo-membrane. At this stage of the disease no actual ulcerations were observed, but later on these developed. These ulcers were irregularly oval in shape with gelatinous, yellowish, elevated centers, surrounded by bright red or purplish zones. They are usually superficial and heal rapidly under local treatment.

In the chronic form the ulcers begin as small red papules on the mucous membrane, rapidly becoming more and more prominent until a yellow spot develops in the center, due to the loss of epithelium, and this constitutes the center of the ulcer. I have frequently seen these in chronic cases of amebic dysentery, but did not observe them in either of the acute cases examined. The ulcers are usually situated on the summits of the mucous folds; a favorite site is on the folds of Houston. The size and shape of the ulcers vary greatly; some are small and irregularly oval, while others occupy almost the entire circumference of the gut. The long axis of the ulcer is usually at right angles with the long axis of the gut.

In very chronic cases the ulcers sometimes assume the form of little troughs cut out of mucous membrane with overhanging edges which resemble very much worm-holes in wood. These trough-like ulcers sometimes cross one another, forming stellate ulcers. In this type of ulcer the base is hard and quite red and may extend through the muscular layer to the peritoneal layer, causing adhesions. The yellow gelatinous mass which forms the center of the ulcers is composed of submucosa infiltrated with *Amoeba dysenteria*. Strange as it may seem, the amebae are more abundantly found in the smaller ulcerations than in the large. In some cases large sloughs composed of detached shreds of mucous membrane are seen at the site of the ulcer or in the stools. Rogers has pointed out that these cases are generally associated with abscess of the liver which contain streptococci in addition to amebae, thus showing a mixed infection. As pointed out by him, the odor in these cases is gangrenous and fetid, which is entirely unlike that found in amebic dysentery. One might here call attention to the peculiar odor of the stools in amebic dysentery, which is entirely different from that observed in other types of colitis. As the ulcers heal the yellow centers melt away, assume a grayish tint and gradually disappear, leaving a clean granular base more or less indurated; the small ulcers heal rapidly and all evidence of their having been present is lost; the larger ones, however, and the trough-shaped variety leave cicatrices which have been known to result in strictures of the gut.

DISTRIBUTION OF THE LESIONS.

While all writers agree with the general statement that amebic dysentery is practically confined to the colon, there is considerable difference between them in regard to the portion of this organ most frequently affected. Fletcher and Rogers state that the caecum, appendix, hepatic flexure and ascending colon are the chief sites of the lesions. In 116 cases Fletcher rarely, if ever, found the lesions in the rectum and sigmoid. These

statements are entirely at variance with my experience, as well as that of Strong, Leonard, Craig and others. In the seventy-four cases of amebic dysentery observed by me, typical ulcers of the rectum and sigmoid were found in seventy instances. In every case except one the character of the lesions was proved by the demonstration of living motile amebæ in the stools and scrapings from the ulcers. Fitcher himself, although he claims that the chief seat of the disease is in the cecum, bases his diagnosis on the finding of *Amaba dysenteria* in scrapings from the rectal wall.

Why these experiences should differ it is impossible to say unless it be due to the fact that my observations have all been made, with one exception, on living subjects, while those of the authors quoted were made postmortem. The one patient who died while under my care from acute miliary tuberculosis showed dysenteric ulcers in the caput coli and in the ileum just above the ileocecal valve. It is possible, of course, that the other cases had ulcers so high up in the intestinal canal that it was impossible to observe them through the sigmoidoscope. In the majority of instances, however, the ulcers appeared to decrease in size and number from the rectum upward until they disappeared entirely in the upper portion of the sigmoid flexure, and as the patients entirely recovered under local treatment, it is reasonable to suppose that all the ulcers were reached. There is no doubt, therefore, in my mind that the rectum and sigmoid flexure are involved in a large percentage of chronic cases.

DIAGNOSIS.

The diagnosis of amebic dysentery rests on finding in the stools or in the scrapings, living motile *Amaba dysenteria*. Sometimes it requires several examinations before their presence can be established, but when once seen, in any considerable numbers along with the typical ulcers, the character of the disease is beyond doubt. This diagnosis will be more positive if the amebæ are observed in the scrapings from the ulcers, rather than in the stools, for it is known that *Amaba coli* may be present in the intestinal canals of perfectly healthy individuals. The simple presence, therefore, of one or two amebæ is not sufficient, without the ulcers and typical symptoms, to justify the diagnosis of true amebic dysentery.

COMPLICATIONS.

The complications of amebic dysentery are physical exhaustion, anemia, autointoxication, peritoneal adhesions and abscess of the liver. The first two are not uniformly present; patients may suffer from the disease for a long time without emaciation or any great loss of strength. Some cases, however, become rapidly emaciated; the hemoglobin is greatly reduced and they are practically bedridden early in the disease. In all instances the patients have a feeling of lassitude and are just a little below par in strength. The color is usually sodden rather than pale, and there is often the hectic flush on the cheeks which suggests the possibility of tuberculosis.

These conditions are due to the autointoxication and drain on the system brought about by the presence of amebic ulcers in the intestine. When the ulcers have healed and the intestine is restored to its normal conditions, these symptoms rapidly disappear.

Abscess of the liver is the one complication which commands our highest respect and demands the most rapid eradication of the amebæ. It is not my purpose to discuss here how these organisms reach the liver, whether

through the portal circulation or across the peritoneal cavity; the fact remains that the large majority of cases of abscess of the liver are due to infection by *Amaba dysenteria*, and these have their habitat in the colon.

As Rogers states, no case of amebic abscess of the liver has ever been observed in which there were not present amebic ulcers in the colon. This fact justifies the statement that wherever the patient has symptoms of abscess of the liver or has suffered from it, he should be treated for amebic dysentery whether amebæ are found in the stools or not. The fact that they are not found at the time of examination does not prove that the spores are not buried in the submucosa, lying dormant and ready to reproduce the disease at any time.

TREATMENT.

The treatment of amebic dysentery is based on two facts which have already been mentioned, viz.: The disease is due to an infection of the colon by *Amaba dysenteria*, and the seat of the infection is in the crypts of the mucous membrane or in the submucosa. Whether the original infection is due to the burying of the amebæ themselves in these tissues or to the deposit of the spores it is impossible to state. From recent observations I am of the impression that the latter is more probable, but this is not important from a practical point of view. Our efforts should be directed toward getting rid of them and preventing their reproduction. In the beginning we may observe that there are usually no serious constitutional manifestations in this disease except when these are due to complications such as have been mentioned.

There is, therefore, no indication for serum therapy, as the disease is not in the blood and can not be reached through that channel. The whole treatment should be directed toward the local lesions, the destruction of the amebæ and the prevention of their development from the spores, and as these are buried in the tissues, it is evident that it will be impossible to destroy them by superficial washing or flushing of the intestinal canal, although this treatment is important and should be made use of to get rid of all the germs floating about in the colon. It is clear, however, that something should be employed by which the tissues may be penetrated and the germs or spores destroyed in order to completely eradicate the disease. While the remedies mentioned, bichlorid of mercury, nitrate of silver, saline solution, solutions of quinin, peroxid of hydrogen, etc., may be germicidal to the ameba when brought in direct contact with it, it is perfectly clear that none of these remedies will penetrate the submucosa.

This fact explains why so many cases treated by these remedies recur. The ideal treatment must, therefore, consist of some method by which these buried organisms can be reached and destroyed *in situ*. Early in our studies of *Amaba dysenteria* it was discovered that when the specimen stools on the slides on which they were being examined cooled off below a temperature of about 70 degrees F. the motility of the amebæ was lost and could not be restored; this fact suggested that if the temperature of the parts containing these organisms could be reduced considerably below this degree the amebæ could be destroyed and their infecting and reproductive powers would be eliminated. The application of cold to the intestinal mucous membrane through prolonged douches seemed to offer a solution of the question. At first such remedies as krameria, ichthyol, bichlorid of mercury and nitrate of silver were introduced into the cold douches, but one after another

was discarded, as it was found that simple cold water served every purpose in destroying the amebæ.

When the bowel is tolerant of hydrogen peroxid 5 to 10 per cent. of this remedy is introduced into the water on account of its beneficial effect to the ulcers and to combat any mixed infections that may happen to be present.

In some patients it is necessary to use a long rectal tube in order to get the fluid high up in the colon, but in the majority of cases the simple rectal tip of a fountain syringe is sufficient. The patient is placed in the knee-chest posture, the bag or fountain being elevated not more than three feet above the level of the hips and the fluid is allowed to run in slowly. The amount of water used is limited only by the tolerance of the patient. Some take only a small quantity at first, but they soon learn to take even two or three quarts. Some can retain the water for only a few minutes, while others retain it for three-quarters of an hour. In the former class it is necessary to repeat the injections two or three times at each sitting in order to obtain the desired effect. The treatment is always begun by the administration of a large dose of sulphate of magnesium, and this is repeated once or twice every week, according to the necessity of the case. The time consumed in ridding the bowel of the amebæ depends entirely on the tolerance of the intestine to cold water. In those cases in which large amounts of very cold water can be retained the organisms disappear in a very short time, while in those who can only retain small quantities for short periods several weeks are required.

In the chronic cases, where there is tenderness over the cecum and hepatic flexures, an icebag is applied over this region for two hours twice a day.

A metal or glass reservoir is better than a fountain syringe for the injections because those vessels can be filled with cracked ice and the water kept very cold. The best results have been obtained in these cases in which the temperature of the water used was below 45 degrees F.

Local ulcers of the rectum and sigmoid are treated by applications of antiosin, argyrol and other astringent and antiseptic substances. This local treatment is of the utmost importance and should never be neglected, as many of these ulcers are complicated by a mixed infection.

Internal medication is indicated where the digestion is impaired or where the patient needs stimulation on account of exhaustion. In three instances the disease has been seated so high up in the colon and the patients have been so intolerant of cold water that it was impossible to reach the affected region in this manner and it became necessary to resort to surgical means in order to eradicate the amebæ. In one instance the Gibson method of valvular colostomy was employed; in the other two the appendix was drawn up into the abdominal opening and sutured to the skin, after the method of Weir, until the peritoneal cavity had closed off; it was then amputated close to its base and there was thus left an opening through which a catheter could be introduced for irrigating the colon. In two of these cases the improvement was rapid and recovery complete. In the third case the patient developed miliary tuberculosis and died at the end of three weeks, the regular treatment having never been instituted. This case showed typical amebic ulcers above the ileocecal valve, thus indicating the possible advisability of making the opening in the ileum instead of the colon in such cases. At the same

time recognizing the fact that the appendix may be the seat of amebic infection, it would be wise to remove this organ in all operative cases.

In seventy-three cases treated by these methods the results have been seventy cures, one death, one abscess of the liver, which eventually recovered, and one case improved but not cured, the patient being necessarily called to Europe after two weeks' treatment. In five cases there were at times marked tenderness over the hepatic region and considerable rise in temperature, but these symptoms rapidly subsided with more frequent douching and the application of icebags over the caput coli and the hepatic region.

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DISCUSSION.

DR. FENTON B. TURCK, Chicago—Dr. Tuttle called attention to the futile efforts to destroy the plasmodium; it is very interesting to see the efforts made to destroy them in some other way. It has been my experience that solutions have but little effect, and those that did had an effect on the circulation through the hyperemia that was produced by the drugs used. I have had a large experience in treating such infected cases while in the Army. In the treatment I have tried oil, but the oil method has not been successful. It has shown some effect in that it produced a better physiologic activity in the colon. Oil may become a powerful irritant and so excite a hyperemia of the mucosa and thus produce some effect on the plasmodium. The method I now use is hot water. At the Pan-American Congress in 1895-96 I presented a contribution on the good effects of ice water, using hot water first. I found that if I used cold water first there was danger of collapse in weak patients. Therefore I have found more benefit from using a high temperature. A temperature of 115 F. is not sufficient to produce any effect on the microorganisms; one should use a temperature of from 122 to 131 F. This can be done by gradually raising the temperature, starting with a temperature of 105 F. This heat has a very beneficial effect, seems to destroy the plasmodium, and after every treatment the amebæ disappear. Then followed the use of ice water, and the effects produced are much better than if ice water be used alone. In very weak patients the effect of the heat followed by the ice is very beneficial.

In regard to this operation I have never experienced any difficulty in reaching the caput coli. The patient should be placed on an inclined plane and the tube should be introduced into the sigmoid and water run into the colon, let out again, reintroduced, and so on can done the entire colon. When bismuth is used the x-ray will demonstrate the bismuth as high up as the transverse colon. There is no difficulty in the return of the water. Introduce a little air with the water; this increases the peristalsis and the fluid goes on. The vital condition of the patient should not be overlooked.

DR. A. W. WARREN, Weehawken, N. J.—The most successful experience I formerly had in the treatment of these cases of dysentery was by the use of ipecac or quinin, but recently I have used a remedy that I consider better. This drug is *Chaparro amargoso*, which to adults may be given in doses of from 2 to 4 grains of the extract or of 30 to 60 minims of the fluid extract every two hours during the day. In dysentery *Chaparro amargoso* seems to have a specific action by altering the secretions of the bowel in destroying the protozoa and in nullifying their power. It is also tonic, antiperiodic and astringent. *Chaparro amargoso* is also of value in the treatment of enterocolitis or summer diarrhæa of children, used in solution either alone or combined with opium.

DR. PHILIP MARVEL, Atlantic City—One year ago in conversation with Dr. Tuttle about such a case he advised me to use ice water. I had been using different remedies, such as quinin, carbolic acid, nitrate of silver, argyrol, peroxid of hydrogen, and others, with little or no effect in controlling the ulcerations. At Dr. Tuttle's suggestion, I tried ice water,

and much to my satisfaction, the patient grew steadily better. It was my privilege to see her one week ago, and she was in very good condition. I should like to ask Dr. Tuttle if he has observed contractures or strictures after the water treatment. I do not know whether the stricture in my case is due to the disease or to the topical applications made by me prior to the time of beginning the ice water treatment. The patient I refer to is now perfectly well except for a contracture in the rectum. Previously, Tuttle's proctoscope could be used, i. e. passed without pain, but now this is impossible; the stricture will only admit a medium large size old style Kelly's cystoscope.

Dr. SAMUEL S. GANT, New York—Was not Dr. Weir the first to suggest this opening of the appendix and using it for irrigating the colon?

Dr. WILLIAM KRAUSS, Memphis, Tenn.—In reference to the diagnosis of amebic dysentery, I think I am right in stating that I never made a diagnosis unless my microscope and the patient were in the room together. I have never been able to revive a motionless ameba. The mucus from the discharge or swabbing should be transferred quickly to a warm slide. I have tried Dr. Tuttle's suggestion of cold water and with success. Water can not be used hot enough to injure the parasite.

Dr. TUTTLE—As stated in the paper it was Dr. Weir who first suggested making use of the appendix for this purpose. I modified Dr. Weir's operation by drawing out the appendix and absolutely getting rid of it, at the same time obtaining access to the seat of the amebic infection. I omitted to speak of the mixed infections associated with dysentery of this type. I also wished to speak of the importance of the local treatment of ulcerations down in the rectum and in the sigmoid, when using cold water irrigations; and of hot water for improving the circulation. There are certain cases in which the ulcers become infected with a secondary infection, and they must be treated individually by local applications of tincture of iodine, etc. With regard to ipecac and quinin, how can they affect the buried amebæ? The amebæ are not in the blood, but in the submucosa. The only way to reach them in this position is by the use of low temperatures. Dr. Morton of New York has recently reported a case in which the diagnosis of amebic dysentery was made and the case was treated by him by radiized quinin, and he claims the patient is well. Operation is to be resorted to only when all other methods of cure have failed. I do not believe it is a dangerous operation; it is certainly not more dangerous than leaving the amebæ to progress to a chronic state, with its dangerous complications. There is little danger in pulling up the appendix and holding it there until adhesions form and shut off the peritoneal cavity, and then amputating it.

THE PATHOLOGY AND ETIOLOGY OF ARTHRITIS DEFORMANS.*

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In discussing this subject there are two courses open; one is to go over the various theories and ideas that have been put forth, the other is to dispense with tradition so far as we can and state as closely as possible the condition of our knowledge in regard to this subject to-day. It is perhaps well to state frankly that we are more likely to outline our ignorance than to state our knowledge, but we can at any rate determine the lines in which investigation is most likely to be profitable, because I take it that no one would be likely to say to-day that we had

anything very firmly established in regard to the subject of this paper.

Through bacteriologic work we have been able to limit certain forms of arthritis definitely. It would seem best to restrict the term "infective arthritis" to those forms in which we have a distinct causal agent proved. The form associated with the tubercle bacillus, gonococcus, pneumococcus, etc., belong to this group. Recent work suggests that acute articular rheumatism will before long be added to these. In regard to arthritis deformans, the evidence is as yet not positive, but very suggestive.

GENERAL CONSIDERATIONS.

Almost every point that one can raise in regard to this disease is a disputed one. The more important ones seem to me as follows:

1. Have we under this term one disease with many different manifestations, or have we included two, perhaps more, totally distinct diseases?

The decision in regard to this point is, of course, essential before one can get to any satisfactory conclusion as to the etiology or pathology, and I trust the discussion may clear up some of the points in regard to it. As has been frequently pointed out, there are certainly varying types of the disease. Some observers have distinguished these as the rheumatoid or atrophic type, and the osteoarthritic or hypertrophic type. In the former the disease may occur at any age from 2 to 70 years; the arthritis is usually polyarticular, may come on with great suddenness and recur perhaps at long intervals, or it may be a slow, progressive process. In this type the changes are more especially atrophic and often especially periarticular. As has been shown by Goldthwait, there is much increased excretion of calcium salts. In the second or osteoarthritic group there is in some ways a rather different picture; the classical description of the older writers, which laid special stress on the production of osteophytic growth, applies especially to these. These groups will be considered more in detail later.

2. The question of relationship of arthritis deformans to acute rheumatism. Of course, it is quite possible that a patient may have acute articular rheumatism and years afterward arthritis deformans, but I believe this is the only association between the two diseases, and that arthritis deformans has nothing whatever to do with acute articular rheumatism. Much of the confusion has been due to the mistake of considering attacks of arthritis deformans as acute articular rheumatism. Of course, this opinion is contrary to that of many of the authorities on the disease.

3. The question as to the essential etiologic factor, which we have to discuss under three heads: (a) A neural cause; (b) infection, with a definite specific organism; (c) infection, with various organisms.

One point has to be strongly kept in mind, that although the early and late conditions are quite different both clinically and pathologically, nearly all the older descriptions of the disease are based on the late changes, and no account is taken of the early ones. This has resulted in the process being commonly regarded as a degenerative one only. It would be as reasonable to base all our views as to the pathology of chronic nephritis on the conditions found in a much contracted kidney, ignoring the early stages.

Arthritis deformans appears under very different conditions and in varying forms; coming on in the first decade of life, it differs very much from the form seen in adult life. In one it may be very acute, advancing rapidly to extreme deformity and destruction of the joints.

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

or it may be exceedingly chronic and remain quiescent for a long period of time. Does this necessarily imply the existence of distinct diseases? A comparison with tuberculosis should suggest caution in passing any such judgment. Consider the varying manifestations of tuberculosis at different ages. Our knowledge of tuberculosis not so long ago was about as chaotic as of arthritis deformans to-day, and before the discovery of the tubercle bacillus it probably seemed about as hopeless to satisfactorily explain all the conditions as it is to-day in regard to arthritis deformans.

There are some points of the clinical aspect of the disease that may be noted here. One is that the more carefully the histories of the cases are studied the stronger is the impression that in the great majority there have been acute features at some time or other. It may have been many years before. This is true of both types of the disease. The man with bony deposits in the spine may have acute recurring attacks exactly as in the polyarticular form, which may begin with symptoms suggesting acute articular rheumatism. Changes in the early stages we have had comparatively little chance to study pathologically. It is to be hoped that no opportunities for autopsies on early cases will be lost. These are most likely to occur in persons who have died of accident or of some other disease.

There is one point to which I should like to draw special attention, namely, that the changes in arthritis deformans are not necessarily progressive. We have been too apt to regard the condition as going on to marked degeneration and destruction, but I believe the more carefully the disease is studied the more instances we will find of patients in whom it is to all intents and purposes cured. There is a certain amount of damage left in the joints, but this is comparatively slight and gives no great disability. This, of course, corresponds in general to our ideas of infectious disease. We have types from the very mild to the very severe. Take, for example, the varying types of virulence of gonorrhoeal arthritis—in one case slight and of no very great severity, and another going on to almost complete destruction of the joint, but the average case with a tendency to chronicity and the establishment of more or less change. Have we not practically a parallel condition in arthritis deformans?

PATHOLOGIC ANATOMY.

It is convenient in some ways in discussing this to take up the features of the two main types of the disease separately. An important matter to settle is the association of these two conditions. That they occur together in the same patient I think there can be no doubt, and this is evident both from clinical evidence and from the radiographs. It is, however, more convenient to consider them separately, and the terms atrophic and hypertrophic are convenient to use. This is convenient for description, whether they be considered as varying types or distinct diseases.

The Atrophic Type.—This, which is often termed "rheumatoid," corresponds in the majority of cases to the polyarticular type. The pathologic changes seem to follow a fairly definite course. The first structure to show a change is apparently the synovial membrane. If the joint be opened in an early case the capsule is usually found to be redder than normal; the surface may have a velvet appearance, or perhaps be covered by dark red material, much like granulation tissue. This granulation-like material in certain situations apparently replaces the synovial membrane and creeps over the sur-

face of the cartilage; in the carpus this process may advance to great destruction of interosseous structures. As the process continues the synovial membrane usually becomes thickened; various changes may occur, especially in the line of proliferation, the fringes becoming larger and at times showing the so-called villous arthritis. These fringes may become detached and form foreign bodies in the joint. These in some instances may even become calcified.

That there is any definite histologic picture which is characteristic of the changes in the synovial membrane in this disease does not seem likely. The condition seems to be much alike in the various more or less chronic inflammations of the joints. In the earlier acute stages the membrane shows infiltration of a very large number of mononuclear cells, often collected irregularly, and these sometimes, when on the surface of the membrane, may lead to the naked-eye diagnosis of tubercle. In the later more chronic stages these cells become less numerous, there is considerably more fibrous tissue, and the small arteries show obliterating endarteritis. The same condition can, however, be seen in other joint inflammations and is not peculiar to arthritis deformans. It is quite probable that in certain cases there may be no further change than that mentioned in the capsule and a fair degree of recovery take place.

In many instances, however, after the changes in the synovial membrane, the cartilage is attacked. The first change in the cartilage is usually erosion, and this, as in the case reported by Dr. Hale White,¹ seemed to be determined by the condition of the synovial membrane near it. Pressure of the synovial fringes seems to determine the perforation of the cartilage. The amount of destruction of the cartilage varies greatly. It may be comparatively slight, and is often very irregular in extent. With this there may be very little damage to the bone, although the skiagraphs in some cases suggest that there is very frequently atrophy of the bone in the neighborhood of the joint. The bone may, however, show foci of inflammation, and in these areas there is comparative absence of fat cells.

The fluid found in the joints is usually somewhat turbid; the cells found do not seem to have any special significance. With these changes in the joint itself the structures about it are also involved. There is inflammation and infiltration of the periarticular structures. These become adherent to the synovial membrane, and there may be considerable swelling. Ankylosis proper of the joint rarely results. The subsequent course varies very greatly. The process may cease to advance, absorption gradually occur, and the joint left little damaged, but more susceptible to injury on subsequent attacks. Or, on the contrary, it may go on to almost complete destruction and be useless for further function. With this, of course, other conditions are associated—muscular atrophy, contractures and luxation of the joint. In some instances the joint cavity may become practically obliterated.

What explanation can be given for such conditions? When we consider the many changes found in infective joint disease, such varying results seem perfectly possible as the effect of a specific bacterial infection. The action of toxins may be suggested, but as to this we know little. That they may influence the production of an arthritis is suggested by the cases following the injection of diptheria antitoxin.

It is possible that various septic conditions may be

1. Guy's Hospital Reports, vol. livi.

causal; at any rate, the influence of intercurrent septic infections in this disease is well known. Thus in a recent case, an acute outbreak with lighting up of fresh joints seemed definitely associated with an obstinate ulcer of the arm which involved the elbow joint. Attacks of cystitis and dysentery or an influenza may cause the recurrence of the previous disease. We see in the osteoarthropathy associated with bronchiectasis a condition which may have some bearing on this matter.

A difficult question to answer is as to the possibility of overgrowth of bone following on the changes which we have mentioned. Can hypertrophic bone changes, as we see shown in the so-called "osteoarthritic" type, occur with, or secondary to, these changes of the atrophic type? If this occurs, the identity of the two types is proved. The majority of the descriptions of the disease consider this to be the ordinary course, but recently some doubt has been cast on this opinion. I know of no definite pathologic reports which will settle the matter.

The Hypertrophic Type.—Here one of the prominent features is the bony outgrowth. The majority of the classical descriptions of the disease refer to this condition. The cartilage as a rule shows very marked involvement, with erosion and atrophy of the joint surface, while proliferation is occurring around the edges. This outgrowth of cartilage may become converted into bone, often very irregularly. Bannatyne states that as a rule these outgrowths have a covering of cartilage. We are all familiar with the appearance of the bones from this type of disease, although characteristic instances probably are seen clinically very much less frequently than those of the other type. In the joints of the limbs there may be changes in the bones, but in the spine the bone may be little affected. Some cases of this type may be very acute.

There are certain manifestations of the disease which deserve special mention. These are: 1. The conditions in the spine; 2. the monarticular type; 3. the so-called Still's disease.

Arthritis Deformans in the Spine.—We may have either type of the disease occurring in the vertebrae. Some involvement of the cervical region is very common in the atrophic type. This, however, rarely results in very marked permanent change. The frequency of the atrophic type in the lower spine is difficult to determine. Where we have definite bony outgrowth and ankylosis the process would seem to be of the hypertrophic type. The pathologic changes consist especially in the deposit of new bone. This occurs in very different positions. The intervertebral discs may be converted into bone, so that we have really a solid bony column, or the deposit may be largely in the ligaments, or, more uncommonly, there may be associated bony ankylosis of some of the smaller joints. These are very variable in position and extent; the bony deposit is very rarely symmetrical on the two sides. It may be on one side alone, or slight on one side and very marked on the other. The anterior ligaments may be ossified for a considerable distance and perhaps only one intervertebral articulation.

This irregularity of bony deposit is very striking when one examines a number of specimens, and is comparable to the irregular conditions found in the peripheral joints. The usual description given is that the condition begins in the articulations and extends to the ligaments, but signs of involvement of the joints do not seem to be nearly so common in museum specimens as the deposits in the ligaments.

These changes in the spine may occur alone, but are

frequently found associated with changes in the peripheral joints, and these of both types. This seems a strong argument for the unity of the disease. Two distinct diseases may coexist, but is such frequent coexistence probable? The cases showing definite bony outgrowths in the spine and the atrophic type of change in the peripheral joints are by no means rare. One association of special interest is that of the spinal type, with the so-called monarticular form as seen in the shoulder or hip joint. These latter, especially in the shoulder joint, are often very definitely atrophic.

There is much confusion regarding these spinal forms. We have the terms "Die chronische Steifigkeit der Wirbelsäule" (Bechterew), "Die chronische ankylosierende Entzündung der Wirbelsäule" (Strümpell) and "Spondylose rhizomélitique" (Marie), which probably are all designations for the same condition. This seems to be arthritis deformans of the spine. The varying types described depend on the condition and especially on the amount of involvement of the large peripheral joints. Bechterew, laying special stress on the associated conditions beginning with pain, sensory changes, muscular wasting, contractures, etc., regards the process as arising primarily in the nervous system. Marie, in the description of his type, insists on the condition of ankylosis of the vertebrae with ankylosis of the hips. Many variations have been described, but it seems quite possible that these may be all with one underlying condition. Cases are seen under observation at first with involvement only of the spine, and later one or both hips or shoulders concerned. I have had cases of spinal ankylosis with one, two, three or four of these large joints involved. These various degrees of involvement are against there being distinct diseases.

Certain secondary changes are common; the nerve roots are frequently involved, whether by communicated inflammation or direct pressure. This is seen especially in the cases regarded as sciatica, which are often due to arthritis deformans of the spine.

The most reasonable view at present seems to consider these various spinal forms as differing manifestations of arthritis deformans.

The Monarticular Group.—This has certain rather characteristic features. It occurs usually in advanced life. The joint involvement is in one of the shoulders or one of the hips. The malady known as *morbus coxae senilis* belongs here. The disability and the severe neuritis associated with it are important points. There are at times marked vasomotor phenomena seen in the affected limb. Pathologically, it would seem that these cases may belong to either type. In the shoulder joint the atrophic condition seems to predominate, while in the hip joint we have marked osteophytic growth. This, too, may be present in one part of the joint with very marked atrophy of other parts. The term monarticular is convenient to use as a description of a clinical type but perhaps unfortunate if it suggests anything distinctive from other forms of the disease.

The identity of this type is emphasized by the fact that if careful examination be made slight involvement of other joints can often be found. This may be nothing more than the presence of Heberden's nodes or a slight involvement of possibly one knee joint or a finger or two, but the association is always suggestive.

In a recent very typical case there was involvement of one shoulder, with marked wasting of the shoulder girdle and very severe pain. The case was regarded as a typical instance of the monarticular form. The acute features gradually subsided, and the patient was nearly

well, when suddenly the same process began very acutely in the other shoulder. Such instances speak against any special peculiarity of this type. The cases may become polyarticular.

The So-Called Still's Disease.—There is some question as to what condition is meant by this term. The most remarkable view seems to be that the cases are examples of the polyarticular type of arthritis deformans occurring in children. They show certain characteristics—polyarthritis, general glandular enlargement and an enlarged spleen. In many of the cases the course is progressively downward.

Some writers would make a separate class of these cases, but where is one to draw the line?

When one sees a series of such cases at ages varying from two to twenty years, with the characteristic features present, but as the patient grows older glandular enlargement and the splenic enlargement less marked, although present, the inference seems justified that they are all examples of the same condition somewhat modified by age. I have no hesitation in saying that patients at fifteen with this condition have arthritis deformans; why not the same at the age of five? The occurrence of adherent pericardium in a large number of younger patients is of interest. It is difficult to explain, and probably has to be left as one of the points to be solved.

The evidence at present seems to point to the unity of the various processes described. There is no group which can be constantly separated. Combinations of various features are common. Thus at present I have under observation a case in a young man with pronounced hypertrophic features, with marked general glandular enlargement and enlargement of the spleen. Trophic and hypertrophic changes may occur in the same joint, or one joint may show one type and another joint the other. In one case the atrophic changes are most marked, in another the hypertrophic. Why one process should predominate in a given case we do not know.

Certain writers would make another type which they term "infective." In the present condition of our knowledge it seems better to restrict this term to conditions associated with a definite organism.

ETIOLOGY.

Regarding this, one can only discuss the theories advanced without stating any definite conclusion. As already noted, there are probably three main theories to be considered: 1, That the disease is of neural origin; 2 that it is a definite infection; 3, that it may be the result of various infections.

Neural Origin.—This dates back for a considerable period and has received very strong support in various quarters. The principal points brought forward in support of this view are as follows: Firstly, the symmetry of the lesions and their progression from the peripheral joints to those nearer the body; secondly, the similarity of the joint conditions to those which occur in association with certain disorders of the central nervous system, such as locomotor ataxia or syringomyelia; thirdly, the very marked associated muscular atrophy, the sensory disturbances, whether as regards pain or anesthesia, various trophic disturbances, such as glossy skin, the condition resembling scleroderma, etc.; fourthly, the occurrence of neuritis.

Symmetry of Lesions.—In looking into these conditions strong exception may be taken as to the value of certain of them. Thus we find, on carefully studying a series of cases, that the lesions are by no means necessarily symmetrical; in fact, in many instances, quite the

contrary. While in many they do begin in the peripheral joints, very often the larger joints are attacked first.

Similarity of Joint Changes.—In regard to the matter of similarity to the joint changes in locomotor ataxia is this not true only of the latter stages of the lesions of arthritis deformans? Again, is the course of the disease as studied in a large series of cases in agreement with this view? It appears to me not. The cases of arthritis deformans proceeding to absolute destruction of the joints are, after all, comparatively few, and a great many proceed to almost complete recovery. Such a difference does not seem to me to at all support the analogy between the two conditions.

Muscular and Sensory Disturbances.—The question of the muscular atrophy is a difficult one to explain. It does apparently occur with greater rapidity than is usual in other forms of arthritis. As to a satisfactory explanation, I do not know that we are able to supply one. The various trophic disturbances may depend on the frequently associated condition of neuritis. This, in many of the cases, is very well marked. Undoubtedly in some it is due to a communicated inflammation. In others it is probably the result of direct pressure, as is seen sometimes in the spinal funus.

Neuritis.—The very marked neuritis sometimes found in association with the monoarticular types is at times very acute. The explanation is probably that it is often due to direct extension. In certain cases we may suggest the possibility of its being toxic.

When we turn to evidence to be obtained from the examination of the central nervous system there is very little to support this view. In a small number of cases atrophic conditions have been found in the cells of the anterior horns. They are usually in the motor ganglion cells, but have not been extensive enough to support the idea that they are important factors in the disease. In the peripheral nerves in certain instances neuritis is found, but as this is not constant we can not consider it an etiologic factor. It is more probably secondary.

The view that reflex conditions may be the cause does not seem to me sufficiently supported by any evidence we have at present. There is no evidence that any reflex action could cause the joint conditions we find.

There are some associated conditions of great interest which have been especially emphasized by Jones. Thus the occurrence with Raynaud's disease, exophthalmic goiter, etc., is interesting. In some cases one sees a condition of the skin much like scleroderma.

Specific Infection.—At present this seems to be the most reasonable view as to the etiologic factor. The character of the attack in many cases suggests an acute infection. The onset is frequently sudden, the symptoms may subside, to recur as suddenly, or may gradually progress. The subsequent course may be to complete recovery from that attack or may be to total loss of function of the affected joints; this, however, it is important to remember, being often due to secondary changes. With the acute symptoms are usually swelling, heat, redness and pain in the joints, some fever and often leucocytosis.

Visceral complications are rare, and yet in two recent cases with the joint symptoms the patients had acute pleurisy ushered in by a severe shaking chill. In one case a subsequent absence of reaction to tuberculin may be considered to rule out tuberculosis. With the acute features, marked enlargement of the glands in relation to the affected joints is almost invariably found. In the younger patients enlargement of the spleen may occur

and this in cases not considered as examples of Still's disease. Do these not suggest an infection very strongly?

It may be noted that the glandular and splenic enlargement may occur with both types of the disease. The conditions in the nervous system may be explained by the action of toxins. When we turn to examine the results of cultural work, there is little as yet to show. Various observers have reported organisms (Schüller-Bannatyne, Wohlmann and Blaxall, Chauffard and Raymond, Van Dungen and Schilde, etc.), but the most important findings seem to be those of Paynton and Paine.² From the knee joint of a man showing osteoarthritic changes they obtained a diplococcus which caused arthritis in a rabbit, with ulceration of the cartilage, flattening of the articular surfaces and the production of osteophytes with lipping of the joint. Such a result is certainly most suggestive. The results of cultures in the Johns Hopkins Hospital have thus far been negative.

Various Infections.—This view is a tempting one in many ways. As one organism may set up very different changes, so various organisms may cause the same changes. The association of arthritis deformans with various processes, such as pyorrhea, cystitis, dysentery, is suggestive. Tonsillitis and pyorrhea have by some been suggested as important sources of infection. In this series tonsillitis has been infrequent, while pyorrhea is so common that one hesitates to attach great importance to it as a causal factor. In rare cases the treatment of such local conditions has resulted in marked improvement in the general condition.

Whether these may be causal can not be proved, but they certainly at times seem to be definitely associated with exacerbations. This is not invariably the case. Some patients go through intercurrent infections without any change in the arthritis, or may even seem to be better for a time. This is true not only of septic processes, but also of infections such as influenza, measles, mumps, etc. Some would make an association between acute articular rheumatism and arthritis deformans in this way. Gonorrhea has by many observers been held to have a special relationship. In our cases, however, this has not been the case.

STATISTICS OF ONE HUNDRED AND SEVENTY CASES.

In a series of 170 cases, among the acute infections in the previous history, measles was the most common, viz., in 93 instances. Following this came whooping cough in 43, mumps in 31, scarlet fever in 27, malaria in 26, typhoid fever in 20, chicken-pox in 18, influenza in 15, pneumonia in 16, diphtheria in 11, erysipelas in 3 and smallpox in 2. Recurring attacks of tonsillitis were infrequent, being noted in 7 cases. Various conditions such as otitis media, pleurisy, carbuncles, dysentery, cystitis, etc., were noted in one or two instances. There was a previous history of gonorrhoea in 23 cases, or 13 per cent. There was a history of syphilis in 5, and chaneroid in 1. It does not seem possible to speak with any certainty at present regarding the exact relationship of these many infections to arthritis deformans.

Regarding the various factors of incidence, the figures are as follows:

Family History.—There was a definite family history of arthritis in 62 cases. Of these, 15 were undoubtedly arthritis deformans, 35 were termed "rheumatism," and undoubtedly many of these were arthritis deformans; 1 was given as gout, and in 11 the nature was unknown. In some the family history of arthritis deformans was

remarkable. One patient's father had the disease in a severe form, three brothers and three sisters suffered with it, all having chronic changes; only one sister had escaped. The patient's mother had escaped, but in her family the disease was common, all her brothers and sisters having it. Her mother also suffered with it. The combination of two such arthritic stocks would seem to portend disaster for the offspring. In another case there was a family history of the disease for four generations. In patients with a definite family history the disease does not seem to appear at an earlier age than in the others. There was a family history of tuberculosis in 39 cases.

Sex.—The males were in the majority—89 males and 81 females. This is unusual in a large series, the females usually being in the majority. Many series give as high as 80 per cent. of females.

Race.—The white numbered 161, the colored 9. The colored show a marked relative less susceptibility to the disease. The proportion of white to colored in the hospital is 7 to 1, while the proportion of cases of arthritis deformans is 16 to 1. The negro is specially prone to gonorrhoea, tuberculosis and acute articular rheumatism, a point of interest in regard to their association with arthritis deformans.

Occupation.—The largest number were engaged in housework, namely, 64; in other indoor occupations there were 46. At outdoor work there were 33. There was a surprisingly small number engaged in occupations involving special exposure. Neither exposure nor trauma seemed to play an important part as etiologic factors in this series.

Age.—On admission this was:

1 to 10	3	31 to 60	32
11 to 20	11	61 to 70	11
21 to 30	31	71 to 80	4
31 to 40	47	81 to 90	1
41 to 50	20		

It is to be noted that 92 were below 40 years of age and 45 below 30.

The age at onset, in 165 cases, shows a rather different distribution:

1 to 10	15	41 to 50	23
11 to 20	30	51 to 60	18
21 to 30	33	61 to 70	6
31 to 40	38	71 to 80	2

Practically in 70 per cent the onset was before the age of 40, while in nearly one-half it was before the age of 30 years. This seems important, as so often the disease is considered to usually occur in late adult life.

Alcohol.—Fifty-one had used alcohol, the majority in moderation. About 10 might be described as heavy drinkers.

Pregnancy and Miscarriage.—While in some series these seem to have an important relationship to the onset of the disease, such was not the case in this clinic. Frequent repeated childbearing had occurred in some, but these are not numerous enough to be important. In only three of the women had the disease appeared soon after confinement. Uterine conditions were infrequent. Mental worry or anxiety did not seem to have played any part as an etiologic factor.

CONCLUSIONS.

The conclusions which may be made are as follows:

1. That there are two great types of cases, the atrophic and hypertrophic, which are probably varying manifestations of the same disease.

2. That there are many variations, such as the spinal forms, the so-called monarticular form, the form occurring in children, etc., which are probably all arthritis deformans

2. Trans. of the Path. Soc of London, vol. III, 1902, p. 221.

3. That the etiologic factor is not determined, but our present knowledge points to its being an infection of some nature.

4. That no opportunity of pathologic and bacteriologic examination should be neglected.

ARTHRITIS DEFORMANS.*

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At last light seems to be finding its way in among the obscurities of the rheumatism problem. Acute articular rheumatism is a microbic disease, one of whose principal features is its tendency to get well entirely except for the mark it may leave on the heart. Uric acid has nothing to do with rheumatic conditions, and is only a fetish that was set up to be worshipped by those who wanted to find scientific explanations for disease long before physiologic chemistry was ready to furnish any such explanation. Rheumatic gout now disappears, there is no middle term between gout and rheumatism, and the two diseases are not closely related at any point. Chronic rheumatism is a vanishing ailment, seen more and more rarely as greater care is used in diagnosis, and in the recognition of various painful nervous conditions with which it was formerly confounded.

This preliminary clearing of the field leaves us, however, with a group of diseases, with regard to which as yet only abortive attempts have been made to get at a definite classification. Under this group of diseases are found all those in which there is a deformity of joints usually progressive and not due to traumatism or known infection. The name selected for this group of diseases, arthritis deformans, is sufficiently non-committal to be acceptable. The affections are certainly deforming. The underlying pathologic condition can be regarded, as a rule, as of inflammatory origin, though the processes of the inflammation run from acute, almost fulminant, to the extremely chronic type, which may take years before serious deformity results.

It may be said that it is only in recent years that attention has been especially called to this group of diseases. Physicians now see them frequently, and while a few years ago they were considered to be examples of a rather rare disease, this is due to the fact that in most cases the deformities when seen were attributed either to chronic rheumatism or to gout. The differential diagnosis has come for the most part within the last twenty-five years.

Arthritis deformans itself, however, in some form can be traced in history at nearly all times. The bones from the bodies of persons probably 5,500 years ago show in certain cases the signs of changes due to arthritis deformans. Bland Sutton described the same lesions as occurring in a mummy, taken from an Egyptian tomb, and which had been buried about 2,000 years before Christ. Virchow, excavating the bones from the cemetery of a medieval monastery, found similar conditions. It has even been said that the distinguished Italian painter of the Renaissance, Botticelli, always painted ugly hands. As a matter of fact, however, careful examination of his pictures will show that his favorite model seems to have suffered from arthritis deformans, since the hands show signs of this disease, and

the reason for the ugly hands in his pictures is that, just as for her hollow chest, he followed this model too closely.

Arthritis deformans is, then, a very old disease. It has existed continuously and it occurs much more frequently than has been thought. The affection of the spine, which is due to this disease and which is often spoken of as very rare, has been traced by Dr. Rubrah¹ down the centuries from the earliest times in Egypt, and any one who sees many cases in a city dispensary and hospital is sure to see one or more examples of the disease every year.

TYPES OF THE DISEASE.

Such distinguished English authorities as Dr. Hale White, Dr. Garrod and Dr. Bannatyne divide the group of diseases commonly described under the name arthritis deformans into three types. These types may be briefly described as follows: There is, first, the disease commonly known as osteoarthritis, often confined to the hip joint, and most common in old men. It consists of a bending of the neck of the femur and some other bony deformities connected with the hip joint. Secondly, there is the disease in its milder forms, often not recognized as a special affection, but considered as the result of certain kinds of work or as of traumatic origin, which is most common in women in middle life, and is represented by deformities occurring in the terminal joints of the thumb, though in this the terminal joint is not necessarily always first affected. Dr. Hale White says that the deformity becomes considerable in these cases, and is ultimately largely due to bony outgrowth. "In a large number of cases the trouble gradually spreads until many joints are implicated and the woman may become a helpless cripple, and although in one sense she is very severely ill, yet the disease is very slow, the symptoms are not acute, and there is no pyrexia."

Whether the affection thus described is different from what is ordinarily called Heberden's nodes is hard to say. There seem to be cases in which a small amount of bony outgrowth on the terminal phalanges of two or three fingers does not progress beyond a certain point of disfigurement, and gives scarcely any discomfort except when there is some trauma; this, however, is not infrequent, because of the awkwardness induced by the deformity. According to a long-established English medical tradition, Heberden's nodes occur especially in long-lived people. Whether there may be several groups of these nodular affections of the terminal joints of the fingers remains to be seen. Some of the cases certainly belong to an abortive type, and do not progress beyond a certain degree of awkwardness and unsightliness without further discomfort.

The third form of arthritis deformans is the one of most interest, since it attacks young people, simulates ordinary acute rheumatism, produces lasting changes in joints, has a definite tendency to recurrence, and ultimately makes its victim a helpless and pitiable cripple. The disease is more common in women than in men, occurring usually in young women, as Hale White says, about the age of 20.

This affection is distinctly progressive. While it is markedly symmetrical in the two hands, it is likely to invade the wrists and then other joints, and the same thing may happen in the legs.

This is the form of arthritis deformans which be-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

cause of its simulation of ordinary acute rheumatic arthritis, is especially interesting.

DIAGNOSIS.

The differential diagnosis, however, if once suspicion is aroused, does not seem very difficult even in the early stages. Certain joints are characteristically affected in true arthritis deformans. Instead of the large joints as in rheumatism, it is mainly the joints of the fingers and particularly those of the terminal phalanges which are swollen and tender. In most of the cases there is also some swelling and tenderness over the joints of the lower jaw. As the temporo-maxillary joints are practically never affected in ordinary acute rheumatic arthritis, it may be set down as probable at once when the patient complains of tenderness and disability in the jaw, with some pain on movement and swelling, that the affection is arthritis deformans. In many cases the spine does not escape. There is almost certain to be some stiffness of the neck traceable not to any spasm of the muscles, but to the tenderness of the joints. This may be so slight as to escape at first, and may disappear after a time, but its presence is always an added factor of suspicion as regards the relationship of the affection under treatment to arthritis deformans, rather than to ordinary acute rheumatic arthritis.

At the beginning of a case of arthritis deformans, there may be some hesitation as to the differential diagnosis, especially if, besides the fingers, one or more of the large joints are affected. In these cases, however, certain features, if looked for, are sure to arouse suspicion. The patient has considerably more discomfort and complains of more pain and tenderness than the amount of fever and involvement of the joints quite justifies. Of course, the question of bearing pain is very individual, and nervous patients are likely to complain much more than others. Arthritis deformans, as a rule, however, attacks people who are not especially of nervous organization. Young servant girls and hard-working men under 35 are especially its victims. The fever from which they suffer is usually not so high as it would be from ordinary acute arthritis. It rarely rises much above 102 degrees, and may remain constantly below this. It is more continuous, too, than that of true rheumatic fever; that is, it has less daily variations.

Perhaps the most characteristic of the differential diagnostic symptoms is that the salicylates fail to reduce the fever very materially, and fail almost completely to lessen the pain and discomfort. Very often the restlessness induced by this will have to be relieved by some form of opium, and even of this the patient will need more than would be anticipated.

A marked difference between ordinary acute rheumatism and arthritis deformans is found in certain slow running cases of the deforming affection. Patients will sometimes give a history of having had swelling and some tenderness around the joints of the fingers and toes which was not, however, of sufficient intensity to make them give up their work. Gradually other joints become involved. The wrist, the ankles and the knees may become affected. Not infrequently the temporo-maxillary joint shows signs of the presence of the affection. If the patient has put off the inevitable coming to the hospital for a considerable period, usually there is a notable reduction in weight and the general health is much disturbed. Usually in these cases it will be found that while there have been intervals during which the affection has not been so severe as at

other times, *quasi* intermissions in the course of the disease, there has seldom been an absence of tired feelings with chilly feelings on first exposure to air that would seem to indicate the more or less constant pressure of a low-grade fever. In these cases the fever usually runs between 100 and 101 degrees.

PREDISPOSING FACTORS.

Perhaps the most important predisposing cause of the affection is overwork. Hence the tendency for it to occur, especially in people who are deeply interested in their work, who have devoted themselves to it, who have no vices, who do not drink and who have no special care for the pleasures of the table. Not infrequently the disease occurs at a moment when patients are run down in weight because of their tendency to neglect their meals in their interest in their work. It is not unusual, then, to have patients ask rather complainingly why they should suffer from such a disease, which is usually attributed to some abuse in the matter of eating or drinking, or to some special exposure.

With regard to exposure as a prominent factor in the causation of the disease, it seems hard to get at a definite conclusion. The disease occurs not uncommonly in those who are living a rather sedentary indoor life, though quite commonly there is a story of their having been exposed to a severe wetting or some special inclemency of the weather not long before they noticed the first symptoms of their attack. Whether this is a coincidence, and is recalled mainly because the patient feels that there must be some such connection between what is commonly called rheumatism and dampness or exposure is hard to determine. In one case where there seemed no doubt from the affirmation of the patient, a very intelligent man, that a preceding exposure had been one of the causes of his illness, careful inquiry showed that the wetting had taken place some twenty-six days before he felt uncomfortable sensations which represented the preliminary stage of the disease, and over a month before there were any special localized swellings of the tendons. It would be very hard to persuade most physicians that an exposure a month away had anything to do with an attack of a disease so acute as arthritis deformans.

PROGNOSIS.

The prognosis of typical cases of acute arthritis deformans is not always so unfavorable as seems usually to be thought. The case of a physician that has recently been under observation exemplifies this. Toward the end of January he suffered with a series of red, swollen, tender joints, affecting the fingers to a marked degree and the toes to some degree. Notwithstanding the presence of the affection, he was able to go on with his work to some extent, and in fact the general course of the case was so mild that there might be some hesitation as to the diagnosis, except for the tendency to distinct ulnar deformity, and the fact that the jaws were affected as well as the joints of the fingers. This involvement of the jaw is considered by everyone who has seen many cases as the most pathognomonic symptom of arthritis deformans. In this case now at the end of four months nearly all the deformity has disappeared. The index finger of the right hand is still slightly misshapen, and there are also nodules at the joints of other fingers, but these are not very marked, and the patient is able to close his fists very well. Over the deformed parts there is still slight tenderness.

One of the most important features of the affection is the tendency to recurrence. Not infrequently pa-

tients seem practically to get completely over the first attack. Some few signs of the affection are left, however. Usually within a year or two there is a second attack, which leaves distinctly more deformity, and makes it clear that the patient is not going to escape so easily as was first thought. Subsequent attacks are apt to occur at briefer intervals. In each there is a redness, swelling and exquisite tenderness. After each attack there is more disorganization of joints than before, though there is always a distinct remission with considerable improvement, and the raising of the hopes of the patients, sometimes also of the physician.

THE TREATMENT OF ARTHRITIS DEFORMANS.*

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It is only within a very few years that systematic efforts to evolve an effective management for arthritis deformans have been attempted, largely because it has been only a few years since the affection has been susceptible of anything like a sharp diagnostic differentiation. For this reason text-book literature on its therapeutics is meager and very unsatisfactory when subjected to the test of clinical application. About all that can be gleaned from it is a recommendation to give the patient cod liver oil, iron, or potassium iodid for long periods, to maintain his health in as good condition as possible, and to send him to some hot springs or other health resort. Although its present-day treatment is disappointing on the whole, yet evidence is accumulating which indicates that modern therapy is capable of producing curative results in many cases, and marked amelioration of the symptomatology in a large majority of them; that arthritis deformans will soon be resented from the category of hopeless-ly incurable diseases.

IMPORTANCE OF EARLY DIAGNOSIS.

The first and a most important step in the management of this disease is to make an early diagnosis. This is important from a therapeutic point of view because, first, when these cases are brought under an appropriate line of management at a moderately early stage, the great majority of them can be restored to useful and comfortable lives, and a large proportion can be restored to apparently perfect health, whereas, if the disease is unrecognized, hence improperly treated for months or years, organic changes will take place in the structures involved of such a nature and degree as will render utterly impossible the restoration of normal function; and, second, the treatments appropriate to the diseases which most closely resemble it clinically are not only entirely inefficacious for the relief of arthritis deformans, but in some respects are positively harmful. This is especially true with reference to rheumatism and neuritis, the affections with which arthritis deformans is most frequently confounded.

DIET.

Another important factor in its management is the prescription of a proper diet. The widespread impression that gout and rheumatism were largely concerned in the etiology of the disease is responsible for the com-

mon practice of denying these patients red meats, and sometimes all meats. I believe that this restriction is not only unnecessary usually, but that it frequently inflicts positive harm on the patient. Malnutrition is an almost constant characteristic of this disease, and the more nourishing and generous the diet, within proper limits, the more will the progress toward recovery be facilitated. These dietary limits are represented by the capacity of the individual patient for digesting and assimilating his food, and must be defined, as regards both quantity and variety, by this capacity as ascertained in each individual case. It has been my experience that, as a rule, meat of all kinds except pork are well digested by these patients and beneficial, and that restriction is much more frequently required with reference to the starches and sugars. Intestinal indigestion requires attention in these cases with a moderate degree of frequency.

CLOTHING.

In any disease exhibiting more or less constant pain as a symptom a good quality of woolen underclothing, of light weight in the summer and moderately heavy in the winter, is a source of comfort to the patient in protecting the skin from sudden changes of temperature, which are liable to increase the pain. Arthritis deformans is no exception to the rule. Protection of the skin by woolen underwear renders another service by maintaining the function of this emunctory, which is so important a factor in the general bodily metabolism. Impairment of general metabolism is usually a prominent feature of this disorder.

PHYSIOLOGIC REST.

During the acute stages the joints involved should be kept at rest. I do not mean such complete rest as would necessitate enclosing the member in a splint, but the patient should be directed not to use the joint to such a degree as to produce pain. Patients are sometimes urged to force the joints to functionate, no matter how exquisite the anguish induced, and the effect is usually to increase the local pathology already present, to say nothing of the evil influence on the general nervous system. Nothing is more depressing than severe and long-continued pain. These remarks also apply to passive movements.

ACTIVE AND PASSIVE MOVEMENTS.

After the acute process has subsided, judiciously regulated, gradually increased movements of the stiffened joints, both active and passive, are beneficial, and frequently partial ankylosis can be entirely removed thereby, but the sudden forcible breaking down of the ankylosis of arthritis deformans, when it exists to any great degree, is a procedure which I have never seen followed by anything but evil results in the way of increased and usually entirely hopeless ankylosis, and in mentioning the procedure I desire to express my conviction that it should be expunged from the therapeutic category of this disease.

MEDICINAL TREATMENT.

The drug treatment of uncomplicated arthritis deformans is unsatisfactory in the extreme so far as the obtaining of curative results is concerned. Only a very few elements of the materia medica have succeeded in gaining a lasting reputation in this connection, and all of those that have, except the salicylates, are of the "tonic" and "alterative" classes, hence exert their beneficial influence through their power to improve the general metabolic functions. Prominent among these may be mentioned the iodid of iron, cod liver oil, the hypophosphites.

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arsenic in its various combinations, strychnia, the chlorid of gold and sodium and potassium iodid. The first mentioned has given me the best results, improvement usually manifesting itself, when it obtains at all, in about three weeks after the commencement of its administration. It should be given for periods of six weeks, with an intermission of two or three weeks. Cod liver oil does good service in those cases characterized by emaciation, if well borne by the stomach. Arsenic and strychnia are fairly useful in many instances as general tonics. The chlorid of gold and sodium and potassium iodid or hydriodic acid sometimes seem to render considerable service, but they fail to influence the disease in such a large proportion of cases that their importance is not nearly so great as is generally supposed.

The relation of the salicylates to this disease deserves special mention, as they sometimes render excellent service in relieving pain and swelling. Although it is improbable that rheumatism is an etiologic factor in any considerable number of cases, yet it is not so very uncommon to see an attack of rheumatism engrafted on an already existent arthritis deformans, and, as the salicylates fail absolutely in so many manifestly uncomplicated cases, it seems reasonable to consider that many of those in which they are useful are instances of such a complication. The fact that beneficial influence is obtainable by their use only up to a certain point would favor this view. The difficulty of making a positive diagnosis of rheumatic invasion under such circumstances is in many cases, of course, insuperable. Whatever the explanation, the fact remains that the salicylates, especially aspirin, are sometimes very helpful in relieving painful joint conditions occurring during the course of arthritis deformans.

Constipation is sometimes present in a degree to demand attention, and the various mineral waters, magnesium sulphate, the aloin, strychnia and belladonna mixture, or compound licorice powder, will be found helpful. What particular one should be used must be determined by the tolerance of the individual patient.

Digestive disorders can generally be controlled by regulating the diet, but the digestive ferments, carminatives, charcoal, bismuth subnitrate and strychnia will sometimes have to be called on to assist in this work.

The constant harassing pain is one of the most troublesome symptoms of the disease so far as management is concerned. Most of these patients have become so habituated to the pain that they bear a moderate amount without much complaint, but sometimes severe exacerbations, lasting for several hours, days or weeks, will occur which demand attention. Opium, or any of its derivatives, is inadvisable because of the chronic character of the trouble, because it loses its influence in a few days unless given in increasing doses, and because of its evil effects on the system at large. I have occasionally given coal tar derivatives when the paroxysms were very severe, but they also produce undesirable results on the metabolic and circulatory functions when continuously administered in effective doses for any length of time. None of the ordinary pain-relieving drugs are of much service in controlling this symptom, with the exception of the salicylates, as hereinbefore mentioned, but much relief can usually be obtained by the use of external applications and the hot water bag; baume analgesique (Bengue), the tincture of iodine externally, and the various anodyne lotions have given me better results than anything else.

A few months ago, in a paper read before the New

aven County Medical Society, the belief was expressed that a new era was dawning in therapeutics which would be characterized by the prominent position which the natural physical and psychical forces would occupy in the management of disease processes, as opposed to a therapy constituted exclusively by the administration of drugs and ablative surgical procedures. In the treatment of the disease under consideration this new era has already established itself, and it is to the so-called physiologic therapeutics that we must look to-day for the attainment of anything approaching satisfactory results in any large number of cases.

DRY HOT AIR.

Dry hot air, electricity and mechanical vibratory stimulation are the most useful of these measures, and hydrotherapy will probably join their ranks in the near future.

In my opinion, the body dry hot air application is to-day the sheet anchor of hope in the management of arthritis deformans. Its physiologic action may be summarized as follows: First, it produces an immediate and powerful stimulation of the vital physical signs; second a reflex stimulation of the functions of all the organs and tissues of the body, resulting in, first, a degree of elimination of urea and other excreta which I believe to be unequalled by that producible with any other measure now known, and, second, an amount of reconstructive activity which I believe at the present time to be also in excess of that derivable from the use of other agents. Ample logical indication for its employment is found when we consider these influences in connection with the symptomatology and what is known of the pathology of the disease.

There is usually present, first, a notable depression of the vital physical phenomena; second, impairment of function of many of the organs concerned in the digestive, elaborative and assimilative processes of the body; and, third, a marked deficiency in the reconstructive activities. The inferences suggested above have been fairly well borne out by practical results accruing in my own personal clinical experience, and I have come to look on this measure as the most efficient single element in the treatment of the disease.

Before leaving the subject of the body dry hot air application, I wish to specify just what I mean thereby. Many who have used dry hot air for the purpose of relieving the victims of this affliction will not bear me out in the statement which I have just made regarding its efficacy, and I believe that the unsatisfactory results are largely due, other conditions being equal, to differences in the method of employment rather than to weakness inherent in the remedy itself. First, it is not a cabinet bath, heated by an alcohol lamp to 150 or 160 F., and in which the patient is treated sitting on a stool; second, it is not a Turkish bath, with a temperature of 180 or 200 F., and, third, it is not an incandescent or arc light bath. The first and second mentioned procedures are almost always debilitating and pernicious when applied with a moderate degree of frequency to cases of this disease, and in the third the light effects are so prominent as to render it impossible to produce anything approaching a proper degree of purely thermal influence. The body dry hot air application to which I refer is given by means of a metallic asbestos-lined cylinder, long enough to include the body up to the armpits, and heated by gas, gasoline or electricity. The treatment intensity should be from 350 to 400 F., and the immediate clinical effects are profound enough to render it necessary for the patient to assume the recumbent position, not only during the immediate

application, but for some time afterward. The heat should be run up rapidly, so as to secure the necessary degree of physiologic influence as quickly as possible. As a rule, an increase in the pulse rate to 120 beats per minute or an increase in the month temperature of 2 F. over what it was before treatment indicates that a proper degree of influence has been secured, and from twenty to thirty-five minutes' exposure will suffice under ordinary conditions. By this method we secure a profound stimulation of physiologic function, whereas if the patient is treated for long periods with the lower degrees of heat the ultimate result is relaxing, depressing and pernicious.

The local dry hot air application is rarely of any use in the treatment of this disease except for the relief of pain, and even for this purpose it fails more often than it succeeds, and sometimes marked aggravation is the result.

ELECTRICITY.

The next most useful of the physiologic agents is electricity, and the several forms of current have distinct and different spheres of influence. The one of greatest general utility is that derived from the static machine, and the wave current and the spark are the most frequently serviceable modalities.

Some authors claim to have cured cases with the static current alone, but such an instance has never come within my personal experience, and it is usually difficult enough to benefit them materially when all the resources at our command are brought into action.

During the acute stage the static wave current may be applied to the affected joints twice daily by means of sheet tin electrodes molded to the parts, and is frequently very effective in relieving the pain. The influence of every static application is general as well as local, no matter how the treatment is localized, and the effect on the organism at large is often happy to a degree.

Sparks may be applied over the spine and the general muscular areas of the body for their tonic effect, at any stage of the disease, but as a rule they had better not be applied to joints wherein acute symptoms are manifest. When the acute process has subsided, however, and the local phenomena have become confined to soreness and fibrous enlargement, I know of no one measure which will so frequently prove effective in removing both as judiciously-applied static sparks. The various neuralgias which accompany the disease are also amenable as a rule to the static spark.

The brush discharge from the wooden or carbon electrode, applied to the affected part for fifteen or twenty minutes, is effective in relieving the neuralgias as well as the aching pains of the acute conditions, in a certain number of cases.

The general application of the high-frequency current, applied by means of the spiral wire cage of D'Arsonval or the auto-condensation cushion, seems to promise much because of its strong tonic influence on the nervous system and general metabolism, but enough has not yet been done with it in this disease to render possible the formation of reliable conclusions. It has seemed to have exercised a beneficial influence on some cases in the treatment of which I have used it, enough to encourage me to continue observations on it in the future.

The continuous current in the form of central galvanization is very helpful in improving the patient's general condition and as a sedative to the nervous system, but I have never been able to secure any local effects with it in this disease that I could not have secured just as well, and usually better, with something else, except in muscu-

lar spasm due to nerve irritation; in the torticollis of arthritis deformans the continuous current in doses of from 5 to 20 milliampères for fifteen minutes will sometimes give more satisfaction than anything else.

The rapidly interrupted magnetic-induced current from 1,500 yards of No. 36 wire is very useful for the relief of pain wherever or whenever it may be encountered. The strength of the current should be regulated according to the sensation of the individual patient and should never exceed the limit of absolute comfort. It may be applied as often as pain demands it without any injury to the patient.

Mechanical vibratory stimulation has not yet been used extensively enough to justify the formation of an opinion as to its curative powers in the treatment of this affection. It is undoubtedly, however, a powerful general tonic; it will relieve the pain of muscular spasm and relax the spasm more effectively than any other measure with which I am acquainted, except anesthesia, and it is powerfully and harmlessly sedative to the irritable nervous system. In all of these capacities it enters into the management of arthritis deformans, and I should very much dislike to dispense with it as a part of my armamentarium.

MASSAGE.

Massage, either general or local, will very rarely have to be considered in the treatment of this affection when the agencies already mentioned are available. When they are not, however, it will be found useful in relieving pain, locally, and in improving the patient's condition generally.

GENERAL ROUTINE TREATMENT.

As I have already said, it is sufficiently difficult to benefit these patients materially, even when we use all the resources at our command; this implies the desirability of giving them the benefit of everything that is known to exhibit helpful properties and brings up the question "What are the most advantageous therapeutic combinations?" That which has given me the most satisfaction as a routine treatment, to be modified according to the conditions surrounding the individual cases, is as follows:

1. A diet as generous as can be digested and assimilated by the individual case, and consisting largely of red meats.
2. Rest in bed for at least ten hours out of the twenty-four.
3. A pill consisting of 1/40 of a grain of strychnia sulphate and 1½ grains of ferrous iodid three times daily half an hour before meals, and in the emaciated cases 1 to 4 drams of cod-liver oil three times daily, after meals.
4. A dose of some one of the mineral waters before breakfast every two or three days, if constipation is present.
5. A body dry hot air treatment two or three times weekly.
6. Central galvanization once or twice weekly.
7. A general application of mechanical vibratory stimulation two or three times weekly.
8. A static electrical application at least once every day, consisting, in acute cases, of the Morton wave current localized over the affected joints or spine, and, in the chronic cases, of long, thick sparks to the affected joints one day and the Morton wave current localized over these joints the next. In some cases some one of the high-frequency currents, applied either locally or generally, may advantageously replace some of these static applications or be added to them.
9. With ankylosed joints, wherein the acute condition

has subsided and the functional impairment is not due to osteophyte formation (and in my experience it has not frequently been due to this condition), passive movements every day, in the form of alternate forced flexion and extension, the attempt being made to increase the excursion of the manipulated member each time, are of considerable use. The movements should not be violent enough to produce sudden breaking down of the offending tissue or to cause the patient much pain; otherwise the original pathologic process is very likely to be reawakened and the last condition of the victim will be worse than the first. The effects of these movements should be carefully watched, as this same evil result will follow if they are commenced too early.

STATISTICS.

"The proof of the pudding is in the eating," and the statistics of the following 51 cases which I have had under treatment in private practice during the past four years illustrate what it is possible to accomplish by the application of the above-outlined management. For the sake of convenience in describing the gross results attained, I have divided them into five groups, the first consisting of those who have been entirely free from all active symptoms of the disease for periods ranging from 1 to 2½ years; the second, of those who have been "greatly benefited," and, third, of those who have been "considerably benefited"; the fourth, "slightly benefited," and the fifth of those who have "not been benefited at all."

The first group consists of 9 cases, 3 men and 6 women, ranging in age from 35 to 62 years. They had suffered from the disease before coming under treatment for periods ranging from three months to fifteen years. The general condition as regards nourishment, food, digestion and assimilation and sleeping ability when treatment was commenced was bad in 5, fair in 2, and good in 2. It is now perfectly normal in all. Five of them were totally incapacitated for the performance of their ordinary duties, and 4 were partially incapacitated. Complete ankylosis of one or more joints was present in 1 case, partial ankylosis in 5, and in 3 cases no ankylosis was present. Five suffered severely from more or less constant pain, 2 suffered only slight pain when the joint was at rest, but were very sensitive to manipulation, and 2 suffered only when the joint was manipulated or functioning. In 1 of these cases the disease process was confined to the joints of the fingers and toes; in every other case in the whole series of 51 one or more of the larger joints were involved, either in addition to the fingers and toes, or without the fingers and toes being involved at all. The shortest time required for the complete disappearance of the symptoms in any of these cases was two months, the longest thirteen months.

Two of these suffered recurrences of the disease, one eighteen months after treatment had been suspended and the other two years after. In the first mentioned the relapse was so slight that the patient did not return for treatment, all evidences of the disease disappearing after two months' treatment with iron, strychnia and the chlorid of gold and sodium. In the other the relapse was quite severe, it being necessary to treat the patient very thoroughly for three months before all evidences of the disease again completely disappeared.

The second group, or those who have been "greatly benefited," is composed of 16 cases, 8 men and 8 women, ranging in age from 21 to 60 years, and who had suffered from the disease before coming under treatment for peri-

ods ranging from six months to twenty years. There are included in this group 5 cases which have been entirely free from all active evidences of the disease for periods ranging from six weeks to ten months, and who give every promise of being properly classifiable in the first group during the coming year and making a total of 14 cases in which all active evidences of the disease have been absent for periods ranging from six weeks to two and a half years; 4 who are still under treatment which has already continued intermittently for periods varying from ten to eighteen months, and who are steadily improving; 7 whose treatment was prematurely discontinued for various reasons after the benefit was secured. Seven were totally incapacitated for the performance of their ordinary duties; 9 were partially so. The general condition when treatment was commenced was bad in 9, fair only in 4, in all of which it is now either normal or greatly improved, and good in 3. Complete ankylosis of one or more joints that was completely relieved was present in 1 case, that has been partially relieved in 4, and not relieved at all in 5. Partial ankylosis of one or more joints that has been completely relieved was present in 6 cases, that has been relieved to some extent in 3, and that has not been relieved at all in 3. In 7 cases no ankylosis was present. Severe pain that was constantly in evidence was present in 11 cases; in 3 of these it was removed completely, and in 8 it was completely removed in some joints and in others to such an extent as to be in evidence only when the affected part was manipulated or functioning. In 5 cases pain was present only on manipulation or functioning of the joints when treatment was commenced; in 4 of these it was removed entirely; in 1 it still persists to a slight extent after seven months of treatment.

The third group, or those who were "considerably benefited," consists of 11 cases, 3 men and 8 women, ranging in age from 30 to 75 years, and who had been ill with the disease before coming under treatment for periods ranging from six months to ten years. One is still under treatment and improving, and 10 discontinued treatment prematurely for various reasons while still improving. The general condition when treatment was commenced was bad in 6, fair only in 5; all were noticeably improved in this respect when treatment was discontinued. Complete ankylosis of one or more joints was present in 4, which was not influenced at all by treatment; partial ankylosis of one or more joints in 7, which was completely removed in 1, partially removed in 3, not influenced in 5. In 5 no ankylosis was present. Pain of various degrees was constantly present in 6, in all of which cases its severity was much lessened; was present on manipulation or functioning only in 5, in 3 of which its severity was much lessened, and in 2 it was not influenced. Seven were totally incapacitated for the performance of their ordinary duties, 4 partially so.

The fourth group, or those who were "slightly benefited," consists of 10 cases, 1 man and 9 women, ranging in age from 23 to 73 years, who had been ill before coming under treatment for periods ranging from two months to five years. Three are still under treatment and improving, 6 discontinued treatment prematurely, and 1 refused to improve in any respect except as to her general condition in spite of all that I could do, although she continued treatment conscientiously for six months; she did not grow any worse, however, and during the two years that have elapsed since treatment was discontinued she has been more comfortable at times than previously, and, as she was steadily growing worse when she came under observation, it is possible that she was somewhat bene-

fited. The general condition when treatment was commenced was bad in 5 and fair in 5; in 7 it was slightly improved, in 3 unimproved. Complete ankylosis was present in 1 case, and unimproved by the treatment received; partial ankylosis only in 2, which was slightly improved; ankylosis was not present in 7 cases. Pain of various degrees was constantly present in 9, and was slightly relieved in all but one; present only on manipulation or functionation in 1, and was slightly relieved in this case while she was under treatment. Five were totally incapacitated for the performance of their ordinary duties. 5 partially so.

The last group, or those who were "not benefited," consists of 5 cases, 1 man and 4 women, ranging in age from 21 to 60 years, who had been ill for from three months to four years before applying for treatment, and none of whom remained under treatment for more than three weeks, a totally inadequate period for the production of any permanent benefit. The general condition was bad in 1, fair in 3 and good in 1. Complete ankylosis was not present in any of them; partial ankylosis was present in 1. More or less pain was constantly present in 3, present on manipulation or functionation only in 2. All were partially incapacitated for the performance of their ordinary duties.

SUMMARY.

A practical, easily comprehensible summary of the results obtained in these 51 cases, then, would be as follows:

Out of 24 patients who were totally incapacitated for the performance of their daily duties, 6 were restored to a condition of unimpaired usefulness, 3 to a condition of but slightly impaired usefulness, and 8 of the remainder discontinued treatment prematurely. Out of the 27 who were partially incapacitated, 7 were restored to unimpaired usefulness, 4 to but slightly impaired usefulness, and of the remainder 14 discontinued treatment prematurely. Out of 36 patients who were suffering constantly from pain, 10 were relieved entirely; in 12 pain was relieved to such an extent as to be troublesome only occasionally, the patients' lives being thereby rendered comparatively comfortable, and 11 of the remainder discontinued treatment prematurely. Of 15 cases in which pain was present only on movement, 5 were relieved entirely, 3 were greatly relieved, and of the remainder 6 discontinued treatment prematurely. Of 11 cases in which complete ankylosis of one or more joints was present, complete relief of such ankylosis was obtained in one or more joints in 2, partial relief in 4, and 5 discontinued treatment prematurely; of 25 cases in which partial ankylosis of one or more joints was present, such ankylosis was completely relieved in one or more joints in 13, partially relieved in 12, and of these 11 discontinued treatment prematurely. Of 27 cases wherein the general condition was bad when treatment was commenced, 10 were restored to normal health, 12 were greatly improved; of 19 cases wherein the general condition was fair only, 5 were restored to normal, and 8 were greatly benefited.

CONCLUSIONS.

In conclusion, although there is nothing particularly brilliant about the above-described results, yet they indicate that the prognosis of arthritis deformans is rendered much less gloomy by the advent of the later therapeutic methods, more especially when the large proportion of patients who discontinued treatment prematurely, viz. 28, is taken into consideration, and that the unfortunate

victims of this distressing malady need no longer "leave all hope behind," even after they have entered far within the portals of its influence.

DISCUSSION

ON PAPERS BY DRs. M'CRÆ, WALSH AND SKINNER.

DR. JOEL GOLDTHWAIT, Boston.—All who have kept in touch with this subject in the past must be conscious that much progress is being made in this class of disease. There are already too many, but the nomenclature used is unimportant provided we understand what we mean by the terms. Under arthritis deformans there are not only the two types Dr. McCrae spoke of, the atrophic and the hypertrophic, but also the infectious type. This type may be due to many different organisms, but the essential pathologic features are the same and differ widely from the pathologic lesions seen in the atrophic or the hypertrophic types. At times it is practically impossible at first glance clinically to differentiate this type from the others. With the radiograph or by incision it can be readily differentiated and it belongs to a type which must be considered when arthritis deformans is mentioned. Still's disease is distinctly the infectious type and may be met with in childhood and in adults. As to heredity, I believe there is a predisposition in much the same way that there is an hereditary predisposition to tuberculosis. If the resisting power of the pulmonary tract is weakened then the patient is more susceptible to pulmonary tuberculosis; and much the same condition exists in the joints. It should be remembered that two types of the disease may be present in the same individual and also that they develop at different times. I have never seen the atrophic superimposed on the hypertrophic. I have seen in two instances the atrophic develop years after the hypertrophic had been present. The patient appreciated the difference. We have different degrees of severity of these diseases the same as we have a pneumonia. As to the terms monarticular and polyarticular arthritis deformans, I wish they could be given up. Either type may be monarticular or polyarticular.

DR. FERD. C. VALENTINE, New York City.—Dr. McCrae mentioned the gonococcus as an etiologic factor in arthritis deformans. Dr. Walsh said that arthritis deformans was more frequent in women than in men. This emphasizes, it seems to me, the fact that the gonococcus will invade the female more rapidly and be more destructive to her organs and, via the circulation, produce metastatic results more readily than in men. It appears not unlikely that some of these cases of arthritis deformans may be gonorrheal in origin and greater attention should be given to this etiologic element than has been hitherto.

DR. ALLEN A. JONES, Buffalo, N. Y.—Dr. McCrae took up beautifully the classification of these joint affections, but the tendency to throw out wholly and absolutely the term chronic rheumatism should be considered for a moment. I do not think we are in a position to throw out the term chronic rheumatism until we have demonstrated positively either a specific cause of acute rheumatism of the articular form, or a specific cause for both acute articular rheumatism and arthritis deformans. We see many instances of disease which may be either acute or chronic. Tuberculous manifestations may be acute or chronic, as may be malaria, etc. How are we to differentiate between the joint affections that may be so-called rheumatic, i. e., distinctly associated with causes undiscovered, or the possible manifestations of the disease which is a clinical entity known as arthritis deformans?

DR. DELANCEY ROCHESTER, Buffalo, N. Y.—The treatment of chronic cases by the electrical apparatus described is unquestionably valuable in cases where it can be used, but the vast majority of physicians have no such apparatus at hand and no facilities for using it; still, I think we can get as good results by carefully watching and handling these patients. The functions of the skin should be stimulated and I believe as good results can be obtained by the hot air, not with so high a temperature as described, but as used in the cabinet; we should be careful in the use of this procedure and follow it with

friction to the skin. Furthermore, good results can be obtained by carefully administered massage and movements of the joints in the older cases. The local applications of hot air by means of the Kelly heater is particularly beneficial in relieving local pains. With regard to the diet, we have been told that cases require forced feeding and that they should be kept in bed. A great many cases occur in stout people and any considerable amount of nutrition is not wanted. One should get rid of the excess of fat, particularly about the abdomen in women; here sweats and massage are of value. Keep the bowels open by saline waters. Sweets should be excluded and a minimum amount of starch should be permitted. Fresh green vegetables containing iron should be freely allowed, and fresh fruit and fresh meats in moderation.

DR. THOMAS McCRAE, Baltimore—I do not think that the gonococcus is an etiologic factor, but it may influence the condition as any intercurrent infection. If a patient has arthritis deformans and then contracts gonorrhoea it may light up the joint symptoms. I think the use of the term "chronic rheumatism" is unfortunate because there are no set conditions associated with it. I believe the only condition with which this term should be associated is that in which the "rheumatic manifestations" persist for a long time. For instance, a child may have an arthritis with endocarditis and pericarditis, skin lesions, fibroid nodules, etc., perhaps lasting for years, and this may be called a chronic rheumatism. All chronic manifestations in joints should not be termed chronic rheumatism. With regard to the organisms described, they can not as yet be regarded as proved causal factors. That described by Poynton and Paine as causing arthritis in a rabbit was a diplococcus. Dr. Goldthwait has divided the disease into three groups—atrophic, hypertrophic and infective. I feel that they are probably all infective in type, and so I do not make a separate group under the heading "infective." A matter that should be strongly emphasized is that this disease has nothing to do with uric acid. Many patients are told that the disease is due to uric acid and are put on restricted diet with most unfortunate results. I think we should do our best to get rid of this foolish idea in the minds of many of the profession. There is a hopeful side in treatment that has been impressed on me by the number of cases in which the disease occurred years before and the patients had practically regained good health and function.

DR. JAMES J. WALSH, New York City—Uric acid has long been a shibboleth. It was supposed to have solved many problems, and at last it is about to be abandoned. I have seen recently the wife and daughter of a physician, each suffering from the painful condition at the base of the big toe so often noted in connection with flatfoot, who had been carefully dieting themselves for gout for more than a year. One result of the mixing of rheumatism and arthritis deformans is the free use of the salicylates, which always do more harm than good since they destroy red blood corpuscles, make the patient more anemic and do not relieve pain. It has been objected that until the microbic cause of rheumatism and arthritis deformans is known, there is no justification in entirely separating the diseases. At the beginning of the nineteenth century there was in the measles and scarlet fever group of diseases, as yet undifferentiated from one another, what have now come to be recognized as four distinct diseases. Of none of these is the microbic cause known. Surely no one would say that there is no justification for their clinical separation.

DR. CLARENCE E. SKINNER, New Haven, Conn.—The local dry hot-air treatment was used in nearly all the series of fifty-one cases that I have reported, and in only one did any marked benefit follow the application, and in this we were obliged to apply the body dry hot-air application, in addition to the local, before we succeeded in getting our final curative results. This poor showing for the local application has led us to abandon it almost entirely as a measure of treatment in this disease. We sometimes use it as a palliative measure for the temporary relief of pain, and it is very rarely that we have been able to obtain even this. We have never seen any benefit follow the use of low degrees of heat, and, on the

contrary, have not infrequently seen positive harm in the way of increased debility result therefrom. In our experience it has been the stimulating influence of the body dry hot-air treatment on the central nervous system and the trophic functions that has been useful, and to obtain this it has been necessary to use the higher degrees of heat. As a possible explanation of the different results of Dr. Rochester and myself as regards the use of the local dry hot-air application, and the low degree of heat, I will say that all of my cases were chronic and very severe, which necessitated their being treated in the sanitarium. Dr. Rochester's cases may have been milder in character. I do not believe that moderately severe and well-established cases of arthritis deformans can be well treated at home. It is necessary for them to be cared for in sanitarium or other properly equipped institutions where their habits can be thoroughly regulated and where they can receive proper administration of all the physical therapeutics which to-day constitute almost our only reliance for the combating of this disease.

AUTOPLASTIC SUTURES IN HERNIA AND OTHER DIASTASES.

FINAL REPORT.*

LEWIS L. McARTHUR, M.D.
CHICAGO.

Three years ago it was my privilege to present to this Section a preliminary report of a new procedure in suturing hernia. Since that time I have been continuously using the method then described, until the cases

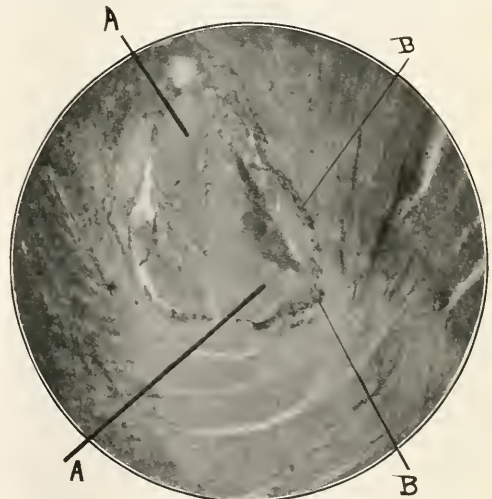


Fig. 1.—Cross section ($\times 25$) auto-tendon suture. Dog, 5 days after operation. A A. Auto-tendon suture. B B. Sections of fiber of silk thread inserted with tendon for identification. Note retention of normal characteristics of living suture after 5 days and the fact that there is much more reaction as shown by round-celled infiltration about the silk fiber (foreign body) than at borders of the living suture.

operated on have become sufficient in number and the time elapsed long enough to form conclusions as to its value. The results of these three years' work I now ask the opportunity of presenting.

Before doing this, however, let me epitomize the main

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

features of the former communication and describe in brief the only differences necessary in the technic of hernia work when done with living sutures. As demonstrated at that time (1) that it was an easy matter to split the tendinous aponeurosis of the external oblique from the external ring to the commencement of its

adapted to any of the recognized procedures for the radical cure of hernia. (4) That unlike any of the other numerous plastic operations advanced, the material lies directly in the wound itself instead of requiring extensive dissections or abnormal displacement of important structures.

Operators have, in the past ten years, by a process of gradual evolution arrived at certain definite conclusions regarding the cure of hernia. Most surgeons agree that in the typical operation certain structures are to be sutured to the inner shelving edge of Poupart's ligament, with variations in the order of attachment of these structures and their relations to the cord. I wish to be understood as championing no new hernia method, but I do advocate the utilization of strips of living tendon as the suture material in whatever operative technic the surgeon prefers, since it is equally adaptable to a Bassini, an Andrews-Girard, a McEwen or a Halstead operation.

TECHNIC.

The skin and fat having been cut by the usual incision exposing the external ring, the latter is prolonged

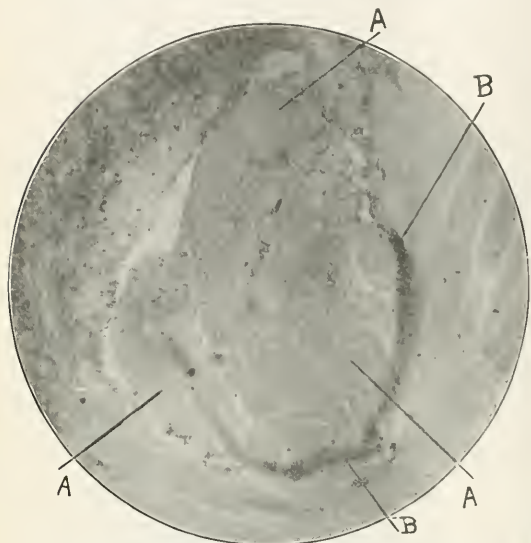


Fig. 2.—Cross section similar to Figure 1, but magnified 70 diameters. A A A. Cross section auto-tendon suture. B B. Silk thread fiber.

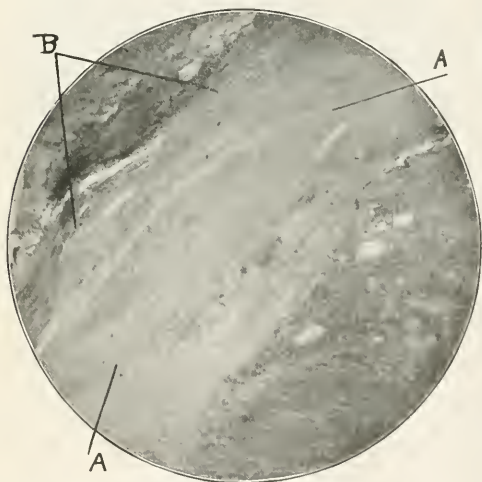


Fig. 3.—Longitudinal section ($\times 35$). Dog, 5 days. A A. Auto-tendon suture. B. Silk identification suture.

muscle belly, by simply lengthening the usual splitting of this structure. (2) From the cut edges of this, by carefully paralleling its fibers, that one could secure two strips of living tendon averaging 4 to 5 inches in length with which the structures to be apposed can be sutured. (3) That the use of such sutures can be

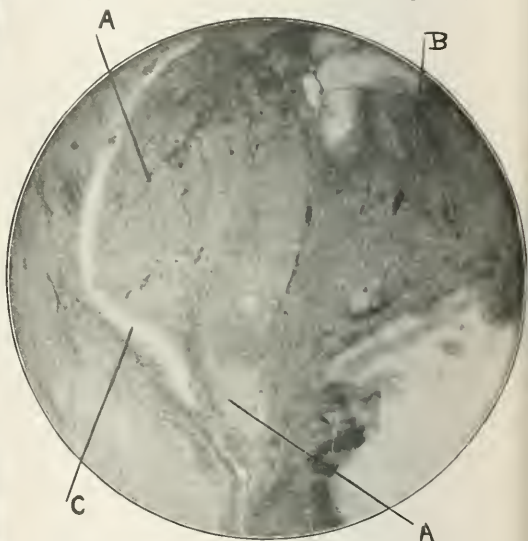


Fig. 4.—Oblique section auto-tendon suture 23 days after operation on dog ($\times 35$). A A. Tendon suture. B. Silk-thread fibers. C. Line of cleavage between tendon suture and the ext. oblique fascia showing the retention of the individuality of the living suture and the small amount of surrounding infiltration as compared with the foreign body (silk).

upward in the usual manner, but to its commencing muscular insertion. Special care is taken to parallel the tendinous fibers. This divides the aponeurosis into an external and internal flap, each of which can be readily separated from its contact with the internal oblique. The sac having been treated as the operator deems best, a bundle of those white fibers which enter into the formation of the internal pillar of the ring is then split off, from below upward, from the edge of the internal flap of the aponeurosis of the external oblique, quite up to its termination in the muscle belly. Above it is cut loose, but left attached to the pubic spine below. This strip should vary from one-eighth to three-sixteenths of an inch, according to the develop-

ment of the tendon. An identically similar strip, beginning in the external pillar of the ring, is taken from the outer flap of the external oblique. At this stage the suturing is to be done. The operation is completed, according to the choice of the operator, by the Bassini, an Andrews imbrication or Girard method using these strips as suture material for a running stitch. As a convenient means of handling, and for the purpose of avoiding infecting the graft suture, a needle threaded with No. 3 silk is tied by a single knot to its free end, and by it the tendon graft is drawn through the tissues to be united. Using the graft ending in the internal pillar for the first or deep suture, the surgeon draws the internal oblique and transversalis down to the inner aspect of Poupart's ligament as shown in the drawing, suiting his convictions as to raising or not the cord. If raising the cord (Andrews), then no opening is left below for an external ring; if not raising the cord (Ferguson, Bassini), then the first stitch determines the fit of the external ring around it. The edges of the external oblique are then sutured with a running stitch, using the graft made from an external pillar of the

idea as to what can be done with the procedure. These cases have been largely done at St. Luke's and Michael Reese hospitals, and include both private and ward patients. Among the total number of cases, two were

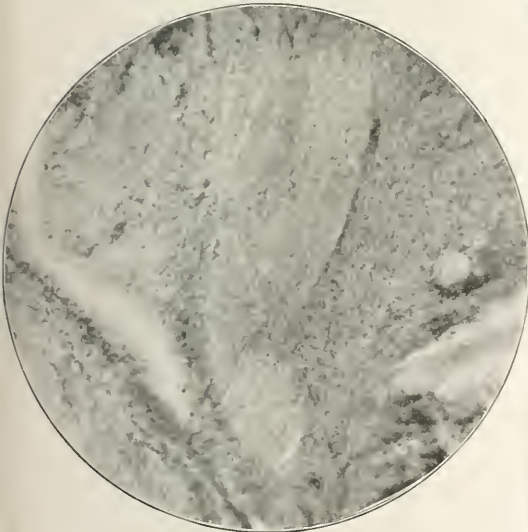


Fig. 5.—Same as Figure 4 but magnified 70 diameters.



Fig. 6.—Cross section silk thread after 23 days. Dog. Note marked infiltration about and within thread. B B. Cross section thread.

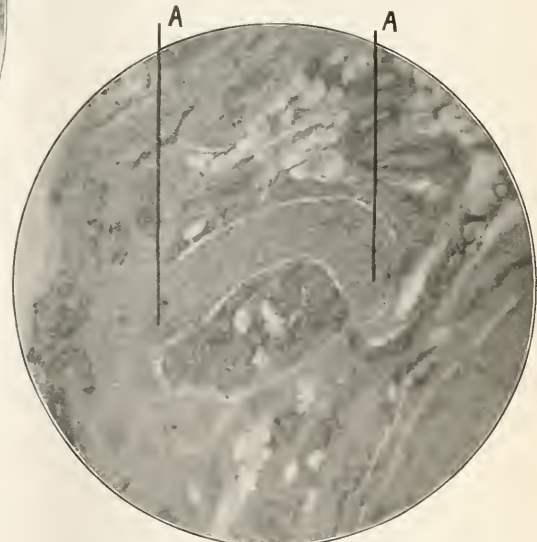


Fig. 7.—Human specimen year after operation. (Patient dying of subsequent appendicitis.) A A. Cross section auto-tendon suture.

ring when a Bassini is being done; to the surface of the external oblique when an Andrews or Girard is done. The ends of the suture strips can be fixed by a simple knot in it, or by one or two stitches through and back as a tailor fixes his thread, or as shown in the specimen by a fine catgut stitch with the graft end caught in its knot. The deep suture penetrates the external oblique for final fixation, after the new internal ring has been made. The skin and fat are then closed as the surgeon prefers.

Since making my preliminary report of 12 cases on this subject, I have had two or three herniæ a month, until the number I have operated on has reached a total of 93 consecutive cases; on 85 patients, of whom 82 were males and 3 females, the youngest 6 months, the oldest 78 years. Eight cases were bilateral. While this number is small compared with the statistics of many other operators, it still furnishes something of an

associated with suppuration. One, an old man 60 years of age, with immense scrotal hernia, on whom I made a splitting of the sac into four strips after the proposal of Duplay Cazin, tying opposite strips over one another

instead of excising the sac, and used the resulting mass as a pad behind the internal ring. The operation was then completed by the Bassini method, using the graft sutures. A primary union was secured and patient discharged at the end of sixteen days. Ten days later he returned to hospital with an indurated mass just below the middle of Poupart's ligament, which was incised, pus escaping. This healed within a week without disturbance to the hernia, and patient reports himself a year afterward well and without recurrence. I am inclined to believe a mistake was made in treatment

tion was observed. In the class of cases operated on in a charity hospital it is difficult to trace them for three consecutive years, but insofar as I have been able I have done so, by mail or messenger, or personal examination, and have not yet found among them a recurrence sutured by this method. I have, through the kindness of Dr. Groenfelder, secured the scar of a hernia case operated on more than a year previously, the patient having died with a general peritonitis from a gangrenous appendix. Sections of this I believe show segments of the grafts passing in a curved manner through it, as a

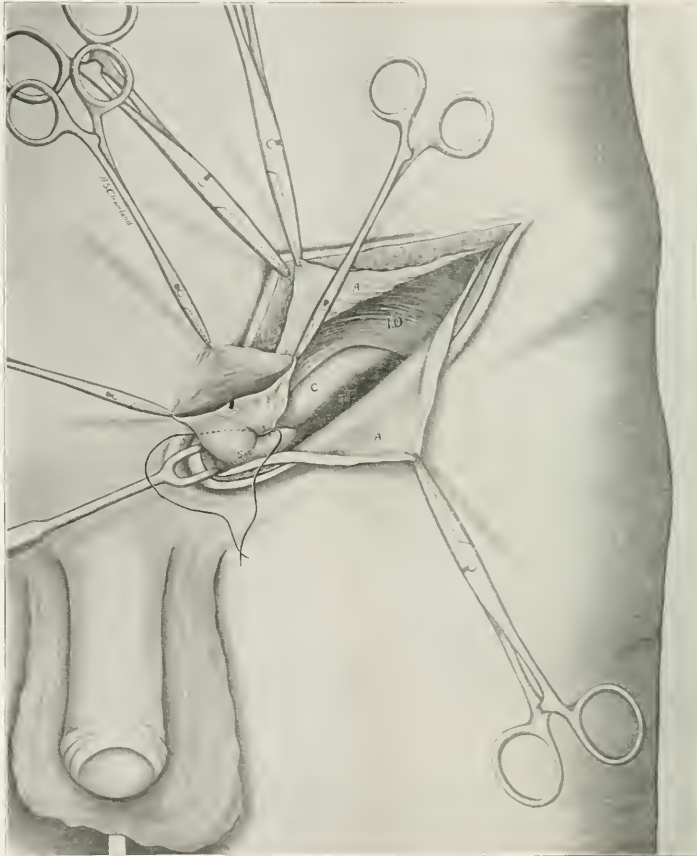


Fig. 8.—Aponeurosis of external oblique. I. O. Internal oblique. C. Cord. T. F. Transversalis fascia.

of the sac. The second case was an evident stitch abscess, seen and cared for by my colleague during my absence from the city. Removal of silkworm-gut suture and separation of skin edge at one point was all that was necessary. Patient made a good recovery, and has no recurrence of hernia. Twice there has occurred a hematoma—once in the scrotal pouch, once directly beneath the incision—requiring the letting out of blood clots by removal of one or two stitches. In these cases, too, no interference with the ultimate success of the opera-

living fibrous tissue (See the accompanying microphotographs.)

Caution should be used, I have found, to cut the strips from below upward, as the fibers often curve outward around the external ring, and if followed from above downward would occasionally end in the upper segment of the ring. The inner surface of the aponeurosis shows distinctly the tendinous fibers, so by everting the edge one can parallel them best.

In this group of cases I have naturally included op-

erations done by all the usual methods, because desirous of trying its applicability to them, but the majority have been after the Andrews-Girard or Bassini.

When the hernial aperture is particularly large, the bringing down of the inner flap of the external oblique to Poupart's without raising the cord, permits the using of an unusually strong strip of aponeurosis, as the subsequent imbrication does not require the creation of a new canal between the flaps.

Whatever the method of operation, its success is dependent on the formation of a cicatricial connective tis-

foreign material does, while if they live (as experiment seems to prove), they remain to offer permanent resistance to future stretching.

I wish to acknowledge the good work done by Dr. E. L. Dagg in making the pathologic sections and of Mr. H. D. Skelton in preparing the microphotographs.

DISCUSSION

ON PAPERS BY DRs. D. N. EISENDRATH* AND L. L. M'ARTHUR.

DR. W. B. COLEY, New York City—I have been interested in Dr. McArthur's method of autoplasmic suture in hernia

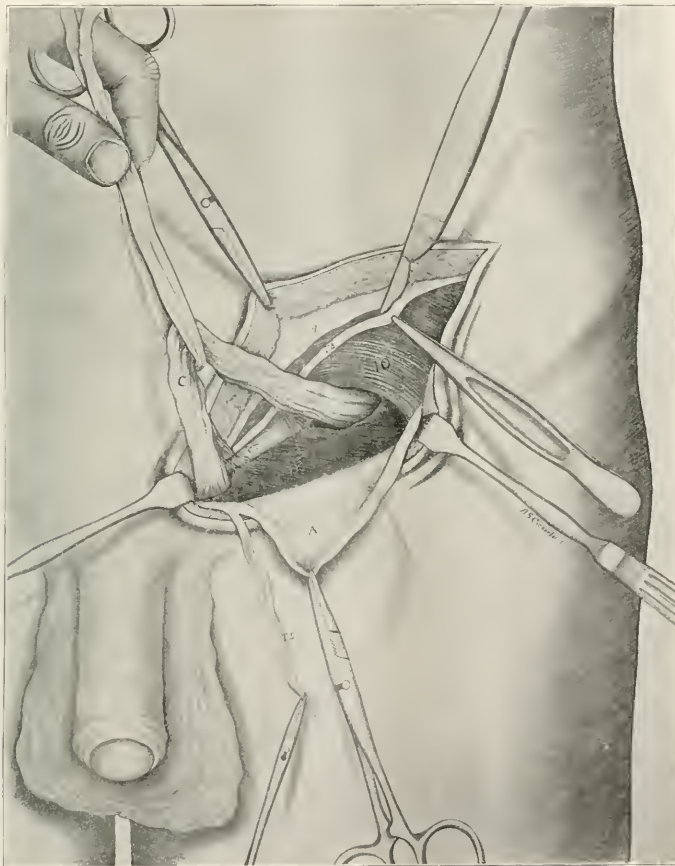


Fig. 9.—A. Aponeurosis of external oblique. T. S. Tendon suture. C. Cord. I. O. Internal oblique. C. T. Conjoined tendon. T. F. Transversalis fascia.

sue between the apposed surfaces, retaining them where placed. Could we, in addition, incorporate in such a cicatrix such white inelastic tissue as these tendons present, especially interwoven as a running suture is, then we can certainly feel more confident of its permanency and unyielding character. My former paper concluded as does this: "It is logical that if the identical technic is followed, using these living strips as aseptic animal sutures are used, and a primary union result, that if they die and be absorbed they accomplish all that the

ever since it was brought out, a few years ago, although I have never made use of it. A few years ago the indications for the employment of such a method were much greater than they are at the present day, when we have abundant proof of our ability to perfectly sterilize ordinary absorbable sutures, e. g., catgut or kangaroo tendon. Of the disadvantages of non-absorbable sutures in hernia, in showing a tendency to late sinus formation, I have given numerous examples. I have

* The paper by Dr. Eisenrath appeared in THE JOURNAL, Sept. 10, 1904.

found that the absorbable suture of chromicized kangaroo tendon remains sufficiently long in the tissues to effect a permanent cure; and this suture will cause no trouble unless it has been chromicized too long. Since I began using rubber gloves as a routine measure, in 1897, I have had less than 1 per cent. of suppurations, and the percentage of relapses following operation has been so extremely small that I think in the Bassini method, with buried absorbable sutures, we have practically an ideal method, without the more complicated suture of McArthur. At the same time, Dr. McArthur has shown that it is possible to use the autoplasmic suture with excellent results. My chief objections to it are: (1) that equally good results can

ways, behind or in front of the cord. I am fond of doing this same lapping operation in closing the rectus sheath after celiotomy, and I used it long ago in closing the ring in ventral and umbilical hernia. This step was referred to as mine by Dr. Mayo in his original paper on closing umbilical hernia for radical cure. He has, however, added a more valuable feature by overlapping from above downward, making a transverse line. It was one of the most agreeable surprises I ever had after Dr. McArthur had worked on his method to look through the microscope and see in these specimens, which he had cut, the beautifully demonstrated circular line of fibrous tissue evidently still living, and to observe that there was a true tis-

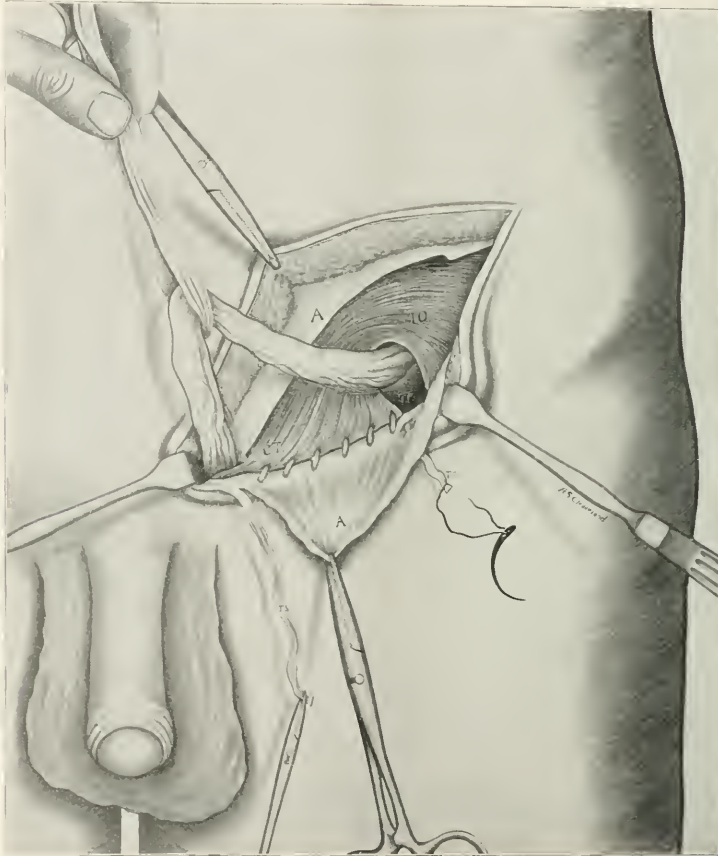


Fig. 10.—A. Aponeurosis of external oblique. I. O. Internal oblique. C. T. Conjoined tendon. T. S. Teudon suture.

be obtained by a simpler technic; (2) that in certain cases where the aponeurosis is more or less defective, its application will be unsatisfactory.

DR. E. W. ANDREWS, Chicago—I call this operation the imbrication or lap-joint method. It was first performed about eleven years ago. The theory of the operation is the doubling of the thickness of the layers of the abdominal wall by shingling or overlapping so that they lie like the scales of a fish. In a paper published in 1895 I showed a sagittal section of the aponeurotic layers of the abdominal wall illustrating how it was possible to do the operation in four or five different

sue growth in this autoplasmic stitch. We have here a new principle. If we could take strips of tissue for stitches and have them live it would be a strong help in strengthening weak points in various operations. I am sure it will interest every one here to examine the specimen as shown under the microscope, showing clearly what he claims, namely, a new living connective tissue band formed by the suture. My operation has been done over 2,000 times in Chicago and the west. Some of the cases are of over ten years' standing. The method in one of its forms is given as "Girard's operation" in v. Mikuliez and Bruns' last edition. This is an oversight, as Girard did

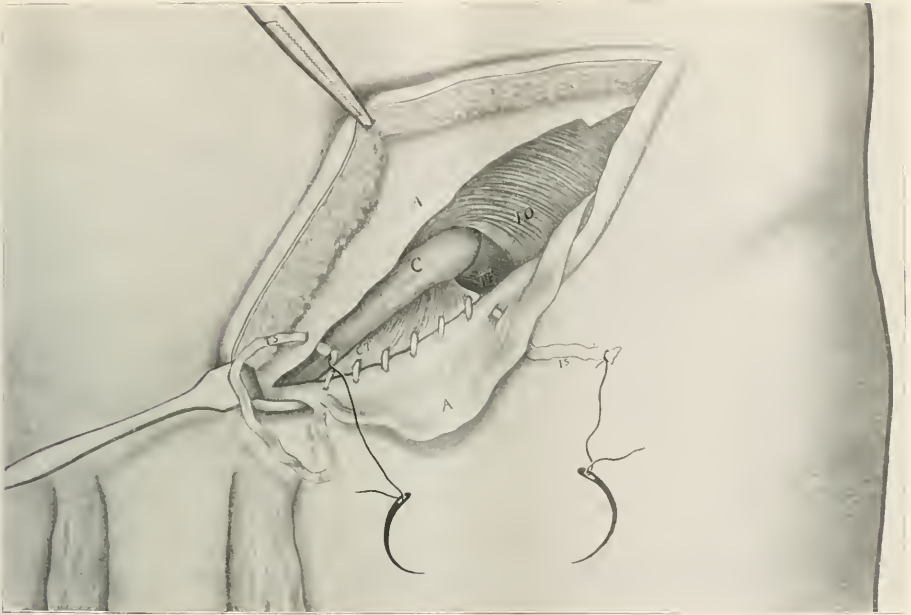


Fig. 11.—A. Aponeurosis of external oblique. I. O. Internal oblique. T. F. Transversalis fascia. C. Cord. C. T. Joined tendon. T. S. Tendon suture.

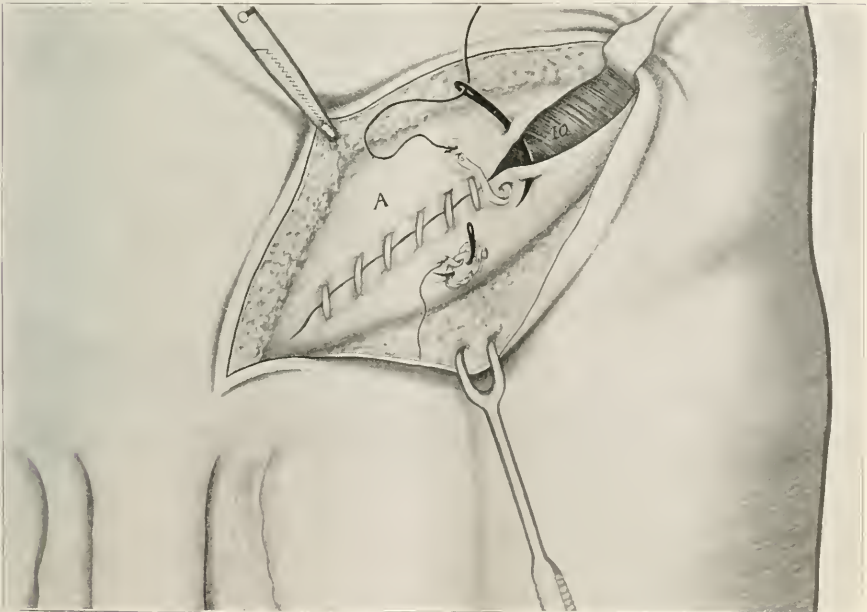


Fig. 12.—A. Aponeurosis of external oblique. I. O. Internal oblique. T. S. Tendon suture.

not publish it until seven years after I had done so. I believe it is to be corrected in the forthcoming edition of this great work.

DR. C. F. STOKES, U. S. Navy, Washington, D. C.—For many years I have been interested in the question of herniotomy in the Navy and was instrumental in establishing the operation for the radical cure as a routine practice in the hospitals of

Having only recently completed a cruise at sea, I have had no opportunity to make use of the newer methods, but after what I have heard this morning I shall give them a trial in suitable cases.

DR. J. C. BLOODGOOD, Baltimore—It must be very satisfactory to Dr. Andrews to know that many surgeons have recently adopted his method of the imbricated suture. These surgeons



Fig. 2.—Case 1. Woman, 76 years old. Impacted fracture of right femoral neck, as outlined. Angle of neck to shaft, 131 degrees; normal angle (left leg) neck to shaft, 135 degrees. Perfect result. Woman walks well. (Illustrating paper of Dr. Wills, see page 1048.)



Fig. 3.—Case 2. Impacted or "pegged" fracture of neck of right femur—"Intracapsular" of older writers. Leg one-half inch short. Excellent result. (Illustrating paper of Dr. Wills, see page 1048.)

the service. I have always taken the stand that the predisposition to hernia is congenital, exists prior to enlistment, and that the exciting cause, so-called, is secondary, and therefore, patients who refuse operative treatment and are discharged from the naval service should not be entitled to a pension. The Bassini operation, as modified by Drs. Bull and Coley, has been my choice, and the results have been very satisfactory.

started with, perhaps, different ideas and certainly with different methods, and in their endeavor to perfect their results, have, in the great majority of cases, in one way or another, both with and without the knowledge of Dr. Andrews' previous publications, gradually come to overlapping the different layers of the abdominal wall exposed for the dissection and removal of the hernial sac. It seems to me that it is a greater

compliment to the originator of a method to know that others have adopted his method not by imitation, but by a natural process in the development of the operative technic. Dr. Eisen-drath has given us a splendid demonstration of what can be accomplished with dry goods to demonstrate the operation for hernia. Dr. McArthur undoubtedly holds a peculiar position in the field of the operative treatment of hernia. We might designate him as an international peace commissioner, because McArthur with his human suture apparently accomplishes a cure with any method. The test of an operation for hernia is the test of time. Since my extensive study of the ultimate results after operations for hernia in the Johns Hopkins Hospital in 1899, recent experience has confirmed the conclusions then made. Suppuration in the past has been one of the chief factors of a recurrence. Improved technic has practically excluded this factor. It is unnecessary to transplant the cord. When the accompanying larger bundle of veins is varicose they should be excised, but only in adults; in children the veins should never be excised. In excising the sac the *vas deferens* and its accompanying vessels should be handled with the greatest care and not separated from the posterior wall of the inguinal canal. The most important factor is the separation and the suture of the internal oblique muscle to Poupart's ligament, strengthened by the suture of the divided aponeurosis of the external oblique. There are a few instances in which it will be necessary to expose, transplant and suture the belly of the rectus muscle. In one group this is indicated because the conjoined tendon is narrow, weak or obliterated (about 5 per cent. of the cases). In such cases it seems impossible to utilize the internal oblique muscle in as satisfactory a way as the rectus, to cover the lower third of Hesselbach's triangle, which in the majority of cases is occupied by the wide and strong conjoined tendon. In a second group the internal oblique muscle is situated so high or has undergone such an amount of atrophy that it is not of sufficient value for suture purposes; here again the rectus should be used. Imbrication is not essential when the internal oblique muscle is strong and the conjoined tendon wide and firm. Imbrication undoubtedly, more than any other factor, accomplishes a cure when the muscle and aponeuroses are attenuated. Imbrication in all cases allows the use of finer suturing material.

DR. H. O. MARCY, Boston, Mass.—I am reminded of the statement of Dr. Oliver Wendell Holmes, who said that the finer dissections were like splitting wood, the more sticks you split the more you will have to split. This is true of the less important factors in inguinal hernia. We all agree on some points. First as to the sac which has been referred to; we agree that it should be removed in large, old hernias. There was a time when we argued that it could be utilized for a purpose, but we now agree that it should be eliminated. The cause of oblique inguinal hernia is usually found in congenital conditions, resulting in imperfect development of the structures which form the posterior wall of the canal and internal ring. Cloquet, who based his opinions on the results of his dissections of 500 subjects where hernia did not exist, found these structures so often defective that he described his so-called infundibular process of the peritoneum as normal anatomy. That no such process or pocket of peritoneum may remain in which intraabdominal contents can find lodgment, is the most important reason for the removal of the sac. Undue intraabdominal pressure on the internal ring necessarily deflects the opening downward, shortening and distending the canal until it may become a direct opening, or hole, in the abdominal wall. This is the more usual condition in cases which come to operation. Admitting the above undeniable conditions, the general problem is easily reduced to a single factor—restore the parts to normal conditions. Although generally anatomically described, these conditions have failed to receive due surgical emphasis as amply illustrated in the papers and present discussion. The inguinal canal traverses the abdominal wall so obliquely that the intraabdominal pressure is exerted at or about a right angle to its axis, compressing laterally to its walls. This is a well-known principle of mechanics. The only other important instance of which Nature makes physiologic use is the penetration of the ureter through

the wall of the bladder, to prevent reflux of urine toward the kidney. How to restore the inguinal canal to its normal obliquity and thus deflect from it the intraabdominal pressure? This effected, it appeared to me that the "thousand year-old problem of surgery" would admit of easy solution. The parts must be reconstructed in a way made possible only by the use of buried absorbable sutures. Mr. Lister had taught me to ligate arteries cut short and buried in the structures—why not freely reconstruct the tissues by continuous sewing as the seamstress shapes clothing? This was seemingly so unwarrantable that I found it difficult to secure medical men to witness my early operations. My first published cases were in 1870, followed during the decade by a number of papers read before this Section. In 1881, in London, again in 1884, in Copenhagen, I presented elaborate papers on this subject before the International Medical Congress. These papers were prior to any reference to this method by any European or American writer. This was the first use of the buried absorbable suture, my best contribution to surgery. Little by little I broadened their use to every aseptic wound regardless of size, closing and sealing the wound without drainage. Thus reconstructed hernia is easily and permanently cured without danger to healthy individuals in all periods of life.

DR. ARTHUR D. BEVAN, Chicago—The operation for hernia has been very slowly evolved, but the majority of operators are now pretty well agreed. I have no operation. I am in a judicial position. I make an incision over the canal and open it from the internal to the external ring. I remove the entire sac if it is small, but if it is large simply that portion which is in the canal. No harm can come from the balance. I leave the cord in its normal position because there is more danger of injuring the cord if one elevates it. Three per cent. of injuries have occurred in my own work. I have never come to the imbrication method. It is called in literature the Girard operation. If there is a large opening, or if there is absence of the internal oblique and transversalis, the suggestion of using the sheath of the rectus and drawing it down through Poupart's ligament is an excellent scheme. We should more extensively use the method of local anesthesia. I use it in one-quarter of my cases and the results are most satisfactory. The suture material I am quite convinced is absorbable. There is no excuse to-day for using a non-absorbable suture. I have taken out so many silver wires that the evidence is so strong against the permanent suture acting as a permanent suture that the absorbable kind should be used.

DR. W. B. DE GARBO, New York City—I believe Dr. Eisen-drath's method of teaching anatomy is a valuable advance. Dr. Andrews' operation in the treatment of hernia I look on also with favor. In all probability I shall not adopt the method as a routine practice because I have only had eight failures out of over 1,000 inguinal cases by the Bassini operation. We are all working in the same field with the same object. The vital points are to remove all foreign substances from the canal and close it thoroughly, at the same time restoring its obliquity.

DR. JOHN B. WALKER, New York City—The Bassini operation is the one which will give the largest number of successes.

DR. CHARLES LESTER LEONARD, Philadelphia—I wish to report a case of direct inguinal and oblique inguinal hernia on the same side in which the deep epigastric was just beneath the skin. After ligating the sacs separately I found that I had a ring to close which extended from the position of the external abdominal ring to the symphysis pubis. It involved the entire inguinal canal. In closing, the cord was displaced according to the Massini method, but instead of employing interrupted sutures to close the canal, two Macewen stitches were introduced. These held the free edge of the oblique and transversalis fascia beneath Poupart's ligament. The patient, a ship machinist, has been at his trade over a year and shows no signs of a recurrence of the hernia. The case is noteworthy because of the rare pathologic condition and the combination of the Bassini and Macewen methods.

DR. E. W. HOLMES, Philadelphia—There is no subject in anatomy more difficult for students than that of hernia, because of the diversity of names used for the same structures.

Our studies of comparative anatomy show us that muscular structures may later become fascial. Thus the levator ani muscle, now arising from "the white line," originally came in muscle from the iliac crest. Not pursuing the analogy too far, I have always found it of advantage in teaching to consider all the layers of the abdominal parietes as continuous with Poupard's ligament in its whole continuity; then the testes coming down carry each layer with them in turn; and so the hernias. Thus once learning the anterior abdominal wall, we have learned likewise the coverings of the hernias, direct and oblique, and the coats of the testes. In discussing the methods of radical cure not only at this meeting, but in our journals and in the text-books, with all due regard to the eminent men here and elsewhere who have given names to particular operations, it seems to me we are entirely too partisan. I approved of the remarks made by Dr. Marey, because he talked to us like a philosopher, giving us the fundamental truths, anatomic and scientific, underlying his procedures. Some day I hope this Association will cease to debate any man's name, but, taking the best from each, we will come to agree on the principles underlying the best method for the operative cure of hernia.

I have concluded that the profession have the causes of hernia upside down, in declaring that "the congenital conditions are the predisposing," and "hard work and heavy lifting are the direct or exciting." It should be the other way; the congenital is the essential, the trauma the accidental. Now that we open up the canal and can see, we know that the "congenital hernias" and the congenital weaknesses are much more frequent than they were supposed to be. The force is a mere accident, the congenital weakness the actual cause. One can not tell the strength of the abdominal fibers by measuring a man's biceps cruris. I have seen athletic young men with the fibers of the internal oblique and transversalis as thin as paper. In a recent patient of this kind, a young man said to me, "Doctor, I am strong everywhere else; why should I have a rupture?" "Because," I replied, "you are congenitally weak in the hernial regions." The valvular condition of the peritoneum, the obliquity of the canal, the counter-pressure of the viscera and of the aponeurosis, these and other elements being present or absent, are more properly the essentials rather than strain or violence.

DR. D. N. EISENDRATH—If the sac is far down in the scrotum all we should do is to resect that portion of the sac which is in the inguinal canal. As to the sac in children, we know that it is very anatomically adherent to the cord. I have been using a method brought out at the German Hospital. I use kangaroo tendon for deep sutures and catgut for superficial sutures. In two recent cases I did not transplant the cord. I believe that leaving it in its normal position is especially advocated in non-descent of the testes. The more space we gain the better. Sometimes you will gain half an inch in the length of the cord if you do not transplant it. For the average small hernia the Bassini operation answers nearly every purpose and it is especially efficacious in cases with large internal rings.

DR. L. L. McARTHUR (closing)—The success of present methods is dependent on the broad surfaces that are brought in contact with one another. Former failures were due to bringing edge to edge. If the obliquity of the canal is restored the force compresses the canal. One wants plastic union between broad surfaces to prevent future failure.

IMPACTED FRACTURES OF THE NECK OF THE FEMUR.

REPORTS OF TWO INTERESTING CASES.*

LE MOYNE WILLS, M.D.
LOS ANGELES, CAL.

During the past year I have treated two cases of impacted fracture of the neck of the femur; one I took charge of within the first twenty-four hours after injury; the second, after four months had gone by. They differed as much in age, manner of production of injury and treatment as in the results obtained.

CASE 1. *History*.—Mrs. K. C., Sherman, Cal., aged 76, widow, born in Virginia, of large frame and good health, except for rheumatism of knees. June 22, 1903, while walking on a board-walk in her garden, she slipped and fell heavily on right hip and thigh, producing a severe contusion and pain, and was unable to get up or stand. She was put to bed and a physician summoned from Hollywood. He carefully examined her, and, diagnosing fracture, put on Burk's extension with a 10-pound weight and made her as comfortable as possible. The following day I was called in consultation; found leg in good position, a tendency to external rotation, some slight crepitus, but little if any shortening. Being satisfied that we had a fracture of the neck of femur to deal with, and the parts being in good position, very gentle manipulation was made and the dressing, which was excellently applied, was left undisturbed. We decided to send the patient to California Hospital the next morning, where she could have better attention than at home. Patient stood the journey on electric car well, and was put on a fracture bed; weight and sandbags were continued for thirty days. By great care external rotation was prevented; no harm came to her back and sacrum from the pressure. The patient stood the confinement to bed well. It seemed important, however, to get her up as soon as possible. Therefore, a well padded plaster spica bandage of pelvis and thighs, including condyles of femur, which seemed to me the dressing best adapted for maintaining fixation of the fragments, there being a tendency to shortening, was applied July 22, 1903. (Fig. 1.)

On account of her rheumatic knees, great difficulty was experienced in her attempts to use crutches and but little progress was made in walking. By degrees, however, with the assistance of the nurse, she acquired sufficient confidence to walk a little each day. She left the hospital August 9 and returned to her home.

On October 6 two inches were cut off the lower end of cast to give the knee more movement. On October 16 the cast was split up the front in the median line. On October 27 the entire cast was removed. The cast was on thirteen weeks.

November 7 the first skiagraph of the right hip and femur was taken by Dr. Soiland. November 19 the second skiagraph of both sides on one plate was taken. November 29 the third of the normal hip was taken for the sake of comparison.

December 2 the patient walked with crutches and could bear some weight on the injured leg, and, were it not for her knees and stiffness from rheumatism, would have walked fairly well. With increasing confidence she walked more and more each day. May 1, 1904, she walked with crutch or cane, did housework and worked in her garden, almost as well as before injury. (Fig. 2.)

CASE 2.—W. A. M., aged 56, married, three children; weight, 139 pounds; height, 5 feet 6½ inches; slender; no serious illness nor injuries; always good health; house painter. While painting house from hanging ladder, Sept. 5, 1903, was knocked off; fell 35 feet; received severe contusions on left side of head, shoulder and thigh, and cheek cut, while on right side no marks except bruised spot on top of right foot, an inch in diameter, and an abrasion over right biceps; no contusion or marks on right leg, yet as he fell he struck something on way down or

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. F. Moore.

Ancient Medical Advice.—The following advice, which is being printed in various lay newspapers, is said to have been given by Rhazes, an Arabian physician, to his patients more than 1,000 years ago: "Study carefully the antecedents of the man to whose care you propose to confide all you have most dear in the world, that is, your life and the lives of your wife and children. If the man is dissipated, is given to frivolous pleasures, cultivates with too much zeal the arts foreign to his profession, still more so if he be addicted to wine and debauchery, refrain from committing into such hands lives so precious."

after striking ground with sufficient violence to cause fracture of neck of right femur. Patient was examined at once by a physician at Redondo, recovered consciousness in a short time and was removed to his home and put to bed with a pillow under right knee. He lay in bed without any treatment, without splint, sandbags or weight, and never had a cast nor appliance of any kind until October 25, seven weeks after the injury, when he began to sit up, and on November 15 began to use crutches. This patient was sent to me for an opinion by Dr. G. W. Frink of San Francisco, the employer of son, Dec. 24, 1903.

Examination Findings.—Patient used crutches, walked badly, afraid to walk without them, and afraid to use leg much. A large amount of callus was found about right hip joint, giving firm union, but greatly restricting the normal range of motion. On measurement leg was one-half inch short, though femur was intact; foot slightly rolled inward; thigh and buttock somewhat atrophied.

The shortening and other findings narrowed the diagnosis down to dislocation upward and backward, or to fracture of neck of femur, and since there was firm union, if it were a fracture of neck, which seemed the more probable, it was important to know which of the two conditions existed for guidance of future treatment. Hence a skiagraph was taken, which showed positively the injury and variety. (Fig. 3.)

another, the outer and lower compact portion of neck driven like a spike into the inner fragment, consisting of small part of neck and head, and fortunately this "pegged" condition of neck was not disturbed and abundant callus was thrown out, which made good union.

The point of fracture differs a little in these two cases. Case 1 is a true "mixed" fracture, the line of fracture being partly within and partly without attachment of capsular ligament. Case 2 is entirely within attachment of capsule, and would have been called "intra-capsular" by older writers, and were it not for the immobilization due to "pegging" no such outpouring of callus would have been made, nor would the result be as it is, good.

Case 1: By careful measurement of skiagraph, considering the angle of light, contrasting the normal with fractured side, there is one-fourth inch of shortening of neck of right femur, and there is but 4° of change from normal 135° on left side to 131° on the right or fractured side. This proves the statement that there is absolutely no appreciable shortening of right leg. To be accurate, I had an architect measure the skiagraphs for angles and shortening. May 1, 1904, both legs measured $34\frac{1}{2}$ inches.

Case 2: Measurement of the two legs showed just one-half inch shortening of right or fractured leg, and since four months had passed since reception of injury, patient was advised to bear some weight on leg, and gradually give up use of crutches and thus gain a greater range of motion. Man now walks well; slight limp only, due to shortening.

The literature on this subject is very meager and rather unsatisfactory, most treatises on surgery passing over this very important and interesting variety of injury to the femur near the hip joint in a paragraph or two, as if it were a rare and unimportant condition. By far the best description of this condition I have been able to find is in Bloodgood's fifth edition of Helferich,² and I have adopted his classification of "lateral" and "median" and "mixed" in the description of these cases.

RESUME.

My reason for presenting these cases to this Section was to show the great contrasts in manner of application of force, differences in distance of fall, and method of production of fracture, especially in Case 2, where all evidences of injury were on left side, with no internal damage, while neck of right femur was fractured; contrast in treatment, one having immediate and exceptional care and attention, the other absolutely none. I wrote attending physician, asking history of case, but could obtain no reply, and simply have to depend on patient and friends and resultant condition for the history of injury given.

The results obtained are certainly beyond all expectation, Case 1 being 76 years old, with as nearly a perfect result as a younger person could expect. Case 2 walks very well, one-half inch shortening being of little moment. Two such extreme contrasts rarely come to a surgeon within a few months, hence this paper.

DISCUSSION.

DR. HARRY M. SHERMAN, San Francisco.—It seems to me that the x-ray has weakened our diagnostic acumen in fractures in general. It is so easy, when we are in doubt, to have a radiograph taken that we do not practice clinical diagnosis as carefully as we should do. In fractures of the neck of the femur this may be different. You can not take such a case always to the hospital, and some of the patients can not



Figure 1.

CONTRASTS OF TWO CASES.

The histories of these two cases have been briefly given, and the skiagraph showed them each to have been "lateral" compression fractures, due to direct violence, varying greatly in degree, one fall being three feet, while the other was thirty-five feet, both of which were severe enough to bruise and damage the soft parts and fracture neck at or near the intertrochanteric line. Case 1 when examined was diagnosed as fracture of neck with impaction, since there was little tendency to shortening, and every precaution was taken to prevent disturbance of the apposition of the fragments. Case 2, when seen four months after the injury, was diagnosed as either dislocation upward and backward, since there was no shortening of femur, or fracture of the neck with a change of angle of neck to shaft, with a large deposition of callus, making firm union and restricting range of motion of hip joint. The skiagraphs showed impaction in each case, more marked in second case than in first, where fragments were firmly compressed by blow into one another, without much change of angle or form. In Case 2 the picture showed the fragments driven into one

afford to have the portable apparatus brought to the home, and under these circumstances, ultimately, we must make our clinical diagnosis practically accurate. We must exhaust all the means at our disposal. Now, shortening of the limb is one of the classical symptoms, and yet I had two cases this past winter in which there was an absence of shortening. There was in each some disability, some pain and some discomfort. In both I happened to be deprived of the assistance of the x-ray. One case, after many examinations and after having had fractions on, was finally treated as a contusion. The only persistent symptom was the inability to lie in bed and lift the foot from the bed with the knee extended. And yet this man had no pain and could sit up in bed, and could, in general, move the hip as if it was sound. After a time in bed he got up, and we found then a separation of fragments and an obvious fracture. It was a very clear case, and the fragments of the femur had been impacted. The second case was put to bed after receiving a very slight injury. I supposed it was a fracture of the femoral neck, although there was no shortening and the man could lift his leg perfectly well. The case got well enough to be about, and could go to be radiographed, when he showed a very definite fracture of the neck of the femur, the under part of the neck having been driven in. In this latter case without the x-ray one would say there had never been anything more than a contusion. In the first case a diagnosis should have been made. The negative treatment resulted in the separation of the fragments, and then the diagnosis was clear. The second case had been treated for a fracture without definite symptomatic ground, and the result proved the wisdom of the plan. In general, in these cases, we must be careful lest we forget the art of clinical diagnosis.

DR. C. E. THOMSON, Scranton, Pa.—I do not know how the second case mentioned could be brought to a half-inch shortening if the legs were the same length originally. The x-ray shows more shortening than half an inch. At the Saratoga session I reported a series of cases of fracture of the neck of the femur. At that time I took one of my patients there with me to demonstrate bony union by the nailing operation, and I want to make a further report on that case. He walked well with the aid of a cane and had no pain. There was almost normal motion, and I considered him equal to the first case that I had reported, and presented the specimen to the Section, which proved that the union was bony. After the Saratoga session my patient developed a cancer of the stomach and died, and I had an opportunity of holding a postmortem, when I was surprised to find that there was no bony union. When the patient was presented to the Section he walked well and could bear all his weight on his leg.

DR. WILLIAM L. RODMAN, Philadelphia.—The only good results that I have ever had in fractures of the femur high up in old people were in the few impacted fractures that I have seen. I think we should remember that in the impacted fractures of the femur in this situation the best results will be secured by letting them alone, while in closed fracture this is not true. In these cases "disimpaction" should be practiced, and the kind of splint you use will be of very little importance. In the case mentioned it is very easy to understand why the shortening was not greater than it was. The fracture was evidently very high up and was intra-capsular. The old nomenclature of intra-capsular and extra-capsular fracture will not do. The vast majority of these cases are partly within and partly without, as the capsule does not extend equally low. The x-ray shows them to be both anterior and posterior. I am very glad Dr. Sherman has objected to our depending so much on the x-ray. If we are not careful the diagnosis of fracture will soon be a lost art. We are teaching students who are going to parts where the x-ray can not be gotten, and we are not giving them the amount of practical knowledge that we should. I never refer to the x-rays to students. They can not take an x-ray apparatus with them.

DR. M. K. CRANE, Rutland, Vt.—Three years ago my wife fell on the sidewalk and sustained an injury of the left hip. On examination one-half inch shortening was found, but there

was no eversion. I thought she had an impacted fracture and I kept up extension for seven weeks. She could rest better with the weight on than off. She was confined to her room for five months, and had about half an inch of shortening on getting up. I never saw a case suffer so much pain. She now walks with a cane and has about three inches shortening. I have a good skiagraph of the case. Some state that the leg should have been nailed, but I do not know that that would have been any improvement.

DR. DANIEL N. EISENBERG, Chicago—I had a very interesting experience recently, which I believe shows that occasionally the callus in a fracture of the neck of the femur either becomes absorbed to a great extent or osteoporosis occurs, permitting the fragments to move on each other so that shortening of the limb can occur many months after the period of the original fracture. During the past spring a man appeared at my clinic who stated that two years ago he had sustained a fracture of the neck of the femur. At that time measurement of the limbs showed a very slight difference. He states that the fracture had healed, but that during the past six months the leg had become gradually shorter until at the time of my examination there was a difference of two and a half inches. The x-ray examination made by my assistants showed a typical fracture of the neck of the femur, and there was free mobility at the point of fracture. We must teach our students not to depend too much on the x-ray examinations in the diagnosis of fractures. They should be taught not to overlook the many cardinal signs of fracture which enabled us to make fairly accurate diagnoses even before the advent of the x-ray. In this class of fractures (neck of the femur) one of the most typical signs has always seemed to be the eversion of the leg.

DR. JAMES B. BULLITT, Louisville, Ky.—I recently obtained a postmortem specimen which showed plainly the possibilities in cases of hip joint injury. The patient was an old lady who fell on the pavement, and while no definite signs of fracture could be elicited, she was treated as if she had one. Later she died of heart disease and the postmortem specimen showed no fracture of the hip joint at all. She had suffered a simple bruise, but the bone head and neck were infiltrated with blood. This condition sometimes afterward leads to the condition which Dr. Crane has spoken of. It seemed to me it might have been called the first degree of fracture. The woman might possibly have had later a breaking down of the head of this bone due to the failure of the vital processes. We are familiar in Louisville with a case in which two competent surgeons failed to agree. One said fracture and the other said not. One saw the case early and one saw it late. These opinions were absolutely irreconcilable, but it seems to me the above case offers a possible explanation.

DR. E. D. FENNER, New Orleans, La.—I am surprised there has been no mention made of the Hodgen splint. Those who have used it have all been struck by its tremendous influence for good on the comfort and health of the patient, and in old people its use will do much to prevent just such a fatal termination as has been mentioned by Dr. Bullitt. I call attention to this splint because it will preserve the health and life of old patients suffering with fracture of the femur.

DR. LE MOYNE WILLS—I have presented these two cases because they afford the greatest contrasts. Case 1, as shown by skiagraph, was very slightly impacted, and thanks to the gentleness of manipulation of the physician who first saw the patient, the impaction was not disturbed. The case was so interesting that I went to the trouble of taking a portable x-ray machine three times to the patient's house, sixteen miles from Los Angeles, so as to establish and confirm my diagnosis beyond a doubt. In the second case the x-ray was taken to differentiate between impacted fracture and dislocation, so as to advise the patient as to proper treatment regarding the use of the leg. In the first case I do not think any splint would have held the leg in as good position as the spica plaster dressing, extending down to and taking in the condyles of femur. It was well padded and made large enough to be comfortable, and held the leg immovably in the proper position. There was no tendency to shortening and I desired to get the patient up

as quickly as possible, and thus avoid the dangers of a long time in the horizontal position, which often causes hypostatic pneumonia in the aged. My patient was a very vigorous woman and has made a perfect recovery. The callus in each case was large and securely held the fragments in proper apposition and subsequently made good bone.

OSMIC ACID INJECTIONS FOR RELIEF OF TRIFACIAL NEURALGIA.

JOHN B. MURPHY, A.M., M.D.
CHICAGO.

(Concluded from page 955.)

CLINICAL CASES.

CASE 1.—Mr. A. L. C., age 76 years, retired farmer. Admitted to Mercy Hospital June 8, 1903.

Present Illness.—For thirteen years has suffered from neuralgic pains in right side of face, but they were not very severe or constant until four years ago. At that time he had a severe attack which he thought was caused by a diseased right upper cuspid. The tooth was removed about two months after the onset, and for six weeks following he was relieved. Pain then recurred and was severe and persistent. Two years ago he had an operation performed on the right superior maxilla, the exact nature of which he does not know. He was free from pain for four months after the operation, but at the end of that time it returned and has been present, at intervals, ever since. The pain is of a severe shooting character, beginning at right ala nasi and radiating toward cheek. He also has some pain in the forehead, just above the right eyebrow, radiating toward temple. General health has been fair for a man of his years.

Previous History.—"Ague," "bilious fever," etc., years ago. Used to smoke and drink moderately. Family history negative. Examination shows a man of rather poor nourishment; lungs and heart negative; arteries sclerotic. Urinalysis negative. Slight tenderness over supra- and infraorbital divisions of fifth nerve at their foramina of exit. No areas of hyperesthesia or anesthesia and no evidences of tumor or inflammatory processes along the course of either nerve.

Operation.—June 11, 1903. Supraorbital, infraorbital and mental branches injected with 1½ per cent. solution of osmic acid. In the afternoon his temperature was 99.8 F., and pulse 64. His pain had entirely disappeared. June 12, p. m., temperature 100, pulse 70; June 13, p. m., temperature 99.8, pulse 62; June 14, temperature and pulse normal; sat up in chair. After this temperature remained normal, he was up and around every day and the sutures were removed June 17. Wounds healed by primary union. Patient discharged from hospital, with pain entirely gone, June 20. In a report received from this patient July 21, he states that there has been no recurrence of the pain and that he feels perfectly well.

In a later report received April 14, 1904, he says he has had no pain since operation and that his general health is excellent. Appetite good, and he sleeps well.

CASE 2.—Mr. H. H. C. Age 55 years. Farmer. Admitted to Mercy Hospital Sept. 25, 1903. Family history negative.

Previous History.—"Typhoid fever" at 35. "Measles" 12 years ago. "Catarrh" for the past 30 years. Had recurring attacks of "malaria" 25 years ago. Attacks were always cured by quinin. Never used alcohol to excess, but has chewed tobacco.

Present Illness.—Twelve years ago while working in the cold suddenly felt sharp pain in right lower jaw and a little later in right upper jaw also. This attack was of short duration, but in the year following he had a second similar one. Since then they have recurred at gradually shortening intervals, and have become more severe and the area involved more extensive. For some time past the entire right side of the face and nose have been affected and the pain has been almost constantly present. It is always aggravated by eating and talking. He has had frequent acute exacerbations of the pain during

which it is sharp and shooting in character and radiates from the malar prominence to the lower jaw, above the right eye and over the right side of the nose and temporal region.

Examination.—Shows a well-nourished man of medium stature. The foramina of exit of the three branches of the fifth nerve on the right side are tender to pressure. Urinalysis negative.

Operation.—Sept. 27, 1903. Supraorbital, infraorbital and mental bran. has injected with 1½ per cent. solution of osmic acid. Convalescence was uninterrupted and the wounds healed by primary union. (Sutures removed October 3.) On September 28 patient complained of slight twitching pain in the two upper wounds when he was eating breakfast. October 1, examination showed no sensitiveness to the prick of a pin over the area supplied by the supraorbital. Analgesia also present in area anterior to mental foramen. Has had no pain in the upper lip. There is sensitiveness, however, posterior to the outer canthus of the right eye and this area extends down on the side of the face. On the night of October 3 he had an attack of pain in the right side of the face above. This was similar to, but not so severe as the pain from which he suffered before the operation. October 6, patient stated that the pain was rapidly diminishing in intensity and that he had had no pain in the lower jaw. Left hospital Oct. 8, 1903.

Patient readmitted to hospital April 7, 1904. For three months after going home he had very little pain, but in January, 1904, the pain returned in the right lower jaw behind the molar teeth and extending backward and upward to a point in front of the auditory meatus. It was not so severe as formerly, but came on every day until two weeks ago, when it subsided. About March 1 he began to have pain in the right upper jaw, extending along the gum and roof of the mouth. This was very severe and has continued almost constantly until the present time. He had no pain around the eye nor on the forehead, but slight in the right ala nasi.

Examination of the patient shows: 1. A zone of diminished sensibility 1 inch in width by 3 inches in length, extending above the right eyebrow. 2. Diminished sensibility of right side of nose. 3. Area of diminished sensibility on chin extending from symphysis to right angle of mouth and from lip to edge of jaw. There are no areas of complete anesthesia.

Second Operation.—April 9, 1904. The infraorbital nerve was exposed by incision through the mouth and injected thoroughly with a 1½ per cent. solution osmic acid. The mental branch was then similarly treated. The inferior dental branch was next exposed as it entered the mandibular canal and also injected. The lingual nerve was isolated just posterior to the last molar tooth and injected. Lastly, the posterior palatine nerve was injected, and the posterior palatine foramen. In the nerves which had been previously injected was found the staining of the tissue by the osmic acid, but there was no destruction of the nerve substance. Convalescence uninterrupted and the patient left the hospital April 16, 1904. At the time of his discharge he had absolutely no pain and had had none since operation. The right half of the tongue, right half of lower lip and of face, external to nose, were anesthetic and analgesic. Letter received from this patient since his return home states that he has remained entirely free from pain.

CASE 3.—Mrs. W. B. Age 28 years. Admitted to Mercy Hospital Oct. 6, 1903.

Family History.—Brother and sister died of pulmonary tuberculosis.

Previous History.—No serious illness. Had two miscarriages, but no children at term.

Present Illness.—Fourteen years ago began to have severe neuralgic pain around the right eye. Since then the attacks of pain have become more frequent and severe and for the last eight years she has been confined to bed every two weeks with the very severe pain about the right eye. The attacks usually last 24 to 36 hours. No pain in any other part of the head or face. Examination shows no tenderness over the supra- or infraorbital nerves. Urinalysis negative, except for the presence of a few pus cells.

Operation.—Oct. 7, 1903. The supraorbital and infraorbital

nerves exposed by external incision over the foramina of exit and injected with a 2 per cent. solution of osmic acid. The mental nerve exposed by incision from within the mouth and injected. Convalescence uninterrupted.

Examination of the patient October 9 showed numbness of the skin over the right side of the face and scalp backward to the occipital protuberance. An area just in front of the right ear was not completely analgesic, but still sensitive to the tests.

Second examination, October 13, showed numbness over right side of face and scalp except in front of the right ear. Patient left the hospital Oct. 13, 1903.

In a report received April 14, 1904, she states there has been a return of pain just above the right eye. A few attacks have been nearly as severe as before operation, but most of them have been slight and have not lasted so long. She also states there is no numbness now present in the face. General health good. The attacks of pain always come on when she is tired out or nervous.

CASE 4.—Dr. E. R. M. Age 40 (?) years. Admitted to Mercy Hospital Sept. 11, 1903.

Present Illness.—Seven years ago patient sustained a crushing injury of left hand necessitating amputation through forearm about one inch above the wrist. Immediately after operation patient complained of severe pain in the amputated hand and this persisted until March, 1897, when a second amputation was done a short distance above the first. This gave him no relief, so a month later, a third amputation, with resection of the ulnar and median nerves, 2 inches above the elbow, was performed. As the pain continued severe after this, a fourth operation was performed in November, 1898, wedge-shaped piece being removed from the ends of the nerves and the edges of the resulting defect, with the sheath, sutured together. The "pain in the hand" still persisted and in August, 1901, the radial, ulnar and musculospiral nerves were again resected, but with no benefit to the patient.

Operation.—Sept. 12, 1903. Incision in left axilla, along border of pectoralis major. Brachial plexus exposed and its inner, outer and posterior cords thoroughly injected with a fresh 1 per cent. solution of osmic acid. Wound healed by primary union. Immediately after this operation, the pain was somewhat less severe than before, but the improvement did not last long. He left the hospital September 25. From then until October 9 the pain was about the same as before the injection. He was readmitted October 9 and again operated on October 10. This time the pectoralis major was divided square across and the brachial plexus exposed at its upper part. The 3 trunks were again isolated separately, and each injected for $\frac{3}{4}$ inch with a 2 per cent. solution of osmic acid. The infiltration of the nerve substance was very thorough and 20 to 30 m. of the solution were used in each trunk. The ends of the pectoralis were then approximated with heavy catgut sutures and the skin brought together by means of silkworm gut and horsehair. Convalescence uninterrupted. On October 15 the sharp pain which had been present in the fingers had disappeared, but he occasionally had very severe pain in the hand. On October 17, pain in fingers had returned, but there was no "transmission of pain upward along the nerves" when he moved or exerted pressure on them as there was before operation. There was complete anesthesia and motor paralysis of parts supplied by the injected nerves. He could not flex and extend elbow, but was able to rotate a shoulder. He left hospital Oct. 23, 1903.

In a report received April 14, 1904, patient states that the pain in hand and fingers is just as severe as before operation. Transmission of pain on pressure or friction upward along nerves in arm is returning. The numbness which was present immediately after operation is gradually disappearing, though it is still present on outer surface of arm and over entire forearm. Motion is gradually returning in muscles of shoulder and upper arm.

CASE 5.—Dr. S. W. L. Age 62 years. Admitted to Mercy Hospital Oct. 31, 1903. Family and previous history negative.

Present Illness.—For past eight or nine years patient has suffered at irregular intervals from attacks of severe pain in right side of face. Pain begins at ala of nose and radiates to

right side of nose and upper lip, infra- and supraorbital regions, passing upward $1\frac{1}{2}$ inches above right eye and backward to a point $1\frac{1}{2}$ to 2 inches anterior to right ear. The pain is at times most intense and often accompanied by twitching of right facial muscles. Examination shows extreme tenderness on pressure over right supraorbital foramen and along the right side of nose, especially at lower part. Urinalysis, negative.

Operation.—November 2. The supraorbital and infraorbital branches were exposed by external incisions, and the mental by incision through mouth at junction between lower lip and outer surface of lower jaw. Each branch was thoroughly injected with a 2 per cent. solution of osmic acid. Convalescence uneventful.

Examination November 3 showed anesthesia of right side of face extending upward 1 inch above supraorbital ridge, backward to a vertical line drawn $\frac{3}{4}$ inch anterior to right external auditory meatus and inward nearly to median line. The pain had entirely disappeared. He left hospital November 5.

In a report received April 14, 1904, he states there had been no return of the pain. After returning home the infraorbital wound became inflamed and discharged a small quantity of pus for two months. It then healed permanently. The numbness of right side of face was still present.

CASE 6.—Mrs. A. B., age 63 years. Admitted to Mercy Hospital Dec. 1, 1903. Family history, negative.

Previous History.—Has been constipated since childhood. Has had three children, all living and well. Had infectious diseases of childhood and "typhoid fever" twenty-nine years ago.

Present Illness.—Began eight years ago during the cold weather with marked hypersensitiveness over the right malar prominence, followed in a short time by aching pain in the right upper jaw. The dentist extracted two teeth which were supposed to be the cause of the pain. Then she had some relief for a few days. Pain then returned and was continuous with severe acute exacerbations, usually coming on at night for the two years following. It then gradually gave place to frequent attacks of very severe sharp shooting pain in the right upper jaw. In January, 1900, the lancinating pain began to radiate into the right lower jaw and has persisted in two lower divisions of the fifth nerve since that time. For the last two and a half years she has rarely slept longer than a half hour at a time, because of the intensity of the pain and the frequently recurring attacks. Supraorbital nerve has not been affected; some dull occipital headache since 2 $\frac{1}{2}$ years ago. Examination: Marked tenderness over the foramina of exit of the infraorbital and mental nerves. Urinalysis, negative.

Operation.—Dec. 12, 1893. Infraorbital nerve was exposed by incision through the mouth at junction between the cheek and the upper jaw, above the cuspid tooth. The mental branch was exposed by incision within the mouth at the junction between the lower lip and the lower jaw. Both were thoroughly injected with a $1\frac{1}{2}$ per cent. solution of osmic acid. Convalescence uneventful, except that slight purulent discharge persisted from the upper wound. Patient left the hospital December 12 with pain entirely relieved.

In report received from this patient April 14, 1904, she states there has been absolutely no return of the pain. Slight discharge persisted from the upper wound for a month after going home and for a shorter time from the lower wound. Numbness of the parts supplied by the injected nerve persists. Her health, she says, is better than it has been for many years.

CASE 7.—Mr. M. M. J. Age 54 years. Admitted to Mercy Hospital Dec. 8, 1903.

Family History.—Father has been a sufferer from trifacial neuralgia for a number of years.

Previous History.—Eight years ago patient had renal colic and passed some small calculi and blood in his urine. Last spring complained of painful urination and pain in lumbar region and, at times, along the sciatic nerve.

Present Illness.—Began six years ago with hypersensitiveness in left supraorbital region. At that time pressure above the left eye would cause shooting pains through the head. A few months later he suffered an attack of "erysipelas" on the left side of the face and following this had severe shooting and

burning pain, coming on in paroxysms, in left side of face. The pain was most severe in the left side of upper lip, cheek, supra-orbital region, roof of mouth, and in an area just posterior to and in front of the external meatus. The paroxysms have persisted since onset, but have come on at irregular intervals. At one time he was free from pain for a year, but since about nine months ago the attacks have come on every day.

Examination.—Shows tenderness on pressure over foramina of exit of the three branches of the fifth nerve on the left side. Urinalysis, negative.

Operation.—December 9. Supraorbital nerve exposed through incision over supraorbital foramen. Infraorbital and mental nerves reached through incisions from within the mouth. All three branches thoroughly injected with a 1½ per cent. solution of osmic acid. On December 16 some offensive purulent material was discharged from infraorbital incision. Also slight discharge from the incision over the mental foramen. Primary union of supraorbital wound. Patient left hospital December 22, with pain entirely gone, but some discharge from two lower wounds persisting.

In report received from this patient April 14, 1904, he states there has been no return of pain. Discharge from infraorbital and mental wounds continued for one month after going home. Before the lower wound healed a small piece of necrotic bone in the lower jaw was discharged. The numbness of face, supplied by the injected nerves, continues. His general health is excellent and he has gained 20 pounds in weight since the operation.

CASE 8.—Mrs. W. J. C. Age 40 years. Admitted to Mercy Hospital Feb. 10, 1904. Family and previous history negative.

Present Illness.—Began 1½ years ago with dull pain in the right side of the lower jaw. After a short time pain began to radiate into the right cheek and upward toward the right eye. When the pain became more general over the right side of the face it came on in paroxysms, lasting for a few minutes at a time and occurring every day for several months at a time. Last October she was free from paroxysms for three weeks. Four months ago pain became less severe in the jaw and concentrated in the right eye and right supraorbital region. At the same time it developed in the inner side of the right upper jaw and right half of hard palate, where it has persisted until the present time. At times she has had shooting pains in the back of the neck, in front of the right ear, and in the right half of the tongue.

Examination shows tenderness over the supraorbital, infraorbital and mental foramina. Urinalysis: Albumin present; no sugar, no casts. This albuminuria was transient and disappeared after a few days.

Operation.—Feb. 11, 1904. Supraorbital nerve injected through incision over supraorbital foramen. Infraorbital and mental nerves exposed through incision within the mouth. All three nerves injected with 2 per cent. solution of osmic acid. The posterior palatine nerve was exposed through incision in hard palate over posterior palatine canal. It also was injected with 2 per cent. osmic acid solution. On February 13 examination showed numbness of skin on the right side of the face and in mucous membrane of right half of hard and soft palate. Pain did not entirely disappear from the eye until February 20, after which date she had absolutely no more pain. She left the hospital Feb. 26, 1904.

Later reports from this patient show she has had no return of the pain since February 20. Slight discharge persisted from infraorbital wound for several weeks after she went home. The sinus, however, completely closed and she had no further trouble from it. July 18, the sinus reopened and caused some pain for a few days preceding the discharge.

CASE 9.—Mr. A. G. D. Age 63 years. Occupation, merchant. Admitted to Mercy Hospital April 11, 1904.

Family History.—One sister has suffered from neuralgia.

Previous History.—"Intermittent fever" while in army in 1862. Ten years ago he was told that he had "kidney trouble."

Present Illness.—Ten years ago he began to have pain in

the right side of the upper lip and soon afterward in the right cheek. The pain next affected the mental division of the fifth on the right side, and lastly the right supraorbital division. For the first two or three years the pain was not very severe, but the paroxysms gradually increased in frequency and intensity until of late they have been almost unbearable. At this time he had a resection of the infraorbital branch through the foramen into the orbital cavity. It gave relief for a few months only. At the present time all three divisions are about equally affected and there is constant and characteristic radiation. The right side of the face is always tender to pressure, and eating is so painful that frequently he takes no nourishment for a day or two at a time. During a paroxysm of pain the tears flow down over the cheek, the right side of the face is flushed and there is twitching of the facial muscles under the eye. The attacks last a quarter to one minute and occur many times a day and often during the night. When he eats, drinks or swallows he has severe pain in the right side of the hard palate and in the right half of the tongue. Examination shows tenderness over entire right side of face, especially over three foramina of exit. Urinalysis negative.

Operation.—April 13. Supraorbital nerve exposed through external incision, infraorbital and mental branches through incision from within the mouth. All three divisions injected with a 1½ per cent. solution of osmic acid. The lingual and posterior palatine nerves were then exposed by incisions through the mucous membrane and injected with the same solution. External wound closed with horsehair suture and mucous membrane wounds with catgut. On April 18 it is noted that the patient had no pains since the operation. On April 20 there was considerable swelling of the right side of the face and he had an afternoon temperature of 100.6 degrees. Sutures removed. Temperature went down to normal the next day and remained so during the remainder of his stay in the hospital. On April 25 the following areas of analgesia were found on examination: 1. Right supraorbital region almost to hair line. 2. Right side of nose. 3. Right side of face, adjacent to nose. 4. Right upper lip. 5. Right lower lip and chin. 6. Right side of tongue and roof of mouth. Taste not affected.

Patient left the hospital entirely relieved of pain on April 27.

In a letter received from this patient, May 24, 1904, he states there has been absolutely no return of the pain. The lower wound is still discharging purulent matter and has been incised several times to secure better drainage. There is some swelling over the lower jaw. This is probably due to a necrosis of the mandible around the foramen menti, the result of the injection. While this case was not a typical one for the osmic acid treatment because the infraorbital nerve had been previously resected, the relief is complete up to date. The infraorbital nerve had redeveloped to about its normal size. It seems to me that the redevelopment of the nerve bears a close relation to return of the neuralgia.

CASE 10.—Mr. C. J. Age 81 years. Admitted to Mercy Hospital April 15, 1904.

Family History.—Patient's son was operated on for trifacial neuralgia Dec. 9, 1903. (See Case 7.)

Previous History.—Several years ago the superior maxillary was resected at the foramen of exit from the skull, with temporary relief to patient.

Present Illness.—For several years past has suffered from severe paroxysms of pain in right side of face. The pain radiates through all of the branches of the fifth, but is particularly severe in the infraorbital and the anterior auricular branches and in the right side of the lower lip. The fact that the superior maxillary root had been resected so deep made it questionable whether the osmic acid would relieve the patient, but it was deemed advisable to try it. On exposure of the infraorbital foramen the nerve was found to have regenerated to about its normal size, although sensation to pain over that area was perverted, but not absent.

Operation.—April 16. Supraorbital nerve exposed by external incision and infraorbital, mental and posterior palatine by incisions from within the mouth. All four branches were injected with a 1½ per cent. solution of osmic acid.

Convalescence uneventful and patient left hospital April 23. On date of discharge from hospital examination showed analgesia to be present in right supra- and infraorbital regions, right side of nose and right halves of upper and lower lip. The patient has had no pain since operation.

Two months after the operation there began to be pronounced pain in the superior maxillary area and in the anterior auricular branch. This increased rapidly in severity until patient presented himself, July 15, when he was suffering severe paroxysms of pain in the upper jaw and in the neighborhood of the ear. It was decided to remove the ganglion.

Operation.—Through the Cushing incision the mandibular and superior maxillary branches were readily exposed. They were divided at the foramen and avulsed with the ganglion. There was considerable hemorrhage, but the patient, notwithstanding his age (81 years), withstood the operation very well. Iodoform gauze drain remained for forty-eight hours, after which it was removed. There was an escape of some cerebrospinal fluid.

This was my twelfth gasserian ganglion operation, but I must confess that familiarity with the technic has not made it any more inviting.

The second and third days following the operation the patient was in excellent condition, save a gradually increasing intestinal tympany; the paralytic condition of the bowel continued for many days, and the marasmus increased. There was primary healing of the wound. On the eleventh day his senile marasmus increased and he died August 4, fourteen days after operation. This case shows what a grave matter it is, notwithstanding the fact that the wound made a primary healing, to operate on a patient of his advanced years.

CASE 11.—Miss E. Y. S. Age 50. Admitted to Mercy Hospital June 2, 1904.

Family History.—Mother and father died along in their eighties. Sisters and brothers all living.

Personal History.—Has always lived at home.

Menstrual History.—Began at 14. Regular every four weeks. Usually painful for a day or two preceding flow. Flowed about four days. No intermenstrual flows. Menopause four years ago.

Previous Illness.—Measles when young. Some mild attacks of rheumatism.

Present Illness.—In May, 1902, patient first felt a sharp, cutting pain in her left cheek along the outer canthus of the eye. She thought it was from her teeth and had most of her upper teeth extracted. Following this she had relief for a day or two. She then called a physician and he gave her medicine which relieved the pain for a short time. She went away to the seashore and the pain grew worse and covered a larger area. Pain traveled up over the eye and involved the lower angle of the jaw. Returned home; pain gradually grew worse and patient was forced to go to bed and remained there for five months, during which time she could not take any solid food, nothing but warm liquid diet, as the pain was so intense when she moved her jaws. She went to California and remained there for many months, but received little or no relief. The pain was almost constant with the exception of a few hours, each day.

Present area of pain: Over region of masseter muscle; over and to the side of the left eye; along the angle of the lower jaw; nose has never been involved; gums have never been involved; lower portion of left chin and lip. Bowels usually regular. Appetite fair, but the taking of food was so painful that she is much emaciated.

Operation.—June 4, 1904. Exposure of supraorbital, infraorbital, mandibular and posterior palatine branches of trifacial nerve. From 7 to 10 minims of a 2 per cent. solution of osmic acid were injected into each of the nerve trunks, and a few drops into each foramen. There was only slight irritation and very little edema. The second day following the operation all of the neuralgic pains had disappeared; on the third day anesthesia of the left side of the forehead, left cheek, nose and upper side of lip, also on the left lower lip and chin, ex-

tending back to the angle of the mouth. The face was swollen and continued so for about three weeks, but gradually subsided. In a letter dated July 2 the patient states that she is entirely free from pain and has had a month of comfort and ease which she never expected to experience again. In a letter, August 8, patient states that her condition is just as satisfactory as it was on July 2.

In a third letter, dated September 9, the patient states she is still free from pain. The upper and lower incisions are still suppurating, the latter quite freely. The inferior maxillary nerve protruded, and about one inch in length, very much blackened, was pulled out.

CASE 12.—Mrs. D. H. K. Age 62 years. Admitted to Mercy Hospital June 20, 1904. Discharged July 6. Family history negative.

Personal History.—Married at 30; has four children living; no miscarriages; no evidence of specific infection. Menstrual history began at 15; regular; duration three days; painless; menopause at 45.

Present Illness.—Nine years ago patient began to notice sharp, cutting pain along the angle of the left lower jaw. It remained confined to that locality for a few weeks, then extended to the outer angle of and above the left eye. Eight years ago the infraorbital branch was resected. Following the operation she was free from pain for six months. Then it returned with more intensity and in a larger area; always on the left side. She has had the "rest cure" in New York, but received no relief. Three years ago she was again operated on and portions of the supramaxillary resected, back into the orbit. This gave her relief for eight months. Since that time pain has been constant on the inner side of the cheek, in the gum, left lower jaw, above and below the left eye. The pain was intense if she was exposed to draughts, taking cold drinks, eating, talking, or on contact of any material with the face. She has been compelled to live on liquid foods and to take them through a tube or drop them into her mouth. She has emaciated considerably. This case, having had a division of the nerve on two occasions, was not a favorable one for the injection.

Operation.—June 23. The supra- and infraorbital nerves were found freely developed and about their normal size, notwithstanding they had been resected. The mental branch had also regenerated and was larger than normal. The foramina as well as the nerve trunks were injected with the usual quantity of 2 per cent. solution. There was slight suppurating around the mental foramen. These wounds are subject to infection from the mouth and as the osmic acid produces necrosis of the tissue *in loco*, they are, therefore, very liable to infection.

In a letter received from this patient July 21, 1904, she states there has been no return of the pain. There is still some slight discharge from the incision at the mental foramen. In a letter received August 20 the patient says that her case is progressing favorably. There is some discharge at the foramen mental and some slight induration at the infraorbital foramen.

CASE 13.—Mr. J. E. V. Age 60 years. Admitted to Mercy Hospital July 10, 1904. Discharged July 18. Family history negative.

Personal History.—Married twenty-eight years; has been a heavy smoker; very moderate drinker, and has always been well and strong. No specific disease.

Present Illness.—July 16, 1901, was sitting at his desk talking to his secretary when he suddenly lost his power of articulation. He did not fall out of his chair; just leaned over on his desk. He was not able to speak, but was sufficiently conscious to understand what his secretary was saying. This attack of inability to speak lasted a couple of minutes only. Immediately thereafter patient stood up, but felt very weak in his legs. Half an hour later he was able to walk to his carriage and go home. For ten days following this his mental condition was not exactly clear and he did not have entire control of his words, that is, he would endeavor to say one thing and would say something entirely different. The patient says

he was told at a Michigan sanitarium that he had softening of the brain. He was treated for five weeks at Detroit and regained control of his power of articulation and expression.

In September, 1902, patient began to have very severe head aches; they were "all over his head," but were especially bad in the frontal region. They continued all fall with only slight intermissions. In January, 1903, patient began to have severe pain just under the angle of the upper lip on the left side of the face, over the left cheek, the outer canthus of the eye and the left eyebrow. There was some pain in the lower lip and roof of the mouth. This came on in spasms whenever he partook of food or drink, touched his face, or was subject to a draught. The pain was intense, totally incapacitating him. He was under strychnia treatment by a celebrated neurologist with apparently no effect. The pain was present during all of his waking hours and frequently roused him from his sleep. He became emaciated and finally resorted to large doses of opiates.

Examination.—The patient will not permit one to touch any part of the left side of his face. He is fed by lying flat on his back and having the food dropped from the end of a spoon into his mouth. He does not permit it to touch his hard palate, his teeth or the anterior portion of his tongue. When it does there is severe spasm of pain. The posterior palatine, supraorbital, infraorbital, anterior palatine, mandibular and anterior auricular branches are all disturbed. He has never had an operation.

Operation.—July 10. The supraorbital branch was exposed by external incision; the infraorbital and mental branches through the mouth. The posterior palatine was a little difficult of exposure, but was finally hooked up. All of these branches were injected with from 7 to 15 minims of a 2 per cent. solution of osmic acid and the wounds closed. There was some suppuration from the infraorbital area. The second day after the operation there was a very slight twinge of pain. From that time up to date he has been entirely free. The pain in this case was located on the left, the same side on which he had his central cerebral lesion, which affected his speech, about two years previous, and would suggest that this central lesion was the cause of the pain.

He discontinued his morphin at once. The suppuration in this case extended along up the line of injection, in the foramen to the orbit, necessitating a small incision in the lower lip for drainage.

His report on August 25 states there has not been the slightest recurrence of the neuralgic pain.

CASE 14.—Mrs. C. W. S. Age 47 years. Admitted to Mercy Hospital July 1, 1904.

Family History.—Father and mother living.

Personal History.—Has been married twenty-seven years; two children; no miscarriages; no evidence of specific infection. Menstrual history began at 12 years; regular every twenty-eight days; menopause three years ago. Menstruation was never painful; gave her no discomfort.

Previous Illness.—Had rheumatism some years ago.

Present Illness.—In the fall of 1896 patient noticed a small tumor on the right side of the lower lip. It was present for four months. Her family doctor pronounced it carcinoma and had it removed by paste. Seven years ago last April patient had a severe attack of bronchitis; during this attack she sat up in bed to cough when she was suddenly taken with a severe cutting pain on and along the right side of the nasal cavity. This pain gradually extended over the right side of the face into the right upper gums and into the lower jaw. The pain lasted but a short time, but returned every time the patient partook of food, hot or cold drinks, or whenever her mouth was open to draughts, or if a draught passed over her face. This condition lasted about six weeks. During the summer of that year it entirely disappeared. In November of the same year she was attacked with the same type of pain, but over a larger area, and it was particularly severe in the right eye; always aggravated by exposure to cold, the taking of food or liquids, or the moving of her lips, washing the face, etc. The following summer there was slight relief.

In March, 1899, patient was operated on and the infraorbital nerve resected. Patient was entirely free from discomfort for one year.

In March, 1900, patient began to again have pain below the right eye and in the right upper jaw. This time patient had all of her teeth extracted. This relieved her of all pain up to October of the same year. Again the pain returned in the same positions. In July, 1900, patient was again operated on, resecting the stump of the infraorbital and the supraorbital nerve. Following this patient had no pain up to June, 1903, when it returned in the former locations. In July, 1903, she had a third operation on the same nerves. After this she was free from pain until March, 1904. Since that time the pain has been intense all over the right side of the face and right side of the mouth and gums; it has been constant, with occasional relief for a week or two. During most of this time patient has had occasional attacks of dysuria. These have no special relation to the neuralgic attacks. The sensation to touch, heat and pain have returned all over the face, notwithstanding the resection of the nerves, but it is somewhat perverted. She states that after each resection there was anesthesia over the area supplied by the nerves resected, but that after some months this anesthesia disappeared and the face assumed practically its normal sensibility.

Operation.—July 20, 1904. Supraorbital and infraorbital branches had redeveloped to about their normal size. The mental branch was represented by a small threadlike nerve escaping through an opening one-third of an inch above the original mental orifice, which had filled by new bone after the last operation. The supraorbital, infraorbital, mental and posterior palatine branches were all injected, as well as the foramina, with the usual quantity of 2 per cent. solution. The day following the operation she had some pain; on the second day after there was entire absence of neuralgic pain. In a letter August 20 the patient states the relief has continued up to date.

RESULTS.

The results obtained by operations may be divided into: First, the resections of the nerve trunks, extracranial; second intracranial divisions; third, ganglion removal; fourth, sensory root division or avulsion. From the standpoint of danger to the life of the patient, the extracranial may be said to be free from danger except in senile patients, when any operation has in it elements of danger. The relief from this type of operation has in a small percentage been permanent. In a very large percentage it has lasted from nine months to three and a half years. In all of the intracranial operations there are about the equal elements of danger, as the exposure of the nerve branches, ganglion and motor root is the most difficult and dangerous part of the procedure. The seriousness of this procedure has been impressed on me by four deaths in my 12 cases, a mortality of 33 1/3 per cent. Two of these deaths occurred in patients over 80 years of age. The analysis of 108 cases collected by Tiffany, as shown in the following table, shows the great mortality of these operations—great, since the disease, *per se*, does not threaten life.

TYPE OF OPERATION.

Nearly two-thirds Hartley-Krause, nearly one-fourth Rose's, 7 Horsley's, 4 Doyen's, 4 Quenu's, 1 Novaro's, 1 no method mentioned.

Nerves affected: Right side twice as often as left; third division alone 10 times, second division alone 6 times, first division alone none; involvement usually reflex. All divisions 22 times, second and third divisions 68 times.

Mortality of 108 cases, 23 died—22 per cent.

Cause of death: Shock, 8; sepsis, 8; brain trauma, 2; brain abscess (trauma ?), 1; brain trauma and edema of lung, 1; apoplexy on tenth day, 1; cause unknown, fourth day, 1; cause unknown, sixth day, 1.

"Recurrence of pain after removal of gasserian ganglion is

not recorded." The author says "it can not occur." But the clinical fact is that it *does* recur in quite a percentage of cases in which the ganglion has been supposedly removed, and recent experiments support the clinical phenomena that it can and should recur. The immediate result of intracranial operation, whether section or removal of ganglia, is relief of pain. Recurrence in cases of excision are not uncommon.

Ordinary sensation in the territory supplied by the nerve operated on is abolished over a small area and exists irregularly over a large area. Ordinary sensation will be found where pain sense is absent. Sensations of heat and cold are frequently forfeited. Tiffany gives the following indications for operation: 1. If more than one branch is affected. 2. If painful area receives filaments from branches near exit from head (cranial cavity), *e. g.*, tongue, temporal region. 3. If pain is not an expression of constitutional disease. 4. If cause central to ganglion does not exist. 5. If other measures have failed to relieve.

Operation: Removal of lower two-thirds of ganglion, together with second and third branches as far as their foramina of exit from skull all in one piece, so as to be certain of amount of tissue taken.

Upper one-third of ganglia and first branch should not, for the present at least, be excised for neuralgia.

CONCLUSIONS.

From clinical reports, my experiments and personal clinical experience I conclude as follows:

1. That trifacial neuralgia, tic douloureux, is not the result of a pathologic entity which has so far been definitely determined.

2. The tendency after all types of operation, with the possible exception of removal of the sensory root behind the ganglion, is to recurrence of the disease.

3. This is probably due to the regeneration of certain nerve elements following the deep operation, and anastomosis and retention following the superficial.

4. Sudden shocks and irritation to the terminal filaments of the trifacial not infrequently cause an immediate and occasionally a permanent cessation of the neuralgic pain.

5. The mortality from the superficial excisions is practically *nil*; the mortality from the intracranial operations is great. The hazard is greater than should be taken in a disease which does not in itself jeopardize life.

6. Injections of osmic acid in 1 to 2 per cent. solution into the nerve trunks relieve the pain immediately and in a large percentage of cases for a long period of time.

7. The injections into the superficial tissue for peripheral neuralgia should be abandoned, as the nerve trunks are easily located, and there is no danger of superficial necrosis following such operation.

8. It should never be injected into a motor nerve or a motor nerve area and, therefore, never into the spinal nerves except in amputation stumps.

9. It produces a local necrosis of the tissue into which it is injected and even of the wall of the foramen. This necrosis does not suppurate unless the area is exposed to mouth infection. In that case the suppuration often continues for weeks, draining into the mouth, giving no special inconvenience, and in no way interfering with the final result.

10. The best results are obtained with a 1½ to 2 per cent. solution; this should be injected in many places into the nerve trunk and also into the foramen.

11. All of the nerve branches should be injected—the palatine, lingual, mandibular, superior maxillary (infra-orbital), and supraorbital. They can all be exposed through mouth incisions, except the supraorbital. Many times there are three or four divisions of the supraorbital

and they should be searched for carefully and each injected. Occasionally it is necessary to inject the auricular branch. The posterior palatine is not so difficult to inject as one would at first imagine.

12. The foramina can and may be injected without anesthesia or incision. The procedure is quite painful, however, and is not certain in its results.

13. The injections can be made with local or general anesthesia. I prefer the general.

14. The injection is free from danger.

15. Judging theoretically from the experience with incisions, resections and ganglion operations, the relief *should not be permanent after the injection of the osmic acid*. From clinical experience up to date, however, and particularly from Mr. Bennett's showing, the fact is that many cases are permanently cured. Time alone must determine the final result of this treatment. Its ease of application, its *nil* mortality, and its immediate results forcefully commend its use.

100 State Street.

DISCUSSION

ON PAPERS BY DR. SHERMAN, FRAZIER AND MURPHY.

DR. CHARLES K. MILLS, Philadelphia—For many years I have had an opportunity of observing many cases of tic douloureux. With the exception of the osmic acid treatment, I have had my cases treated by all forms of surgical procedure. In order that you may have pain in the fifth nerve or anywhere else three things are necessary: 1, Peripheral sensory irritation; 2, channel of communication, and, 3, cerebral centers for the conscious recognition of pain. It does not matter what the pathology of this disease is. The essential thing in its surgical treatment is the complete separation of the cerebral centers concerned with sensations from the periphery. I believe that the best method of treatment is either extirpation of the gasserian ganglion or section of the sensory root, but I am somewhat unsettled which should receive the preference. However, it matters little which is done if the operation is performed successfully. In some cases, perhaps, the sensory root operation is better on account of the effect on the eye from the gasserian operation. My reason for not favoring the osmic acid treatment is that I am usually not inclined toward any peripheral treatment. Experience shows that when one branch of the fifth nerve is involved, sooner or later others, and perhaps all, will be implicated.

DR. WILLIAM G. SPILLER, Philadelphia—As to the pathology of tic douloureux, I have had an opportunity of examining many gasserian ganglia, probably about 15, removed at operation, and have always found degeneration. It matters little whether the disease begins in the peripheral nerve fibers or in the ganglion, because it can not exist long in the former without affecting the nerve cells of the gasserian ganglion. The alteration sooner or later involves the whole nerve structure, including ganglion and peripheral nerve fibers. The relief of pain after resection of a peripheral branch does not prove that the lesion is primarily in the peripheral branch. The cells of the ganglion are altered by the resection and their function is partially impaired, and until they recover pain is not likely to return. I was surprised to hear Dr. Murphy say that there was no ascending or descending degeneration in his experimental cases. I do not understand how axis cylinders can be destroyed without causing secondary degeneration. The method recommended by Dr. Murphy is most valuable if the relief is permanent. The action of the osmic acid is to cause destruction and hardening of the tissue into which it is injected. Osmic acid is one of the best hardening agents, and when injected into a nerve it probably makes regeneration more difficult. Dr. Sherman's case is important, but it is not at all a typical one. He states that pain returned on the third day, and I can not understand how the sensory root could have been entirely divided if pain returned within so short a time. Very few gasserian ganglia have been entirely removed without relief of

pain; indeed, I know of only two cases, and I am skeptical concerning these. Sensation sometimes returns in peripheral nerves before motion, but if there were a regeneration of the fibers of the sensory root it is probable the fibers of the motor root would also regenerate, and there would be some return of motion in the muscles of mastication, which I have not heard was present in Dr. Sherman's case. It would be well to resect a piece of the sensory root to make sure that division is complete. The operation on the sensory root is difficult and very bloody, and one may easily be deceived regarding complete division of the root. In the dogs examined by Dr. Frazier and myself I found that the external part of the sensory root was more frequently degenerated than the internal part, and that the fibers of the external part of the root were represented in the posterior part of the descending spinal root. Combining the results of my studies with those of Van Gehuchten, I believe we may say that the fibers of the third division of the trigeminal are represented in the external part of the sensory root and in the posterior part of the spinal root, and that when the anesthesia is of very limited area after an operation on the sensory root, it will be found in the distribution of the third division, and that this indicates that only the outer part of the sensory root has been injured at the operation.

DR. ROBERT F. WEIR, New York City.—The osmic acid treatment failed in my hands many years ago, and I do not see how it is any better than the resection of a certain portion of the nerve. The nerve is destroyed by the acid, as would be the case with a resection. The intervention of gutta-percha tissue between the nerve ends, or under the dura, to prevent adhesions has been tried by myself with failure as a permanent result. I have also employed gold leaf with the same intent. In one case of trephining I had put in a small gutta-percha sheet; the wound healed, but headache resulted and persisted. On cutting into the scar several months later I found that this gutta-percha tissue was still there, and that it was finely perforated, allowing in many places adhesions to pass through it. This condition was also observed in another case. I am, as others have been, driven to the conclusion that for the permanent relief of these trigeminal neuralgias we are bound to resort to an intracranial operation, which has a very serious risk, for we are resorting to an operation that brings with it a risk of death for a disease that has no such risk. I yet believe it well to try the lighter operations first.

DR. J. SHELTON HORSLEY, Richmond, Va.—Ten years ago it was held by many surgeons that the spinal cord after being injured, particularly in its upper portion, never regenerated, but Harte and Stewart reported a case where this view was shown to be incorrect, as the patient recovered quite satisfactorily after complete section of the cord at the level of the seventh dorsal vertebra. We must consider the idiosyncrasy of the patient. In some individuals regeneration of nervous structures takes place, whereas in others there will be no attempt at repair, though the lesion may be identical in both instances. There seems no way of telling whether a nerve in a given individual will repair until an actual trial is made. I have done two operations on the gasserian ganglion, and both resulted satisfactorily. In one case the whole ganglion was removed intact. The external carotid was ligated, which lessens hemorrhage and adds to the confidence of the operator. The Cushing operation gives a very satisfactory exposure if carried farther under the base of the skull, somewhat after the method of Doyen. I have tried to mitigate the shock by the hypodermic injection of cocaine into the ganglion before division of the nerves, but the patient suffered shock to some extent, the blood pressure dropping to 80. I do not know how much good the cocaine did. In the second case the Abbé operation was performed. Only the second and third divisions were involved here. There must be a legitimate field for extirpation of the gasserian ganglion, as Spiller and others have demonstrated that in nearly every instance after persistent tic this ganglion shows pathologic lesions. Milder operations may sometimes succeed, but they can not supplant the more radical procedure.

DR. JOHN B. MURPHY—I have had many cases of tic, and I know the "real thing" when I see it. I am not a novice in the

work. I lost three cases out of eleven following the operation of ganglion removal. Dr. Spiller's experience in pathologic findings has not been supported by others. I had one case from California in which every branch was involved, and so severe was it that a doctor had to accompany her to Chicago for the operation. I did the injection method and completely relieved the patient by the end of the third day. As to what Dr. Weir says about nerve regeneration, there are some things that we do not understand. At times, in contusions or pressure on a nerve without division, some change occurs to interfere with the re-establishment of communication between the periphery and the centers and prevents the return of function. I hope to get the same result from the injection method and we are justified in this hope by Mr. Bennett's experience, extending over a period of six years. It is my opinion that the results should not be permanent, but the clinical test is the final test, and so long as I am able to relieve these cases for even a year or two by this simple and safe procedure I will not again resort to the ganglion removal. The ganglion removal is ideal, but the hazard is too great except as a *dernier ressort*. The injection may be renewed with benefit, as shown by Bennett's and my cases.

DR. H. M. SHERMAN, San Francisco—As to the question of the return of pain referred to by Dr. Spiller, its return and persistence suggests strongly the idea that the disease and the cause of the pain is central. The persistence of the paralysis shows that I had surely cut all the sensory fibers, but the return of sensation led me to think that there was some error in the proposed technic of the operation. After the second operation we have permanent anesthesia, but still a persistence of the pain. In this second operation the ganglion was removed.

DR. C. H. FRAZIER—With reference to the occurrence of facial paralysis as a complication in the operation on the gasserian ganglion, I have explained it in one of two ways; it may be due either to the forcible retraction of the musculocutaneous flap with a metal curved retractor, the tip of which may easily exert enough pressure on the facial nerve to cause at least temporary disturbance of function, or it may be due to too forcible and prolonged elevation of the temporal lobe. The time has come when we should discard the percentages which have been estimated from the series of cases operated on before the adoption of the more perfect methods of modern technic. The operation on the ganglion itself, the central or peripheral roots, is no longer a "kill or cure" measure. I am not prepared to accept the report which Dr. Sherman has made as conclusive evidence against the rationale of the operation which I have advocated. I still believe regeneration of the sensory root will not occur after its division, and, therefore, that there can be no recurrence such as Dr. Sherman has reported. It is more than probable in this case that the root was not entirely divided. It is a source of disappointment to me that such a report should have been made, inasmuch as it will throw some doubt on the accuracy of our observations. The operation was based on the results of very careful and painstaking experimental investigation by Dr. Spiller and myself, and not until we obtained encouraging results in these experiments was the operation applied to the human subject. I believe the operation to be established on a sound and scientific basis, and the results of our clinical experience would seem to bear me out.

A New Cure for Drunkenness.—The Norwegian authorities, who do not make light of the subject of alcoholism, are using an original method of curing drunkards of their vice, according to *Le Bulletin Médical*. The patient is placed in a room under lock and key, and all outside communication is cut off. His nourishment consists in great part of bread soaked in port wine. The first day the drunkard eats his food with pleasure, and even on the second day he enjoys it. On the third day he finds that it is always the same, on the fourth day he becomes impatient, and at the end of eight days he receives the wine with horror. It seems that the disgust persists and that this homeopathic cure gives unexpected results.

POISONING BY WOOD ALCOHOL.

CASES OF DEATH AND BLINDNESS FROM COLUMBIAN SPIRITS AND OTHER METHYLATED PREPARATIONS.

FRANK BULLER, M.D.

MONTREAL.

AND

CASEY A. WOOD, M.D.

CHICAGO.

(Continued from page 977.)

CASES 27 and 28.—(From Dr. Frank A. Grawn, Munising, Mich.; Dr. T. W. Scholtes, Munising, Mich.)

J. B., aged 37, nationality French, occupation wood-man, date of death, Nov. 14, 1898. L. B., aged 40, nationality French, occupation wood-man, date of death, Nov. 14, 1898. Symptoms, in both cases, great suffering from pain in abdomen, especially in region of stomach, vomiting, severe headache, total blindness and severe prostration. The post-mortem findings consisted principally of a marked congestion of the gastric mucosa, also of liver, kidneys and vessels of brain. The conclusions arrived at were that while the local changes produced by this alcohol were quite prominent, death was undoubtedly due to the systemic effect of the poison. These two men who died from the poisoning were brothers. They came to Munising, went to a saloon and, as they stated, called for "good" alcohol. The saloonkeeper says he understood them to say "wood" alcohol. He not having alcohol in stock, went to a drug store and bought two quarts of wood alcohol for each. He delivered it to them and they left town in the evening and walked to camp. The alcohol was not labeled "poison." They both reached camp and were soon taken sick and Dr. G. M. Gould, formerly of Munising, was called to attend them. He found they had drunk a little less than two quarts between them. One of the men died about fourteen hours after they bought the alcohol and the other about seventeen hours after.

CASE 29.—(From Dr. Herbert Harlan, Baltimore.)

Storekeeper in Dorchester County, Maryland, went on a spree with Jamaica ginger. He became entirely blind, but is so ashamed of his performance and, believing his case to be hopeless, declines to see an oculist or to discuss his case with one. Dr. Harlan obtained the report from his family physician, whom he knows to be a competent and reliable observer.

CASE 30.—(From Dr. Herbert Harlan, Baltimore; Dr. P. B. Barringer, Charlottesville, Va., and Dr. Francis Lee Thurman, Keswick, Va.)

W. H. J., aged 38, a respectable and well-to-do merchant of Keswick, Va. Some five years ago, on a certain Sunday (July 15, 1899), not feeling well, took a drink of Gilbert's Jamaica ginger. After taking one dose he felt no better and took a second, later in the day taking several others. On the following day he took one more dose, drinking in all two or three ounces of the "ginger." On Monday he complained of nausea, weakness, vomiting, intense headache, giddiness and, later in the day, became blind. The blindness increased so much that in three days he could not perceive light from darkness. Then his vision gradually improved so that in another ten days it reached the acuity it at present exhibits. There has been no change in the fundus conditions during the past four years. He was then treated by Dr. Thurman and saw an oculist in Richmond, Va., whose name he did not recall. Two years afterward, when examined by Dr. Harlan, he had marked optic nerve atrophy, with some vision in the periphery of each field sufficient to allow him to get about in familiar localities.

Analysis of the Jamaica ginger taken by this patient showed that it was 70 per cent. wood alcohol.

CASE 31.—(From Drs. Alvin A. Hubbell and Lucien Howe, Buffalo, N. Y.)

Dr. B. W. S., Stockton, Chautauqua County, N. Y., consulted Dr. Hubbell in April, 1961. In March, 1899, he accidentally drank about an ounce and a half of wood alcohol. This dose was repeated the next two days—three doses in all—after which his vision became dim in both eyes. He could see well enough to get about, but was unable to read print. V. R.

==5/30, and no Jaeger; V. L.==perception of light. As Dr. Hubbell saw him once only and as he failed to keep his promise to return, the visual fields were not measured. The fundi showed well marked atrophy of both discs. Dr. Howe saw him before this, on June 12, 1899, and adds that, at that time, the patient thought his sight in the right eye had gradually improved. The right pupil was torpid, arteries small, discs pale; V.=20.50 and Sn. three, field slightly contracted. In the left eye the same condition, only more exaggerated. Disc decidedly atrophic, V.=fingers at six feet; Sn. 20 at twelve inches; field regular, about two-thirds normal limit. In a letter to Dr. Howe from the patient six months later he reported his condition to be about the same.

CASE 32.—(From Dr. M. A. Hughes, Salt Lake City, Utah.)

J. A., aged 40, stone mason, consulted Dr. Hughes in January, 1902, for a sudden attack of almost complete blindness. The history showed that he, with several companions, had drunk freely of wood alcohol on a certain Sunday. When he awoke next morning he found that he could scarcely see. On examination his vision was reduced to 10/60 in the right eye and 10/40 in the left. Under increasing doses of strychnia, given hypodermically, his sight improved slightly. A year after the poisoning he was, however, unable to resume his trade and the damage to sight seemed permanent.

CASES 33 and 34.—(From Dr. Edwin E. Jack, Boston, Mass.)

"I have seen two cases of atrophy following the ingestion of methyl alcohol in the crude form. One, J. P., aged 71, old soldier, bought a pint and drank part of it. Both had a long period of insensibility and both were blind on regaining their senses; a neuritis followed by rapid atrophy."

Although Dr. Jack was not able to find in his hospital records, the detailed case histories of these patients, there is every reason to believe that they have not been published before and that they have not been duplicated in this report.

CASE 35.—(From Dr. Edward Jackson, Denver, Colo.)

A woman, addicted to alcoholism, resorted to a jug of wood alcohol that her employer kept for a lamp. The quantity taken is uncertain. She suffered from severe gastrointestinal irritation, vomiting and impairment of vision. Next morning all "looked black," but she could see a light brought into the room. In three days vision began to improve rapidly. On the eighteenth day V.=4/60, R. and L. The optic discs were red, hazy and slightly swollen, their outlines hidden. The retinal vessels not much altered. She and her daughter said that before taking the wood alcohol she could thread the finest needle. She was not seen after the twentieth day.

CASE 36.—(From Dr. J. H. Janar, Elkton, Md.)

A drunken male tramp, aged 37, having procured a quantity of wood alcohol, ostensibly for a different purpose, proceeded with a companion (whose case is elsewhere recorded), to go on a spree by the wayside. His female companion promptly died, but he survived, was placed in jail, there being no hospital in the city, and came under Dr. Janar's care. The patient was found to be in a highly excited, delirious condition; face purple; decided odor of alcohol about him. Emetics followed by calmatives were prescribed and the patient began to improve. His eyesight was greatly affected for the first day or so, but improved in a few days, when he was discharged. The final outcome of the case as regards vision is not known.

CASE 37.—(From Dr. Dryden H. Lamb, Owosso, Mich.)

J. E., male, aged about 25, one of three men who together went on a spree. After having absorbed all the ordinary alcoholic beverages they secured some Columbian spirits and drank a considerable quantity of it; exact quantity is not known. One died shortly afterward and the others were very ill, both of the survivors suffering from amaurosis. One case was treated by Dr. Lamb, the other elsewhere. There was marked contraction of the fields in both eyes and vision was permanently reduced to 20/100 and 20/80, right and left eye respectively. Previous history good.

CASE 38.—(From Dr. Dryden H. Lamb, Owosso, Mich.)

J. B., aged 30, inhaled an unknown quantity of Columbian spirits and in a short time was totally disabled from loss of eyesight. R. E. V. was 20/200; L. E. V. was 10/200, with

narrowing of fields. Condition at present but slightly improved. Optic atrophy.

CASES 39, 40 and 41.—(From Dr. Dryden H. Lamb, Owosso, Mich.)

Owing to destruction of complete records of these three cases (during two and one-half years' absence on military duty) Dr. Lamb is unable to give details of the visual fields, fundus changes, etc., but has a distinct recollection of the main facts, which point conclusively to methyl alcohol blindness. So far as Dr. Lamb knows, the cases are here published for the first time. About four years ago three Swedes, addicted to alcoholic debauches, purchased deodorized wood alcohol because it was cheap, reduced it with water and drank "not a large quantity" of it. The eyesight was affected in each instance and it was on account of this failure of vision that Dr. Lamb saw them. Central vision was greatly reduced, the visual fields were much contracted and the fundus pictures were those of optic atrophy. Under treatment vision improved somewhat in all the three instances, and when they could readily get about the men left town and have not been seen in Owosso since.

CASE 42.—(From Dr. Eugene Richards Lewis, Dubuque, Iowa.)

J. C., aged 38, chronic drunkard and loafer about saloons; also heavy smoker, with a "specific" history. At noon one day, while prowling about the house of a woman he had recently married, he discovered a large bottle of wood alcohol, of which he drank an unknown quantity. Toward evening Dr. J. S. Lewis of Dubuque was summoned and found the man totally blind. The patient died during the night, so that a fundus examination, which was arranged for the following morning, could not be made.

CASE 43.—(From Dr. F. Park Lewis, Buffalo, N. Y.)

M. F., aged 49 years, had used alcohol for thirty years and was in the habit of taking it to excess whenever opportunity offered. She was an inmate of the Erie County Hospital in the year 1900. One afternoon, finding a large cup half filled with what she supposed to be alcohol, and which was in fact methyl alcohol, used for cleaning purposes, she drank the whole of it in two draughts with an interval of about half an hour, the total amount consumed being about four ounces. After a short period of excitement she passed into a stupor which lasted until late the next morning when, on being aroused, she found herself absolutely blind, and from that period until the present time, about four years, she has had no perception of light whatever.

She did not come under the observation of Dr. Lewis until the beginning of his service, some six months after this event. Then both optic nerves were found to be atrophic and the retinal vessels reduced in size. The woman is still an inmate of the County Hospital. She has a catarrhal conjunctivitis, but otherwise is apparently in good health. No consequences seem to have followed the toxiemia except the almost immediate complete and permanent blindness.

CASE 44.—(From Dr. J. A. Lippincott, Pittsburg, Pa.)

F. C., aged 47, laborer, drank a large quantity of wood alcohol and within twenty-four hours sight began gradually to fail and was never regained. No light perception. Pupils slightly dilated and rigid. The ophthalmoscope shows clear media. Discs a grayish silvery white, with sharply defined margins. Upper and lower temporal veins of normal caliber. All other vessels almost obliterated or reduced to mere threads.

CASE 45.—(From Dr. J. A. Lippincott, Pittsburg, Pa.)

J. R., aged 31, oil well driller, drank 24 ounces of Jamaica ginger between 2 and 3 o'clock in the afternoon. At midnight he awoke with severe browache and sight much impaired. In a few minutes he became stone-blind, in which condition he has remained ever since. External appearances are normal except that the pupils are dilated (5½ mm.) and not responsive. Tension slightly elevated, especially on right side. Eyeballs tender to touch, especially above. No light perception.

Ophthalmoscope examination: R. E., media clear; outer margin of disc perfectly sharp; upper margin very much blurred, the blurring extending upward, with radiations over the retina

for fully a disc diameter, but more pronounced, and extends downward 1½ disc diameters. In this area the retina is edematous and the vessels are interrupted in places. Inner side of retina slightly hazy. Macular region normal in appearance. L. E., disc slightly hazy and surrounded by a hazy zone about 1½ disc diameters wide. Retinal vessels slightly tortuous. Knee reflex absent.

Treatment: Iodid of potassium in large doses; leeches to temples; pilocarpin sweats daily; rest in bed; strychnin to be given a little later.

Feb. 25, 1901. V. R. E. = light perception. V. L. E. = fingers close to eye. Pupils still dilated, but responsive, though sluggish. R. E. disc bluish-white, with boundaries pretty sharply defined. Retinal vessels about two-thirds of normal size. L. E., swelling of nerve head much reduced, leaving central physiologic excavation white; rest of disc is of a grayish-white color. Pilocarpin stopped. Iodid and strychnin continued.

April 23, 1901. He states that about five weeks ago could see well enough to walk about, but about what time the sight began to fail, until he became entirely blind. Dec. 10, 1901, pronounced atrophy of optic discs.

CASE 46.—(From Dr. R. S. Magee, Topeka, Kan.)

Mrs. S. P., aged 33, Topeka, consulted Dr. Magee on July 8, 1901. The patient had always had good vision until four weeks previous to this date. She suffered from painful menstruation, for which she was in the habit of taking whisky. A month before consulting the physician she discovered she had no whisky in the house, so drank instead a medicine glassful of wood alcohol diluted with the same quantity of water. This dose was taken in the evening just before retiring. The next morning she noticed decided dimness of vision, unaccompanied by pain in either eye. Dr. Magee found vision in the right eye to be 16/100; left eye 4/200. The mirror showed "woolly" discs and the remains of small hemorrhages in both fundi. He had an opportunity of seeing her once more, at a later date, and found central vision worse and gradually failing.

CASE 47.—(From Dr. J. G. McKioney, Barry, Ill.)

James Riffe, jeweler, drunkard, in the absence of whisky drank extract of lemon, which produced blindness, followed by death in less than two days. The extract of lemon was examined by an expert chemist and found to be composed almost entirely of wood alcohol.

CASE 48.—(From Dr. J. E. Minney, Topeka, Kan.)

As reported in another column, a farm hand, one of nine Poles, living in this vicinity, who indulged in a debauch and drank nearly two gallons of methyl alcohol before the termination of the spree, became blind. This was during the year 1889. The loss of vision in this instance was unequal, the one eye being much more affected than the other, although they both exhibited the fundus signs of optic nerve atrophy.

Dr. Minney saw the case first about ten weeks after the intoxication. The man was then able to go about the farm and do work not requiring good vision. The last report from him was that there was no improvement.

CASE 49.—(From Dr. T. W. Moore, Huntingdon, W. Va.)

G. S., aged 36, baker, was first seen Jan. 23, 1904. Drank an unknown quantity of wood alcohol Sept. 15, 1902, and was totally blind thereafter for nearly three weeks. Both discs are now pale, right one decidedly so. Vision: R. E., fingers at 12 inches; L. E., with lenses, 20/40.

CASE 50.—(From Dr. T. W. Moore, Huntingdon, W. Va.)

S. T., aged 45, white, house painter, married. Uses tobacco and alcohol, the latter to excess. Had been working in a frame factory and using wood alcohol in mixing his paints. On Oct. 6, 1900, he drank one-half pint of the methylated spirits. This was followed the next day by other alcoholics. Vomited excessively all that night, and on the following morning was totally blind. Had flashes of light before his eyes quite frequently; no pain at any time in eyes, although slight frontal headache. On October 18 Dr. Moore saw him for the first time. He had perception of light and said he could see moving objects, although he subsequently failed to do so in the physician's of-

lice. Pupils dilated and did not respond to light. Both discs were slightly blurred on the nasal side; arteries normal, veins engorged and tortuous. One year later the patient was still totally blind, and both discs were white.

CASE 51.—(From Dr. H. Moulton, Fort Smith, Ark.)

In addition to the cases reported by him in the *Ophthalmic Record* for July, 1899, and November, 1901, Dr. Moulton submits the following case history: S. W. McK., age 52, of San Bois, Ind. Ter., drank, April 22, 1902, four bottles of essence of lemon. Next day he began to lose his eyesight, and on the third day he was totally blind. After three or four days he began to see again. He reported that, as treatment, "his doctor made him sweat." On May 23, 1904, one month after the poisoning, Dr. Moulton found vision in his right eye to be 10/100; in the left, finger-counting at three feet. The ophthalmoscope showed temporal pallor of the nerve heads. The pupils were abnormally dilated. Unfortunately, the patient did not return, as arranged, to have his visual fields measured.

Dr. Moulton remarks that cases of poisoning from adulterated drinks are very common in Indian Territory.

He believes that at least 50 deaths have occurred in that country from this cause.

The sale of ordinary alcoholic beverages is strictly prohibited there by the United States Government, and thirsty souls are perforce obliged to drink anything containing alcohol, Jamaica ginger, witch hazel, or even "perina."

CASE 52.—(From Dr. F. G. Murray, Cedar Rapids, Iowa.)

The patient was a cook (male) in a lumber camp in the summer of 1902, in northern Michigan. Previous to taking this job he had been indulging heavily in liquor, but had not had access to it for a number of days previous to his arrival at the camp. There was no liquor accessible nearer than the railroad station, 30 miles away. He seemed to have normal vision and command of his muscles at this time, for he did a little hunting and brought down game with a rifle at a moderately long range. This was the first of the week, in June, 1902. To satisfy his craving for alcohol, he commenced drinking a proprietary "liniment for both internal and external use" kept in the "van," or camp store. In the space of three or four days he drank at least 72 ounces of this remedy. He became weak and somewhat incoordinate in gait, and his eyesight began to fail, so that by the end of the week he could barely distinguish hand movements before his eyes. The pupils were widely dilated; the skin cool and moist. No ophthalmoscopic examination was made, and Dr. Murray does not remember whether there was or was not ptosis. The subsequent history of the case is not known. The patient went to Marquette, Mich., presumably to the hospital there. It was reported that he was seen some time after on the streets, with improved eyesight. There were, in addition to the "liniment," some common extracts used in cooking about the camp kitchen, but there is no evidence that he drank any of them. If he did, it was only a small amount.

The liniment referred to is largely used in the camps of that region (near Sault Ste. Marie) to "sober up" on, and it is a common belief among the woodsmen that free indulgence in it will cause blindness.

CASES 53, 54, 55.—(From Dr. Charles A. Oliver, Philadelphia, Pa.)

"I have had three indisputable cases: two at Wills Hospital and one in private consultation. Of the two public cases, one had his central vision reduced to 1/8 of normal; the other to 1/15, both by reason of large positive scotomata. Both patients, men of 30 and 35 years of age, were rendered practically useless for continuance of their daily work as skilled laborers. The private case, an important man in a not far distant community, was compelled to discontinue a remunerative employment for an extremely precarious and uncertain agency.

"The cases I saw were primarily mine, were never published, and will not interfere with Dr. Buller's statistics (of published cases). The histories of the public ones are buried in my special Wills Hospital case books. I used them alone for class demonstration. One case, I remember, was wood alcohol in coffee. I do not remember the amounts ingested."

CASE 56.—(From Dr. S. A. Oren, Lewiston, Ill.)

Frank H., aged 48, laborer, a habitual drinker, had been on a spree, and after drinking freely of "lemon essence" was found, Nov. 4, 1903, in a barn unconscious. Dr. Oren saw him shortly afterward and endeavored to restore him, but without avail. He recovered sufficiently to articulate, but became delirious before he died, within 24 hours after finding him. He was quite blind before death. His pulse was very weak and did not respond to stimulants.

CASE 57.—(From Dr. C. E. Patterson, Grand Rapids, Mich.)

Mr. H., aged 17, a habitual drinker of spirits, consulted Dr. Patterson several years ago on account of the nervous symptoms engendered by this habit. He used to buy the pure alcohol, dilute it with water and drink it to complete intoxication. On one occasion a mistake was made, and he was given wood alcohol (probably deodorized), and, as usual, proceeded to imbibe it to full drunkenness. This was on a certain Friday night. He awoke next morning totally blind. He recovered from the other effects of his spree, but has never regained his eyesight, there being complete destruction of both optic nerves.

CASE 58.—(From Dr. J. A. Patton, Stillwell, Ind. Ter. Dr. T. S. Williams, Stillwell, Ind. Ter.)

P. F., aged 24, single. Dr. Patton saw him first Feb. 28, 1904, 9 a. m. He had vomited since 10 o'clock the night before, after drinking six or seven bottles of lemon extract. It was afterward learned that he had been drinking lemon extract for three or four days. Pulse, 80; temperature normal; respiration, 25; capillary circulation not good. Complained of some burning pain in stomach. Could see and recognize persons within a few feet of him, but at a distance of 10 or 12 feet, as he expressed it, "everything looked white." At 1 p. m. he was totally blind. Respiration very rapid; partly unconscious. Pulse, 65 or 70, but full. At 3 p. m., unconscious; pulse slow but strong; great dyspnea; skin cold and clammy. 5 p. m.—Had several severe convulsions. Died at 5:40 p. m., Feb. 28, 1904.

Dr. Patton had the lemon extract drunk by this man and by the patients whose cases are subsequently detailed by him in this report analyzed. It was found to consist largely of wood alcohol.

CASE 59.—(From Dr. J. A. Patton and Dr. T. S. Williams, Stillwell, Ind. Ter.)

W. H. H., aged 60, married, merchant. He had drunk lemon extract, with others, for three or four days. Complained to friends on the afternoon of February 29 that "everything looked white" and that he couldn't see well. Had vomiting and other gastrointestinal symptoms, such as severe cramps. He went home to his wife, who cared for him until 4 a. m., March 1, when physicians were called. At that time he was totally blind, unconscious and had a slow pulse; respirations labored. Died after convulsions, 8 a. m., March 1, 1904.

CASE 60.—(From Dr. J. A. Patton, Stillwell, Ind. Ter., and Dr. J. T. Clegg, Siloam Springs, Ark.)

S. T., aged 34, married. Had drunk lemon extract for three or four days. On the morning of Feb. 28, 1904, he went to Siloam Springs. He was apparently in good health and sober during the day. About 7 or 8 o'clock p. m. he went to the hotel and complained of blindness, dyspnea and pain in the stomach. Dr. J. T. Clegg of Siloam was called, who gave the following history: Respiration very labored, with a prolonged expiratory effort; pulse slow (48 to 50). Other symptoms closely resembled the foregoing case, with the exception of the muscular spasm; he had no convulsions. Died at 1:15 a. m., Feb. 29, 1904.

The lemon extract drunk by this patient was analyzed and found to contain wood alcohol.

CASE 61.—(From Dr. W. T. Salmon, Oklabama City, Okla.)

H., aged 46, December, 1898. Drank alcohol, and in 12 hours was very dizzy, vomited a great deal, headache, eyeballs sensitive to touch, blind in three days, optic neuritis followed by atrophy.

CASE 62.—(From Dr. W. T. Salmon, Oklabama City, Okla.)

Miss F., aged 19, lived in Indian Territory, February, 1899. Had been drinking cologne spirits. Suffered much with headache, eyes tender, gastric disturbances; blind in five days from time when she first noticed dimness of vision. Papillomacular atrophy.

CASE 63.—(From Dr. W. T. Salmon, Oklabama City, Okla.)

H., aged 63, April, 1899. Drank "alcohol." Violent headaches and vomiting. Improved under pilocarpin and potassium iodid. Relapsed and vision was reduced to counting fingers in the left eye at three feet. R. E.=20/200. Central scotoma; optic atrophy.

CASE 64.—(From Dr. W. T. Salmon, Oklabama City, Okla.)

W., Indian Territory, aged 54, May, 1900. This man was one of a party that drank Columbian spirits on Sunday morning. Two stopped at a friend's house for dinner, ate heartily of wild turkey and never noticed any bad symptoms. Williams, however, continued his journey on horseback, riding nearly all day, taking three more small drinks (half a pint), and next morning had headache, dimness of vision, vomiting and was entirely blind in 48 hours. He improved slightly under pilocarpin and strychnia.

CASE 65.—(From Dr. W. T. Salmon, Oklahoma City, Okla.) K., aged 43, October, 1900, Indian Territory. Protracted spree with Jamaica ginger, lemon extract and "peruna." Noticed one morning that a cloud was before his eyes. He became blind in six hours afterward, had headache, vomiting and other gastrointestinal symptoms. The final outcome was optic atrophy, with narrowing of the retinal vessels.

CASE 66.—(From Dr. W. T. Salmon, Oklahoma City, Okla.) S., aged 56, October, 1899. Had been dyeing and cleaning clothes in alcoholic preparations. No evidence that he had drunk the methylated mixture. Headache and vomiting. Vision reduced to perception of light in ten days from first symptoms. Under pilocarpin he recovered most of his sight in 61 days.

CASE 67.—(From Dr. W. T. Salmon, Oklahoma City, Okla.) E., aged 24, January, 1901, Indian Territory. Drank one-half pint of "bitters." Next morning had headache, dimness of vision, vomiting, etc. In 48 hours V. R. E., counting fingers at three feet; L. E. = 20/200. Treatment consisted of pilocarpin, followed by strychnia. When last seen patient's sight was almost normal.

CASE 68.—(From Dr. W. T. Salmon, Oklahoma City, Okla.) M., aged 29, June, 1902, Indian Territory. Drank one pint of Columbian spirits. This was followed by vomiting and headache. Eyes tender on pressure. Result, much diminished vision, central scotoma and contracted fields.

CASE 69.—(From Dr. W. T. Salmon, Oklahoma City, Okla.) S., aged 34, August, 1902. This man drank four bottles of Jamaica ginger, and was found in a semi-comatose condition and totally blind. At first improvement occurred, but in a few days there was a relapse, followed by optic atrophy.

CASE 70.—(From Dr. Norman B. Saunders, Schenectady, N. Y.)

McA., aged 38, single, steamfitter, admitted to New York City Hospital, Aug. 5, 1902, in a condition of delirium due to alcohol. Under the use of large doses of strychnin and high intestinal irrigation he recovered and was subsequently employed as ward attendant. On the morning of Sept. 17, 1902, he was sent to the superintendent's office on account of intoxication the previous evening. He left the ward, but was soon brought back in a state of collapse by two patients. Pupils moderately dilated. Breathing labored and deep. Face flushed. Skin bathed in sweat. Was very restless. He complained of pain in stomach, was nauseated, and said he felt as if he was going to die. He then told the nurse that he had been drinking wood alcohol. Pulse quick and feeble; heart sounds very feeble. Patient said everything looked black; he was actually blind. Asked for water and stretched out his hand, grasping for water. Continued to moan and was restless. Soon had a spasm of muscles of clonic character, the forearm being flexed and drawn tight to the body; cyanotic during spasm; in a few minutes relaxed. In absolute coma. In five minutes another spasm; entire body stiffened; no opisthotonos. Death. The autopsy revealed nothing of importance.

CASE 71.—(From Dr. J. W. Scales, Pine Bluff, Ark.)

H. E., male, aged 46, a hard drinker. Complained of poor vision for a year previous to May, 1903. One evening in the course of one hour drank six ounces of wood alcohol and two of brand. Felt "soggy," but ate supper, got up next morning and ate his breakfast and later his dinner, but about 3 p. m. (22 hours after drinking the alcohol) vomited severely, and at 5 p. m. he went to bed. He slept 24 hours, and on awakening found that he was entirely blind, and remained so for 36 hours. He then saw dim shadows with the left eye. In a month the right eye recognized hand movements. Vision continued to improve slowly for six months, but remained unaltered afterward. At the present time, R. F. = 1/20, L. F. = 1/10. No lens improves vision. Fields greatly contracted, irregularly concentric; all color perception lost. Optic discs very white, with sharp edges. Pupils, very sluggish reaction to light. Nine months later vision was unchanged, despite treatment, and the retinal vessels were narrow, as if there was some endovasculitis.

CASE 72.—(From Dr. J. W. Scales, Pine Bluff, Ark.)

M. O. C., aged 45, railroad section "boss," in December, 1900, drank three bottles of Jamaica ginger, followed by a smaller quantity of bay rum and Hostetter's bitters. During the night he was seized with violent headache and intestinal irritation. In the morning he was blind in both eyes, and, although the other symptoms shortly disappeared, he never recovered his eyesight, the blindness persisting until his death from pulmonary disease, two years later.

CASE 73.—(From Dr. K. W. Sneed, Wortham, Texas, and Dr. J. O. McReynolds, Dallas, Texas.)

A negro, barber, a chronic alcoholic, had been in the habit of

drinking "almost everything," including "bitters" and other patent medicines, as stimulants. He bought some bay rum made with wood alcohol for use in his business. The druggist warned him of the poisonous character of the mixture, but he seems to have disregarded the warning and imbibed an unknown quantity of it on the night of July 30, 1904. At 5 o'clock next afternoon he complained of vertigo and almost total blindness. The following day at noon, when Dr. Sneed saw him, he was suffering from dyspnea, with respirations 10 a minute and very labored; pupils dilated and irresponsive to light; pulse, 104.

Examination showed no organic disease of heart, kidneys or lungs. On Sept. 3, 1904, his general condition had much improved, but his vision was no better. He could barely recognize the outlines of his room door.

CASE 74.—(From Dr. Eugene Smith, Detroit, Mich.)

April 19, 1903, Dr. Smith was consulted by Mr. A. L. B., aged 20, who stated that Feb. 8, 1903, he drank four or five tumblers of wood alcohol. On February 10 was "unable to see to get around." Dr. Smith found his vision to be only perception of light in the right eye; nerve white; all vessels attenuated. Left eye, V. = 10/200. Nerve waxy-white; vessels attenuated. Did not see patient again.

CASES 75, 76.—(Courtesy of the Surgeon General of the Army.)

A. and B. were admitted soon after noon on July 25, 1898, with symptoms of acute poisoning. Both men were able to walk into the ward, and admitted, when confronted with the query, that they had, in lieu of whisky, drank wood alcohol diluted with water and sweetened. They were but two of a number of privates in this regiment who drank this concoction, but having indulged in it to much greater degree than almost any of the others they were more seriously affected. One of their companions died, however, die in his regimental hospital. The symptoms which these two men presented were gastric pain of an acute character, relieved at times by cessation of the pain; almost persistent vomiting, dryness of the mouth and throat, though the tongue and buccal cavity seemed moist. An inordinate and insatiable desire for water which is characteristic of poisoning cases of this class was noticeable in both men, who drank eagerly the water that was given them, only to vomit it a few moments after its reception into the stomach. Temperature of both men about normal when admitted, and did not rise above 99 at any time. The speech quite coherent, but the eyes dilated pupils, incapable of recognizing either persons or things only a few feet distant. A., after an awful struggle in which he tossed about incessantly, crying all the while for water, gradually sank into unconsciousness, in which state he died at 7:30 p. m. the same day. For an hour before death he was almost pulseless, heart dirotic, and toward the last, Cheyne-Stokes' breathing.

B. died at 2 a. m. on the morning of July 26, after evidencing practically the same effects of the poisoning as did A. His temperature at 9 p. m., five hours before death, registered 93.4, but after the application of hot-water bags rose to 95.3. It is believed that both men died from an acute nephritis, although no necropsy was permitted. Both men, it was learned, had been drinking the wood alcohol for two days before admission, but no alarming symptoms made their appearance until the conclusion of 36 hours' time. A. died six hours after admission, and B. 13 hours after.

Treatment: Before admission strychnin hypodermatically for stimulation, and bismuth and egg albumin as a sedative and an emetic. At First Div. Hosp., strychnin, hot-water bags, friction and emulents.

CASE 77.—(Courtesy of the Surgeon General and of the surgeon in charge of the post at Fort Terry, N. Y.)

Private T. H., aged 29. On the same night, Feb. 26, 1904, that four other soldiers had drunk methylated bay rum, he was found drunk and put in the guard house. He denied that he had taken any wood alcohol. Two days later he was reported to be in bad condition, and as having drunk some bay rum and Florida water while in confinement. When he was brought to the hospital he was in a state of partial collapse; temperature, 96; pulse, 80, weak; respiration about 12. Was given strychn. sulph. gr. 1/20 and whisky 8 c.c. hypodermatically; M. of oil. tiglii in oil per os; no applications to body. Bowels not responding in three hours, were emptied by enema, and later freed themselves of oil. Temperature rose to normal in one hour, pulse and respiration becoming stronger. Whisky and strychnin continued till next morning, when man complained of blindness in both eyes; otherwise much improved. As this man had a specific history, he was put on large and increasing

doses of potassium iodid and strychnin. At that time patient could not count fingers at all; light perception remained, but only in lower part of retina, the man having to cast his eyes strongly upward in order to see even light. Under treatment this condition improved for about a week, when it remained the same, though at this time he could count fingers at about 18 inches and could tell time on large-faced clock by putting face about 1 inch from face of clock and hunting each hand separately. April 15, as he showed no further signs of improvement, application was made to have him discharged from service. His retina at this time were congested and edematous, but the visual field was not tested, as he could not see sufficiently well for the purpose. Except for the amblyopia, the man returned to a normal condition, but was discharged April 26, for amblyopia caused by wood alcohol poisoning.

The Columbian spirits taken by this man was bought as such by the common barber in a regular barbers' supply house and was intended for use in preparing his face preparations. He and four other soldiers (whose histories are elsewhere given) went into the barber shop and helped themselves to the stuff either through ignorance of its nature or through an uncontrollable desire to "taper off" from their spree, as most of them had been drinking heavily for a day or two previously. None of them took any wood alcohol after February 28; Nos. 1, 2, 3 and 5 only taking one or two drinks (mixing about 60 c.c. of the poison and an equal part of water). No. 4 took about a pint, the five drinking about a quart in all. Beside this, they drank "Florida water" and bay rum of cheap grades, which doubtless contained methyl alcohol in large proportions.

All of these men were what is known as "booze-hoisters," and Nos. 1, 2, 3 and 5 had been drinking for several days before they took the wood alcohol, and had been on the sick report a number of times for acute alcoholism, yet they strenuously denied, all but No. 4, that they had taken any of the poison, and it was only found out positively at the court martial which followed. Only the Columbian spirits was tested; this was found to be nearly pure methyl alcohol; but the other preparations, being of inferior grade, it is supposed that the alcohol used in their manufacture was impure wood alcohol.

CASE 78.—(From Dr. Frank C. Todd, Minneapolis, Minn.)

H. T. J., aged 45, consulted Dr. Todd on the morning of Sept. 28, 1900. Occupation, painter for 33 years. Referred by Dr. L. B. Wilson. Patient denies syphilis; does not drink more than one glass of liquor in six months. Eyes and sight were normal on Monday, though the patient had suffered from a very bad cold in the head for two weeks. Has worked with wood alcohol frequently, but vision has never been affected, although he has many times been dizzy, and last summer had trouble in accurately determining colors when mixing paint, due probably to the absorption of evaporating alcohol or turpentine while working. Saturday being a rainy day, he did some varnishing with shellac in a small room, and inhaled the alcohol evaporating from the shellac; on Sunday this same work was continued. Patient had purchased what he supposed was pure alcohol, but which proved to be, on investigation, Columbian spirits. This was used in mixing his shellac. Not feeling well, he mixed some of the Columbian spirits with water and sugar, from which he sipped, drinking altogether a glassful or more (only a small portion of this glassful of water, sugar and alcohol was alcohol.) Tuesday, on awakening, he first noticed dimness of vision, and although it was morning he thought daylight had not yet come. He now could read signs, but not ordinary print. Sight was worse Tuesday night, and on Wednesday he could not see the firelight. He then consulted Dr. Wilson, who prescribed strychnin and referred him in consultation to Dr. Todd.

Examination Friday morning showed total blindness in both eyes; careful examination in dark room proved that he had no perception of light. Pupils, medium dilatation, no response. The following treatment was advised and carried out by Dr. Wilson: Catharsis, diaphoresis by the administration of pilocarpin, hypodermic injections of strychnin in increasing doses. After nine days of treatment patient first saw daylight; then his vision rapidly improved. Dr. Todd did not see him again until Nov. 5, 1900, when his sight, with glasses, became normal in every way.

CASE 79.—(From Dr. S. W. S. Toms, Nyack-on-Hudson, N. Y.)

A. B., servant, aged 45, addicted to alcoholism, in March, 1903, deliberately drank, during the absence of her mistress, nearly half a pint of wood alcohol from a bottle so labeled. Early the next morning Dr. Toms was called to see her, on account of what seemed a transitory blindness. This soon deepened, however, and was followed by excitation, which later

lapsed into coma, pulmonary edema and death. As the pupils became widely dilated an ophthalmoscopic examination was comparatively easy, but nothing abnormal was noticed in the fundus.

CASE 80.—(From Dr. J. F. Van Kirk, Whatcom, Wash.)

On Feb. 24, 1902, T. P. presented himself at Dr. Van Kirk's office with the following history: He was 38 years of age, a laborer, of not very good habits, but no history of syphilis. Had always enjoyed good health and exceptionally good vision. On Oct. 4, 1901, while employed as a watchman in a warehouse at St. Michaels, Alaska, he discovered a barrel labeled "Wood Alcohol." On this date, Oct. 4, 1901, he drank about one-half ounce, as he said, to "cure a cold." On Oct. 6, 1901, at 9 a. m., he drank about three-fourths ounce more, and again took a third drink of three-fourths ounce on the afternoon of the same day; in all, 2½ ounces in two days. On the night of October 6 he had occasion to rise, when it was discovered that he could not see a ray of light from the lighted candle in the room. At daybreak his vision had so returned that he was able to walk one-half mile to breakfast. He went about his work until noon, when he felt an oppression in the region of his stomach which prevented him from eating dinner. He continued at work for an hour after dinner, when objects began to look cloudy. This obscuration of his vision increased rapidly until 4 p. m., when he was obliged to stop work, and at 9 p. m. he again became totally blind, being unable to see light from a candle burning in the room. He remained blind from this date, October 7, until October 15, when he began to see a faint ray of light. On Oct. 18, 1901, he took the steamer for Seattle, Wash., where he arrived on October 30. During the voyage his vision so improved that he could walk around unaided. He began to work on the railroad section, but found his vision again slowly failing, more rapidly in the left eye. On Feb. 24, 1902, he came to Dr. Van Kirk for treatment. On examination he found R. E., V. = 20/30; L. E. V. = fingers at 5 feet. Entire lower field in each eye was obscured, with a small central scotoma in both. Color sense uncertain; eyes not tender nor sensitive to light. Right pupil somewhat contracted (or left dilated); both pupils reacted feebly to light, both directly and consensually. Media clear, fundus nearly normal, showing only a suspicious pallor, with arteries somewhat contracted. The discs were clearly atrophic and exhibited an ashy paleness. The treatment consisted of 1.30 gr. doses of strychnin sulph., which was later changed to increasing doses of potassium iodid, without appreciable change in the condition. This case was characterized by frequent transient changes. The vision would be markedly improved for a few hours, and then it would suddenly fail. Often the morning vision would be good, while exercise seemed to increase the amblyopia. The patient continued under Dr. Van Kirk's care until May, 1902, when, at Dr. Van Kirk's suggestion, he secured work on an ocean fishing boat. The marked improvement noticed while on his previous sea voyage was less noticeable now, but some transient benefit was apparent. The last report from him was dated late in the summer of 1902. Vision in the left eye was light perception only. Vision in the right eye was quite useful. The patient was unsteady, and apparently much worse when on land. At this time Dr. Van Kirk lost track of the patient, and has not heard from him since.

(To be continued.)

Clinical Report.

A CASE OF TRAUMATIC ANEURISM.

C. M. TINSMAN, M.D.
ADIN, CAL.

Patient.—Saloonkeeper, aged 45. American, in good health. Aneurism involves all the arteries on the right side of the neck. (Fig. 1.)

History.—At the age of 12, while trimming a tree, it rolled over, one of the limbs striking him under the chin, just in front of the angle of the jaw, cutting a gash from one bone to the other, the scar of which still remains. Three hours after the accident the tongue was swollen to such an extent that he was unable to speak or take nourishment. Four days after the accident the aneurism was as large as to-day and very painful. The swelling of the tongue subsided on appearance of the aneurism. Two weeks after the accident he resumed his work as a farm hand, although suffering continually. About four years later

he was thrown from a horse. This caused what he terms a "forked pain"—that is, pain in front and behind the ear. This pain was so severe and continuous for two months that he contemplated suicide. On the appearance of the jugular vein on the surface of the aneurism (as seen in the photograph) this pain ceased (Fig. 2), and he has only suffered an occasional twinge of pain since. He experiences difficult breathing when in a stooped position, working at hard manual labor, at something above his head, or on getting angry. For the last ten years he has been running a saloon and drinking more or less whisky, and can see no change in it for the last fifteen years except the slight enlargement of vessels along the left clavicle, which may be seen in the photograph. On palpating the aneurism, I find the walls hard, as if calcified, in about one-fourth of the external surface of the sac. This hardened area is in a triangular form, from $1\frac{1}{2}$ inches below the ear to within $1\frac{3}{4}$ inches of the median line of the neck just above the clavicle, therefore covering about one-fourth of the external surface.

I submit to you this brief description of the case, with the photographs, and would like to have an opinion through THE

Now suppose that the blood followed the courses of the vessels and fascias of the neck to their junction with the sheath of the great cervical vessels, and that here, the tissues being loose and yielding, a rapid ballooning occurred, with relief of pressure in the tongue and appearance of tumor of the neck. The time necessary for such a process tallies well with the facts in the history. Such a condition could persist for years. The walls of the new-formed space would become covered with lymph, organization of which would result in the formation of a sac, constituting so-called false aneurism. Great thickening of the sac wall, with ultimate calcareous deposition, is not unusual in these structures. They progress in size but slowly after their original development, and the tension of the blood within them being slight, pain and pressure symptoms are less prominent than in true aneurism. The second injury probably so shifted the sac that it caused pressure or traction on a nerve, possibly the facial, and at the same time altered its relation to the jugular vein. Rupture of the sac into the vein would now explain the sudden prominence of that vessel from over-filling, and, with lowering of the pressure in the sac, we could



Figure 1.



Figure 2.

JOURNAL as to how and why such an injury would produce so large an aneurism in so short a time, and why it does not cause more disturbance than the mere difficulty in breathing only when angry, stooping over, lifting heavy weights, or working with the hands extended above the head?

[The mass in question has the appearance of a vascular structure. Its history of rapid development after receipt of an injury leaves little doubt that such is the case. We hesitate to classify it as a true aneurism because of its too rapid development and subsequent failure to enlarge, and because we lack definite knowledge of its physical signs. It is important to know whether it shows uniform, forcible, expansile pulsation, systolic in time, and whether pressure low down on the carotid alters its size or behavior. We offer the following hypothesis as a possible explanation for many of the features described: Suppose the original trauma to have lacerated an artery of the region now marked by the scar, such, for example, as the lingual where it lies between the geniohyoid and the geniohyoglossus muscles. Blood pouring into the confined spaces between the muscles would then cause swelling of the tongue.

assume relief of the pressure on the nerve. This constitutes varicose aneurism. Somewhat similar cases are reported by Roux, in which the rupture into the vein was delayed for four years, and by Rokitan-sky, in which it was delayed for thirty years. They pulsate feebly, present interesting aus-cultatory signs, show little tendency to grow or cause pain. Pain might be caused, however, by any act capable of raising the pressure of the contained blood. More light might be thrown on the case by careful inquiry into the events which occurred immediately after the injury, such as the extent of external bleeding and the treatment of the wound, and, above all, by a thorough examination of the mass itself.—EDITOR.]

Medical Organization.—Dr. Leartus Connor says: "A real organization of the medical profession must be far more than meetings for the discussion of medical science, as its individual members are far more than mere intellectual machines. As much as possible it must keep in active co-operation all the faculties we have in common under sociological laws."

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THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

At an early stage in the preparations for the World's Fair in St. Louis, it was decided to hold an "International Congress of Arts and Science." The special purpose of this congress was to emphasize the relationships between the various branches of knowledge, and thus to encourage harmony and unification in the intellectual world. The authorities of the fair set aside a large sum of money for the expenses of the congress, including the publication of its transactions. And so it came about that during the week between September 19 and 25 there gathered in St. Louis men of science and scholars from practically all European countries, from Japan, from Canada and from the United States. Altogether there were present about 100 delegates from foreign countries, and certainly it must be emphasized that these were all leaders in their respective fields of work. Probably so notable a group of scholars representing so diversified interests has never before been assembled.

According to the program of the organizing committee of the congress, the whole field of knowledge had been so subdivided that the methods, the progress, the relations and problems of each department and its various special branches were made the subject of special addresses. Probably the total number of addresses delivered exceeds 250, and when published these addresses will constitute an authoritative review of contemporary science and scholarship. Naturally, the audiences that assembled to listen to the various addresses varied very much in size and composition; it has been estimated that the audiences averaged about a hundred. In some of the medical sections there was probably a much larger attendance, and, again, in a few the audience numbered scarcely a dozen. While the total attendance fell far short of the anticipatory calculations of the committee, the feeling seemed to prevail in St. Louis, and has been reflected from other points since the meeting, that the congress was a distinct success in spite of the many distractions and disadvantages connected with the holding of an elaborate series of meetings of this kind within the grounds, amid the bustle and confusion, of a universal exposition. The exposition made the congress possible, however, and the congress certainly lends a feature of unique distinction to the exposition. Of course, the full influ-

ence of the congress depends to the largest extent on the publication of the addresses.

In this congress medicine was treated as a department of the utilitarian sciences, and divided into twelve sections,¹ which included the more important clinical specialties, pathology, public health and preventive medicine. Bacteriology, anatomy and physiology were placed in the department of biology. Of course, this arrangement was criticized. Why should not pathology be treated as a pure biologic science? Why two sections for public health and preventive medicine. Like all efforts at classification, even this did not escape shortcomings of this palpable sort; let it be remembered that its chief purpose was to secure the greatest possible degree of order and sequence in the proceedings, and that it does not permanently fix the position of any branch of science. Far from it. The addresses in the medical and biologic sections will make interesting reading for the serious student of medical science, as well as for the non-medical scientist and the scholar in general.

Some of the addresses contain important contributions to science, especially the theoretic side, but the larger number dealt with the general relations and problems of the special branches. Disclaiming all tendency to Chauvinism, it must be said that the American medical speakers acquitted themselves very creditably indeed, which is no small compliment when it is recalled that the foreign delegates numbered among others J. Clifford Allbutt, Wilhelm Waldeyer, Johannes-Orth, Sir Felix Semon, Theodore Escherich, Max Verworn.

If we, in conclusion, ask ourselves the question, How and in what way does this congress contribute to medical progress? then the simplest, most direct answer must be, first, by showing, from a study of the progress as well as of the problems of medicine, the enormous extent to which progress in medicine is dependent on progress in other sciences, especially, of course, in the natural sciences; second, by emphasizing that the exponents of the practical, clinical branches are dealing by means of the same methods with the same problems in different fields of medicine. Surely these lessons in the real unity of knowledge can not but broaden the scientific basis of medicine and thus favor its progress.

THE LONG LIFE OF GERMS IN CLEAN WATER.

It is almost universally acknowledged that water is a carrier of infection, and that the micro-organisms of disease may be contained in what is apparently pure, uncontaminated spring water. It is, however, not generally known that those organisms may live for long periods in such water and retain their full virulence. Indeed, the opinion generally held and borne out by the literature on this subject is that pathogenic bacteria, though they may live for a time in clean water.

¹ Reported briefly on page 1077 of this issue.

can multiply little if at all, and tend to die out rapidly. To this fact is attributed the frequent failures encountered by bacteriologists who have attempted to isolate such bacteria from drinking water. The short life of pathogenic bacteria in water is supposed to be due to the unfavorable environment, to the action of sunlight, extremes of temperature, currents in the water, but above all to the competition of the hardier water bacteria and the absence of proper nutriment. Thus Bolton states that the typhoid bacillus requires at least 67 mg. of nitrogenous matter to the liter of water, the cholera vibrio at least 400 mg. He found that the typhoid bacillus lived only seven days in ordinary tap water. Karlinsky found that the anthrax bacillus and the cholera vibrio sown in water died in seventy-two hours or less, and Kraus, who obtained similar results, states that in this respect there is no difference between pure spring water and very foul well water; under all circumstances water is an "antipathetic medium." These conclusions have been verified many times by other investigators, some of whom lay most stress on the lack of nutriment as a cause of the rapid death of pathogenic bacteria in water, others on the presence of the water bacteria which multiply at the expense of the less hardy pathogenic bacteria. Konradi¹ challenges these statements, and as a result of his experiments asserts that water is an excellent medium for many pathogenic micro-organisms and that, in the long run, it is they which survive and the water bacteria which succumb. He proceeds from the statement made by Mez,² namely, that these organisms live longer in pure than in dirty water, and that, therefore, pure drinking water, once infected, is more dangerous than is foul water.

The bacteria chosen by Konradi for experimentation were the anthrax bacillus and its spores, the *Staphylococcus pyogenes aureus* and the typhoid bacillus. In all these experiments it was found that ordinary bacteria present in the tap water multiplied greatly for a time, but then began to die out, and that, after varying periods, the water kept at room temperature was found to contain a pure culture of the pathogenic organism which, up to complete evaporation, retained its full virulence. Thus the anthrax bacillus and its spores lived for periods varying from 264 to 816 days, having completely conquered the water bacteria after three or four weeks. The staphylococcus aureus was found in pure culture after two months, and lived and retained its virulence for 508 days.

The competition of the water bacteria was greater in the case of the typhoid bacillus; only after more than four months was the latter found in pure culture. It lived in ordinary tap water at room temperature for 499 days. Sterilized water was also found to be a good culture medium for the anthrax bacillus and for the

typhoid bacillus, but the staphylococcus aureus died in a short time in such water.

These results are not only of scientific interest, but of great practical significance. We are accustomed to regard the danger of infection from contaminated water as comparatively short lived, provided the source of contamination be removed. A city which has suffered from an epidemic of typhoid fever, due to infection of the water supply, and which has instituted measures to do away with the source of infection, will consider itself free from danger the following summer, yet, according to the researches of Konradi, typhoid bacilli, living and virulent, may persist for over a year in clean water and proceed to multiply under favorable conditions. This may be one explanation for the recurrence of epidemics of typhoid fever after supposedly rigid sanitary reform of water supply, recurrences which are so discouraging and apparently inexplicable.

THE SANITARY PROBLEM IN PANAMA

One of the first fruits of national medical organization has been an awakened interest and sense of responsibility on the part of the medical profession concerning all matters of national sanitation and hygiene. The reports in the public press of friction between the governor of the canal strip and the chief of sanitation have, therefore, attracted much attention, and THE JOURNAL has accordingly obtained from an authoritative source the facts in the case.

While everything at Panama is not the color of roses, there has been no personal friction whatever between Colonel Gorgas and the administrative chiefs, and the former's sanitary scheme has been adopted by the commission in all its essential features, although with some pruning down of personnel and expenditures. This scheme in general terms contemplates an effective quarantine at Colon and Panama to keep out infectious diseases, including yellow fever, which exist on both coasts, and plague, which is present on the west coast. Also a system of hospitals is being organized for the isolation and treatment of such cases of infectious diseases as appear not only among the canal employes, but also in the civil population of the canal zone. Thirdly, health officers are appointed to carry out all works of sanitary precaution such as the destruction of mosquitoes, disposal of excreta and wastes, and to insure the observance of sanitary regulations in the terminal cities and the villages included in the zone. The Panama government, at whose head fortunately is a physician, has co-operated cordially in this plan of issuing the necessary decrees and by appointing as its quarantine and health officers the assistants of Dr. Gorgas which he has selected for these responsible positions. The quarantine system is already in effective operation in the experienced hands of two officers of the United States Public Health and Marine-Hospital Service. The cleaning up of Colon and Panama is making good progress under health offi-

1. Centralblatt für Bakteriologie, May 28, 1904, vol. xxxvi, No. 2, p. 203.

2. Mez: Mikroskopische Wasser-Analyse, 1898.

cers trained in tropical sanitation by service in the Army. The command of the mosquito brigades along the canal and the sanitary control of the fifteen or more villages distributed along it have been given to one of Colonel Gorgas' most valued assistants in his brilliant work in Havana. About 400 men are now being employed in sanitary work, exclusive of sewers and water supply.

The hospital system as authorized includes the old French hospital on the Hill of Ancon, overlooking Panama, and which has at present about 150 patients, a new hospital for 100 beds now being constructed at Colon, and a number of dispensaries along the line of the canal.

The crux of the sanitary question is involved in the purpose of these dispensaries which requires some explanation. The two diseases which were chiefly instrumental in bringing ruin on the French company were yellow fever and malaria, both infectious fevers spread by the agency of mosquitoes. There is, however, this important practical difference between them, that the yellow fever patient can not spread the disease after the third day of his illness, whereas the infection of malaria persists for months and can be disseminated by persons who are not apparently ill and are engaged in their ordinary pursuits. In fact, in the canal strip it has been found that the population, which is mainly black, and enjoys the well-known tolerance to this disease which is characteristic of the negro race, is universally infected with malaria. This population, exclusive of the terminal cities, numbers about 10,000. The vastness and complexity of the problem of bringing under control this infection which is there so universal, so deadly to the white race and so injurious to the physical energy of all races, becomes apparent. In comparison with it the yellow-fever problem is simple and can probably be readily handled by the present organization along the lines already so successful in Cuba. The antimalarial campaign outlined by Colonel Gorgas is startling alike in its simplicity and its boldness. He proposes first an unrelenting war on the anopheles by means of mosquito brigades, drainage, etc., and second, antimalarial treatment of the entire infected population. For this purpose he asked for twenty dispensaries and twenty physicians, but the commission, deterred probably by reasons of economy and a failure to realize the vital importance of the measure, has so far authorized six dispensaries and three physicians.

This unwillingness on the part of the commission to embark in so large an undertaking, new of its kind and based on a fact of etiology which they perhaps view with skepticism, is not surprising. In view of the fact that the commission contains no medical member this situation was expected, and was predicted by the representatives of the American Medical Association who interviewed the President with a view to obtaining the appointment of a medical commissioner. This defect is a

radical one which will necessarily continue to gravely handicap the administration of sanitary affairs. The problems before the commission are of three kinds—engineering, sanitary and administrative. The failure of the French company was not in engineering, but in the last two. Yet the Americans entrust the work to a commission composed of four engineers, three administrators and no sanitarian. These in their organization naturally repeat this disregard of the relative importance of sanitation. The chief engineer is given a salary of \$25,000, the administrative chief on the ground is a commissioner with a salary of \$12,000, while the chief of sanitation is a subordinate of both and lags far in the rear with a salary of \$7,500. The chief of sanitation has been likewise subjected to a sanitary board composed of his own subordinates. This arrangement, as long as the members of the board are harmonious, is only futile and productive of delays, but if disagreements occur, it will paralyze all vigor of administration. It would seem that the public interest as well as the dignity of the medical profession require that Dr. Gorgas be given a higher status, a freer hand and more authority until the occurrence of a vacancy in the commission will permit his appointment thereto.

BACILLUS DYSENTERIE IN THE SUMMER DIARRHEAS OF INFANTS.

In searching in the intestinal contents or dejecta for bacteria which might be the cause of an infectious disease, investigators have often mistaken the organism present in largest number for the one sought, and have overlooked the specific one which was present in much smaller number. This had been the case in the study of dysentery until Shiga, in 1898, made use of the agglutinating property of the blood of the infected person on the specific organism, to separate it from the other intestinal bacteria. The work of subsequent investigators in various parts of the world seems to have determined that typical dysentery, aside from the amebic form, is always due to the bacilli which are closely related to the one originally described by Shiga. Some of these bacilli have been shown to cause typical dysenteric lesions in experimental animals.

These fruitful investigations in connection with dysentery led to the conduct of studies in similar lines on the intestinal diseases of infants by Duval and Bassett during the summer of 1902. Plate cultures were prepared from the stools of 53 infants suffering from summer diarrheas of various degrees of severity, and from 42 organisms were isolated which corresponded culturally to those previously cultivated from cases of dysentery in adults. These cultures were agglutinated by the blood serum of the patients from whom they were obtained, by the serum of adult patients with acute dysentery, and by anti-dysenteric serum from horses. The specific bacillus was not found in the stools of 25 healthy children. The cases from which dysentery bacilli were

isolated included examples of dyspeptic diarrhea, of enterocolitis, and of malnutrition and marasmus with superimposed infection. Duval and Bassett concluded that their findings justified them in the conclusion that the summer diarrheas of infants are caused by intestinal infection with *Bacillus dysenteriae* (Shiga), and therefore are etiologically identical with the acute bacillary dysentery of adults.

During the summer of 1903, the Rockefeller Institute for Medical Research, under the direction of Dr. Simon Flexner, undertook the further bacteriologic investigation of children affected with various forms of diarrhea. The investigation was carried out directly by some twelve bacteriologists in the cities of New York, Philadelphia, Boston and Baltimore. The results of this collective study are presented, together with a clinical study of cases, in the second volume of the studies from the institute which has just appeared.¹

In general the results of the collective study agree with the earlier ones of Duval and Bassett. Four hundred and twelve cases of diarrheal disease among children were studied with reference to the bacillus of dysentery. Of these 279, or 63.2 per cent., yielded positive results. The cases were mostly unselected, and represented all varieties and degrees of summer diarrhea. The bacteria, cultivated and recognized as dysentery bacilli, represent several varieties or forms which have been included within a group of dysentery bacilli, because of similarities in cultural peculiarities and in the way they are affected by immune sera. It is of interest to note that Duval was able to cultivate the Flexner-Harris bacillus from the stools of two infants who were in perfect health.

In speaking of the results of treatment with anti-dysenteric serum, Holt says that on the whole they were disappointing, but that no unfavorable symptoms followed its use in any case. Out of 83 cases treated with the serum, 38 were fatal, but many were desperate cases. He believes that the profound disturbances of digestion and impaired nutrition would usually prevent any such pronounced effects as follow the injection of diphtheria antitoxin. Acute attacks in which the child's resistance is still good are most favorable.

In the same volume Ford reports the results of a study of intestinal bacteria from 50 autopsies. In 10 cases he found the *Bacillus pseudodysentericus*, which corresponds to the *Bacillus dysenteriae* in cultural reactions, but fails to be agglutinated by the serum from cases of dysentery. The frequent presence of such bacilli in the intestine and the occasional presence of dysentery bacilli in normal stools are most important and emphasize the great caution required in drawing conclusions.

Recent investigations have revealed the fact that not only the bacterium causing an infection may be agglu-

tinated by the serum of the infected animal, but that other and quite different bacteria may be almost as readily and powerfully agglutinated by the same serum. This must make us very careful in accepting the agglutination of an organism by a serum as sufficient proof of infection by the organism.

Altogether these studies have added much to our knowledge of this particular group of intestinal bacteria, but much additional, carefully controlled work is required before it can be generally accepted that the dysentery bacillus is the cause of most cases of summer diarrhea in infants.

MUNICIPAL CONTRACT PRACTICE.

Under the head of "The Socialization of Medicine" a French contemporary¹ discusses a recent decision which, it states, has been adopted by the Federal council of the city of Zurich. This is in effect to levy a medical tax of 4 francs and 35 centimes per head of the population. With the sum thus raised forty physicians are to be selected by the municipality to give free treatment to the citizens. Each physician is to have a salary of \$2,500 per annum as compensation for his work, and presumably, is to receive no further compensation. It may be that forty physicians are a sufficient number for the city of Zurich, but the beauty of the system is not altogether demonstrated by this fact. Our contemporary points out a few of the objections, such as the probability that the more unpopular of the appointees will have a comparatively easy time in earning their salaries while the more popular ones will be worked like dogs. Like every other socialistic plan, moreover, it involves a general leveling down, which will be unprofitable in the end for both the profession and its patrons. The authority of the physician would also suffer in his capacity as a paid public servant subject to every one's call and whim, and it will be fortunate if there is not serious degradation of professional standing and spirit under such conditions. There is apparently no arrangement made for specialists and some developments are to be expected on this account. Will the experiment work satisfactorily even in Switzerland?

SEX DETERMINATION.

There is nothing new in the fact that the determination of sex in some of the lower forms of animal life can be brought about by certain modifications of nutrition. It was discovered by the bee savants many years ago, and they and their relatives and descendants have made practical application of the discovery ever since. There would be nothing extraordinary or excessively startling if we should find out that we could experimentally produce similar results in other forms of animal life not more highly organized than the bees. The statement alleged to be made by the distinguished California biologist, Professor Loeb, that "science is now able to control the sexes, saying whether or not the newly generated body shall be male or female," can hardly refer alone to such matters of ancient history

1. Studies from the Rockefeller Institute for Medical Research, vol. II, 1904. See report in New York News, this issue of THE JOURNAL.

1. Journal de Médecine de Paris, August 28.

as the determination of sex in the lower organisms. The natural assumption is that his statement covered all forms of animal life. There is a vast difference between the hymenopterous insect and the higher mammals, and what may be possible with a simpler organism may be impossible with a higher and more complicated machine. If Professor Loeb's discovery is genuine, its practical importance as applied to mankind is tremendous. How it would simplify certain problems in political economy and what a boon it would be to advanced socialists if we could simplify the complicated mechanism of human society by removing the embarrassing problems connected with the proportion of the sexes and create such a harmonious state of affairs as exists in the communities of the bees and ants. It is a question, however, whether many of our reformers of the present day would like to be put in the class of neutral workers, and yet that is one of the many possibilities that may be imagined should Professor Loeb's alleged discovery be verified. In the meantime, however, it seems to us that a little judicious skepticism is the appropriate thing; the fate of Professor Schenk is still an unpleasant memory.

THE POSTOFFICE DEPARTMENT SUPPRESSES ANOTHER FRAUD.

The postoffice department has issued a fraud order against the Thomas A. Edison, Jr., Chemical Company, of New York, declaring the operations of this company to be fraudulent attempts to make money from the gullible public through the influence of the famous name of Edison. We have previously referred to the so-called magneto-electric vitalizer, which this company puts out. It seems that two attempts were made to patent this device, which is said to consist of two plates of copper with interposed acidulated blotting paper, and the patent office refused both applications, pronouncing the apparatus inoperable and therefore not patentable. The advertisements of the company have proclaimed the marvelous invention of the young Edison, and detailed at length the remarkable effects on disease said to be secured by the use of this instrument. The senior Edison declares that his son has never shown any ability as an inventor or an electrical expert, and that the chemical company has simply given him a salary for the use of his name. The company has issued a paper called *The Magnet*, said to be edited by Thomas A. Edison, Jr. In one issue an editorial headed "Father and Son" dilates on the wonderful ability of both the Edisons and the fame which will be attached to their names in future histories. The famous inventor comes tardily, it seems to us, to the rescue of his reputation. It has been charged that he was not wholly disinterested in his son's enterprise. We trust that there is no truth in such a statement. We prefer to believe that his endorsement of the appropriate action taken by the post-office department has been preceded by serious attempts to correct his wayward son and to restrain the company from linking his name with this notorious fraud. Incidentally, it is of interest to remark that this post-office regulation ought to be an effective bar to such concerns as the one under discussion. The postoffice seems

to be ready to do its part; it is left for the public and the profession to bring to the notice of the authorities the many frauds which are fattening on the public through the medium of the mails.

PROGRESS AND POVERTY

The Chicago newspapers have been deriving some amusement by commenting on the fact that a physician pleaded the good health of the city as a sufficient excuse for not meeting a financial obligation. The subject lends itself readily to the humorist, but, after all, the situation is full of pathos. Since the first of this year, as shown by statistics as well as by the personal observations of physicians in general practice, Chicago has been remarkably healthy. There have been no epidemics among children and adults, save that pneumonia for a time last winter nearly approached the proportions of an epidemic. Preventive medicine has greatly improved the general healthfulness, and the medical profession rejoices at the measure of success that has followed the earnest efforts made to banish communicable diseases. The individual physician who has seen his income dwindle during a healthy year gets no reward, either substantial or honorary, for his small share of the credit earned by the profession as a whole for its beneficent and self-effacing effort. For in Chicago, and in other larger cities, and, for that matter, in smaller towns and villages, many physicians are in dire distress for a living for their families and themselves. Pride makes them hide their plight, and their suffering is not easily imagined. To these the levity of the journalist is bitter irony. Steadily we see ourselves contributing to the health and longevity of the community, and steadily we see our numbers increase. The total sum paid by the community for the care of the sick year by year grows less, and this lessened amount is divided among a number steadily increasing by the annual output of our medical colleges. The process, however tragic for the individual physician, will continue, must continue; for certainly there must not be any let up in preventive medicine; and it would be too utopian and idealistic to expect any of our medical colleges to go out of business, or to stop urging young men and women to enter on the study of medicine.

REPORT OF THE MARYLAND TUBERCULOSIS COMMISSION.

The report of the Tuberculosis Commission of the State of Maryland has just been received. The commission found that the death rate from tuberculosis in Maryland is somewhat greater than for the United States in general and ascribe this in part to the large colored population of the state and the predisposition of the negro to tuberculosis. The report states that the death rate from tuberculosis in Baltimore exceeds that of the state at large and that in comparing Baltimore with the leading cities of the world, it was found that the death rate from this cause has shown a slight rise in the last five years and at the end of 1902 had risen above all other cities except New York. The statistics compiled by the commission show that tuberculosis of

the respiratory organs is the most prevalent form of the disease and that tuberculosis among infants in Maryland forms a much greater factor in the tubercular mortality than is generally supposed. This is particularly the case among colored infants in whom the mortality under two years exceeds the general colored tubercular death rate to a considerable degree. General and meningeal tuberculosis are the most prominent factors in the infant tubercular mortality. In summing up the economic effects of tuberculosis the life history of a consumptive has been divided into three periods: 1. A period of unimpaired earning capacity preceding the onset of the disease and extending into its earliest stages. 2. A period in which the patient is capable of irregular work at reduced wages. 3. A period during which there is an entire loss of earning capacity, with or without a condition of dependency. In this period the patient and his family become, in a considerable proportion of cases, a source of direct loss to the community. The report goes on to state that indirectly the death from tuberculosis of the main supporter of the family entails the removal of children from school before the proper time and starting them out in life with an education so imperfect as to permanently impair their earning capacity. This, of course, tends to lower the general educational standard of the community. The commission considers general prophylactic measures in force in Maryland and elsewhere throughout the country and states that tuberculosis is in many instances a curable disease. The method of treatment outlined in the report includes general hygiene, food and fresh air. Sanatorium treatment is advocated because it insures the proper medical supervision of the patient and a freedom from care and temptation to work, which can rarely be obtained in the home. The establishment of special dispensaries for tuberculosis in the out-patient departments of hospitals is also advised and it is urged that a state sanatorium for the care and treatment of consumptives is greatly to be desired, as even from a purely material standpoint it would prove to be an economic measure. The report concludes with a very full and interesting account of the Tuberculosis Exposition held last January at Baltimore.

Medical News.

CALIFORNIA.

Sanatorium Enlarged.—The Pottenger Sanatorium for Diseases of Lungs and Throat, Monrovia, is being enlarged. The new addition will be ready to receive patients Jan. 1, 1905.

New Hospitals.—The new Redlands Hospital will be completed and turned over to the stockholders early this month. —The St. Frances Hospital Company, San Francisco, have secured a permit and will build a four-story hospital to cost \$50,000, on Julian avenue, between Fourteenth and Fifteenth streets.

Medical Sir Knights Banqueted.—Dr. Curtis G. Kenyon, chief of staff of the medical department of the twenty-ninth triennial conclave of Knights Templar at San Francisco, gave a banquet to those who assisted him, September 18, at the Hotel Pleasanton. —Dr. A. Miles Taylor entertained at dinner at the San Francisco Club, the medical Knights Templar who rendered service during the conclave. Dr. Curtis G. Kenyon, the guest of honor, was presented with a silver tantalus, and Dr. A. Miles Taylor with a cut-glass decanter and set of glasses.

Expert Witness Deserves Expert Fee.—Dr. William A. Whitlock, Merced, was victorious in a contest with the district attorney, September 30. He was a witness in a suit on

trial, and was asked to give expert testimony, but declined to do so until a fee of \$50 had been guaranteed by the district attorney. The circuit judge ordered Dr. Whitlock to testify; he refused, and was committed to jail for contempt of court. After an imprisonment of three hours, the attorney came to the jail, agreed to guarantee the payment of the fee, and Dr. Whitlock went back to court and testified.

DISTRICT OF COLUMBIA.

Much Typhoid.—For the week ended September 24, typhoid fever cases in Washington increased from 278 to 291; 52 new cases were reported, and 39 patients were discharged.

Mortality.—The report of the District of Columbia Health Department for the week ended September 24, shows a total mortality of 104; 55 white and 49 colored. Diarrheal diseases caused 15 deaths; consumption, 14; typhoid fever, 9; apoplexy and heart disease, each 8; kidney diseases, 7, and violence, 5.

Contract Treatment of District Patients.—Dr. William A. Warfield, surgeon-in-chief of Freedmen's Hospital, Washington, in his annual report recommends "that the whole maintenance of Freedmen's Hospital be borne by the United States, and that the district commissioners be authorized to enter into a contract with the Secretary of the Interior for the care, at such rate per capita as may be determined on, of all persons from the District admitted to the hospital for treatment."

ILLINOIS.

Waukegan Hospital Open.—The Jane McAlister Hospital, Waukegan, is now completed and entirely fitted out, and was ready to receive patients October 1.

Memorial Operating Room.—In memory of his son, Louis F. Swift will equip the operating room of the hospital at the Methodist Episcopal Orphanage at Lake Bluff.

The Belleville Epidemic.—At a mass meeting held in Belleville, September 28, a committee was appointed to secure a site for an isolation hospital. At present about 90 cases have been reported to the health authorities.

Condemns Camps.—Dr. Martin W. Cushing, Joliet, has found camps on the drainage canal extension south of Lockport insanitary, and has ordered the buildings put in good condition, and a better quality of food furnished the workmen.

Moves to Chicago.—Dr. Mary M. Mars, Evanston, who resigned in July from the medical staff of the Cook County Hospital for the Insane, Dunning, has moved to Chicago. Her former associates at Dunning a few days ago, presented her with a valuable electrical machine.

CHICAGO.

Bequest.—By the will of the late Mrs. Elizabeth Kelly, the Chicago Baptist Hospital receives a legacy of \$2,000.

Dermatologists Return.—Drs. Joseph Zeiler and James Nevins Hyde, who have been in attendance on the International Dermatological Congress in Berlin, have returned.

College News.—The College of Physicians and Surgeons held its opening exercises, September 27. Dr. Charles C. O'Byrne, made the address. —Illinois Medical College graduated a class of 14, September 29. Judge Holdom delivered the doctorate address.

The Week's Mortality.—During the week ended October 1, 477 deaths were reported, equivalent to an annual death rate of 12.61 per 1,000. There were 20 more deaths than in the previous week and 10 more than in the corresponding week of 1903. Acute intestinal diseases caused 82 deaths; consumption, 44; violence, 42; pneumonia, 40; heart diseases, 35, and Bright's disease, 20.

Professor Northrup Speaks.—At a special joint meeting of the Chicago Medical Society and Chicago Pediatric Society, September 28, Dr. William P. Northrup, professor of diseases of children in the University and Bellevue Hospital Medical College of New York City, presented an interesting and valuable paper on "The Diagnosis and Treatment of Pneumonia in Infants and Young Children."

The Unvaccinated Suffer.—Three cases of smallpox were sent to the Isolation Hospital during the week. Two of these were unvaccinated children, and the third case was an adult who had an imperfect vaccination mark made in childhood. Two deaths occurred during the week—a colored adult and a 4-year-old white child, neither of whom had been vaccinated. These make seven smallpox deaths in one month, while there were only three deaths out of 147 cases during the previous eight months. The present type of the disease is much more severe than at any time during the last six years.

The Healthiest September.—The Health Department announces that September, 1904, takes its place in the vital statistics of the city as that of the lowest September mortality on record. Its total of 1,935 deaths represents an annual rate of 12.33 per 1,000. The lowest previous rate for the month was that of September, 1903, when the rate was 13.42 per 1,000, or 8 per cent. higher, while the average September rate for the previous decade was 15.40 per thousand, or 19.9 per cent. higher. Compared with the corresponding month of last year there were 41 more deaths from the acute intestinal diseases, but 46 fewer from typhoid fever; deaths from consumption, 223, were exactly the same in each month, while there were four more deaths from pneumonia. Among other important causes of death there were fewer from Bright's disease, 11; bronchitis and cancer, 8 each; diphtheria, 26; nervous diseases, 20; scarlet fever, 3; suicide, 7; measles and whooping cough, 2 each. There were 7 deaths from smallpox this September and only 1 in September last year and 26 more deaths from violence other than suicide.

MARYLAND.

Doctors Pay License.—By a new city license law, a special tax of \$10 is levied on every physician in Frederick City, commencing October 1. It is said the physicians will resist its payment, on the ground that the legislature has granted them the privilege of practicing where they please in Maryland, and no municipality has the right to tax them.

Baltimore.

Colleges Open.—The session at the Maryland Medical College was opened with a lecture by Dr. A. D. Macdonachie. At the University and Johns Hopkins there were no formal addresses.

September Deaths.—During September there were 810 deaths reported, of which 268, or one-third, were under 5 years. The chief causes of death were: Consumption, cholera infantum, heart disease, Bright's disease, cancer and apoplexy.

Surgical Building to Open.—There will be addresses at the opening exercises of the new surgical building, at Johns Hopkins Hospital, by Drs. T. Clifford Allbutt of Cambridge University, and Lewis A. Stimson of New York City. Dr. James J. Carroll, U. S. A., the only survivor of the Cuba Yellow Fever Commission, will deliver the address at the unveiling of the Lazear tablet.

Dairymen Seeks to Consult Birth Register.—The health commissioner refused permission to a dairyman to examine the register of births and deaths for the purpose of using the information to extend his business. The dairyman has in consequence brought suit to compel the city to yield to his demand, but the city solicitor says that if the suit is decided against the commissioner an ordinance will be passed by the council prohibiting such use.

Personal.—Dr. Elliot C. Prentiss of Washington sailed from this city for Germany, September 28.—Among Maryland doctors recently at the St. Louis Fair are Drs. Frank J. Flannery, E. T. Duke, E. J. Dirickson, S. K. Waters, J. J. McCurdy, Frederick Carruthers, L. W. Morris, J. E. Myers.—The following have arrived from Europe: Drs. Ross G. Harrison, Samuel Amberg, C. B. Farrar, Karl Osterhaus and W. G. Brown.—Nothing has been heard of Dr. Champe S. Bradfute, who disappeared suddenly several months ago.

Distinguished Foreigners in Baltimore.—A number of distinguished foreign physicians were in Baltimore during the week. Dr. Johannes Orth of Berlin, the pathologist and successor to Virchow's chair and to the editorship of *Virchow's Archiv*, was the guest of Dr. Thomas S. Cullen, and was given a dinner by Drs. Cullen and Welch. Dr. Osler had as his guests Drs. T. Clifford Allbutt, regius professor of physics, Cambridge University, and the author of the "System of Medicine," and Major Donald M. M. Ross of Liverpool, who has acquired fame in the mosquito-prophylaxis of malaria. The latter has gone to Panama. Dr. Allbutt remains to take part in the exercises connected with the dedication of the new surgical building at Johns Hopkins Hospital.—Dr. Desnos of Necker Hospital, Paris, was entertained by Dr. Hugh H. Young and Dr. Osler.—Dr. Theodore Escherich of Vienna, the authority on diseases of children and advocate of the serum treatment of scarlet fever, was the guest of Dr. J. C. Hemmeter.—Dr. Otto Cohnheim of Heidelberg also stopped here.—Dr. Wilhelm Ostwald of Leipzig was the guest of Dr. Harry C. Jones.

MASSACHUSETTS.

Counterfeiter Insane.—Dr. Frank Sauff, Roxbury, indicted for counterfeiting, has been adjudged insane and committed to an asylum.

Nurses' Training School for Harvard.—In connection with Harvard Medical School, a new nurses' training school is to be established. Dr. Alfred Worcester, now at the head of the Waltham Training School for Nurses, is to have charge, and has spent the past few months in Europe studying the hospitals and nurses' training schools there.

Serum in Smallpox. The recent epidemic of smallpox in North Adams, of more than 35 cases, is noteworthy from the successful employment of antistreptococcus serum in at least one case, with the apparent result of shortening the disease and decrease in the severity of signs and symptoms. The patient was a young priest who had not been vaccinated since childhood.

MISSOURI.

Poorhouse Appointments.—Drs. C. C. Drace and A. T. Hayman have been appointed assistant physicians at the St. Louis City Poorhouse, vice Drs. R. E. Kearney and J. B. Childs, removed.

Sentenced for Fifty Years.—Dr. Clarence D. Heflin, St. Joseph, was convicted of criminal assault on his office girl, aged 14, and was sentenced to imprisonment for fifty years in the penitentiary.

Kelly in St. Louis.—Dr. Howard Kelly, chairman of the section on gynecology in the Congress of Arts and Sciences at the World's Fair, held a clinic at Mullanphy Hospital, St. Louis, September 27.

The N. S. Davis District Medical Association.—The Northeast Missouri Medical Association has been reorganized and the name changed to the N. S. Davis District Medical Association. This association is composed of Lee, Van Buren, Davis, Appanoose and Wayne counties in Iowa, and Clark, Scotland, Schuyler, Putnam and Mercer counties in Missouri. One of the requirements for membership is that the applicant be a member in good standing of his county society. Dr. F. B. Miller, Kahoka, Mo., is president, and Dr. E. E. Parri-h, Memphis, Mo., is secretary. The next meeting will be held next Tuesday, October 11, at Memphis.

NEW JERSEY.

Hospital Incorporated.—Articles of incorporation of the Essex Private Hospital Association were filed in Newark, September 20. The incorporators named were Drs. Carl W. Lippe, Maurice J. Klein and Theodore Teimer. The capital stock is \$6,000.

Diphtheria in Newark.—Diphtheria is widely spread throughout the city, and seems to be rapidly increasing. During the week ended September 3 there were 27 cases reported, and in the following week 53 cases. During the week ended September 17 51 cases were recorded.

Camden's Public Bath.—The total number of bathers at the public bath-houses during the year numbered 41,239. During the year 1903 there were 46,944, a decrease this year of 5,705. There has been a greater attendance of white than colored females, the respective figures being 6,026 and 5,888.

NEW YORK.

Buffalo College Opens.—The Medical Department of the University of Buffalo opened for the session of 1904-1905, September 26. Dr. Thomas McKee delivered the opening address.

Summer Charities Close.—Cradle Beach and the Fresh Air Mission Hospital at Ahol Springs have closed for the season. There is a deficit of \$3,053.39. An appeal has been made to all interested in this particular charity for contributions.

Increase in Typhoid in Buffalo.—There is the usual increase in the number of typhoid cases, a census of all hospitals showing 50 cases, and there are probably as many cases in private practice. The health commissioner again urges the boiling of all drinking water.

Pollution of Lake Champlain to End.—Owners of country seats along the shores of Lake Champlain have been conducting a vigorous campaign both in this state and in Vermont, against pollution of the water by refuse from pulp mills. At last a process has been invented and successfully put into operation for the evaporation of the waste liquor thrown out. The water is not only freed from all foreign substances, but the

fiber and other materials taken from it have become a valuable product for sizing paper.

New York City.

Personal.—Dr. Iral B. Brownell arrived on the *Aronland* September 27.—Dr. William S. Ely arrived on the *Potsdam* September 27.

Bellevue Valets Must Go.—The house staff at Bellevue Hospital have lost the day in their battle to retain their male attendants. Chanbernaids will hereafter attend to the rooms and clothing of the house staff.

Benefits for Hospitals.—The military band of the Garde Republicaine will give a concert October 16 for the benefit of the French Hospital, now in course of erection.—The Alliance of Mt. Sinai Hospital will hold the first of a series of subscription dances at Hotel Astor.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended September 24, 307 cases of tuberculosis, with 107 deaths; 234 cases of diphtheria, with 28 deaths; 84 cases of typhoid fever, with 19 deaths; 68 cases of scarlet fever, with 1 death; 42 cases of measles, with 3 deaths; 11 cases of variella, 4 cases of smallpox, and 13 deaths from cerebrospinal meningitis.

Plan to Check Pneumonia.—The special commission which will make a study of pneumonia for the Department of Health and endeavor to formulate measures to curtail the alarming spread of this disease will hold its first session this month in this city. This commission is composed of Drs. William H. Welch, William Osler, Edward G. Janeway, L. Emmett Holt, T. Mitchell Prudden, Theobald Smith, John H. Musser and Frank Billings.

Deaths from Typhoid Increase.—The figures for the first three weeks in September show the total number of cases reported to be 441, with a death rate of about 20 per cent. The highest death rate last year was 13.4 per cent., and the largest number of cases reported, 324, was for the first four weeks in October. To a certain extent the increased number of cases is due to the activity of the Health Department, which is on a never-ending hunt for typhoid.

Asylum Officials Accused.—H. J. Bebro, known as the "Charles Reade of America," was heard in the Supreme Court in behalf of James P. Haughey, who is seeking release from the State Asylum at Matteawan. Mr. Bebro claimed that there are a number of sane persons detained in the asylum and subjected to cruel and inhumane treatment. The court ordered Haughey back to the asylum and appointed Dr. Edward C. Spitzka and Charles L. Dana to examine him.

Medical Colleges Open.—The College of Physicians and Surgeons of Columbia University was opened by a brief address by President Butler, after which Dr. John G. Curtis, acting dean, addressed the students on "Our Medical Training in the Light of Ancient Error." The enrollment of freshmen numbered 87, as against 100 on the opening day of 1903. The opening exercises of the New York University Medical College were presided over by Dr. Henry M. McCracken. Here the entering class showed a gain of 20 per cent. over last year, the new class numbering 150.

Complications Arise for Spratling.—Further complications now tend to postpone indefinitely the appointment of a superintendent to Bellevue Hospital. The municipal service, which refused to accede to Dr. William P. Spratling's transfer to this position unless he should successfully pass a competitive examination, is now under charges made by the Civil Service Reform Association, which has not sufficient members at the present time to constitute a working quorum. Should a quorum set the date and hold the examination, and should Dr. Spratling compete and obtain the highest marking, the fact that Civil War veterans are on the eligible list might prevent his obtaining the appointment.

Report of Rockefeller Institute.—The second annual report of this institution has just been published. It deals largely with bacteriological investigations of different forms of diarrhea in children. Twelve bacteriologists have had charge of the present investigation. Of 372 cases studied 73 proved fatal. The antidyenteric serum used was made from horses by the injection first of dead cultures and later of living cultures of dysenteric bacillus. Dr. L. Emmett Holt, in summing up the results of the work, states that the dysenteric dejection seems to be contagious, but how and to what degree is not yet proved. The spreading takes place most likely through the discharges, and this calls attention to the necessity for disinfection and the close attention to prevent contamination of

food or water. In all there were 85 cases in which the antidyenteric serum was employed; 38 of these were fatal. On the whole, the results were disappointing. Several factors worked against success. In a large proportion of the cases the serum was used late in the disease as a rule, was employed only in the most severe cases, and finally, at the beginning of the season, no rules had been formulated as to the size and frequency of dosage; hence it was evident that many of the doses were too small. Dr. Holt does not think from his personal observation that an adequate trial of the antidyenteric serum has yet been made. As a result of the investigations it is recommended that central distributing milk stations be established under city control, at least from May 15 to September 15, and that closer inspection of small milk dealers be instituted.

PENNSYLVANIA.

Combining Editor and Secretary.—Dr. Cyrus Lee Stevens, Athens, who has been for so long the efficient secretary of the Medical Society of the State of Pennsylvania, had added to his duties at the recent meeting those of editor and publisher of the *Pennsylvania Medical Journal*.

Typhoid in West Chester.—The typhoid fever situation in West Chester remains unchanged, and, indeed, the epidemic is more serious than at any time since the outbreak. Secretary Woodward of the board of health estimates the number of the cases as 30, and attributes the prevalence of the disease to sewage conditions. It has been observed that more cases have appeared along the milk route of William G. Embree, a dairyman. Of the 50 cases reported since March, more than 20 have occurred in families supplied with milk by this individual. He has been asked to withdraw from the business by the local board of health.

Meeting of State Medical Society.—The Medical Society of the State of Pennsylvania held its fifty-fourth annual convention in Pittsburg, September 27, 28 and 29. Dr. William B. Ulrich, president, Chester, called the meeting to order. Dr. Adolph Koenig, Pittsburg was elected president. The other officers elected were Drs. Erasmus V. Swing, Coatesville; Walter S. Stewart, Wilkesbarre; Joseph M. Corson, Chatham Run, and James B. Ewing, Uniontown, vice-presidents; Dr. Cyrus Lee Stevens, Athens, secretary; Dr. Theodore B. Appel, Lancaster, assistant secretary, and Dr. George W. Wagoner, Johnstown, treasurer. Scranton was selected as the place for the 1905 meeting.

Philadelphia.

Tropical Medicine at Jefferson.—Major Walter D. McCaw, surgeon, U. S. Army, will give the course in tropical medicine in Jefferson Medical College in place of Major Charles S. Kieffer.

Home from Abroad.—Dr. J. William White returned home after spending the summer in Europe. Most of his time abroad was spent in the Apennines.—Dr. and Mrs. John Marshall returned home after a lengthy tour of Europe.

Resignations.—Dr. Conlin C. Stewart, assistant professor of psychology; Dr. R. Max Goepf, instructor in physical diagnosis, and Dr. Charles E. Ruffell, assistant demonstrator of histology, in the Medical Department of the University, have resigned.

Donald Ross to Lecture.—Major Donald M. Ross, the famous English authority on malaria, will deliver a series of lectures in the Medical Department of the University of Pennsylvania some time during the year, on "Causes and Cure of Malarial Fever."

New Ambulance for German Hospital.—A modern ambulance was presented to the Jewish Hospital by the residents of Olney and vicinity. The presentation was made by Rev. William H. Wells, and it was accepted for the Hospital Association by Judge Mayer Sulzberger.

New Hospital for Chestnut Hill.—The new hospital erected in Chestnut Hill was opened for the reception of patients October 3. The hospital has been erected and will be maintained by the residents of the vicinity. Its purpose is to provide medical attention for the poor and needy of the neighborhood. Accommodations, however, have been provided for pay patients.

Honor Distinguished Visitors.—A reception in honor of Prof. Dr. Oscar Liebreich of Berlin was given by John V. Shoemaker at his residence October 1.—A special reception was given in honor of Sir Lauder Brunton, F.R.S., and Prof. T. Clifford Allbutt by the Medical Club, October 3, at which

Dr. Edward E. Montgomery presided. —Dr. Charles H. Frazier gave a dinner at the Bellevue-Stratford, September 28, in honor of Prof. Johannes Orth, Sir Clifford Allbutt, Sir Lauder Brunton, and Prof. Theodore Escherich.

Health Report.—The deaths for the week numbered 399, as compared with 401 during last week and 400 during the corresponding week of last year. Diphtheria was more prevalent than for several months past, 73 cases of the malady with 9 deaths being reported, as compared with 53 cases and 7 deaths during the preceding week. Typhoid fever is still on the increase, 80 cases with 7 deaths being recorded. Last week there were 97 cases and 7 deaths. The new cases this week, therefore, were 16 less than last week. A case of smallpox has appeared, and this necessitated the reopening of the smallpox hospital. In all, there were 200 cases of contagious disease reported, an increase of 14 over the previous seven days.

Exercises at Opening of University.—The University of Pennsylvania opened September 30, as stated in THE JOURNAL, October 1. After an address by Prof. Horatio C. Wood, Sir Clifford Allbutt, regius professor of physics, at Cambridge University, England, was introduced and made a brief address. Dr. John H. Musser made the formal address of the evening. He said that not as practical men following the profession as a business would they attain that success which means the fullness of life. As idealists alone they would fail to attain that happiness which comes to a completed life. Only as men of science ever seeking the truth, would the fullness of life, the rounding out of a career, come to them in medicine. Other distinguished men present were Dr. Johannes Orth, the distinguished pathologist and successor of Virchow, of Berlin, Prof. Dr. Theodore Escherich of Vienna, the authority on diseases of children, Prof. Dr. Oscar Liebreich of Berlin, founder and editor of the *Therapeutische Monatschrift*, and Sir Lauder Brunton of London, the English authority in pharmacology and materia medica.

GENERAL.

Naval Medical School Opens.—The Naval Medical School, Washington, opened October 1 with 20 student officers in attendance. The only faculty change is that caused by the absence of Medical Director John W. Ross, who is on duty with the Panama Canal Commission, whose place on the faculty is filled by Medical Director Phillips A. Lovering.

Reciprocity Convention.—A meeting of the American Confederation of Reciprocoating Examining and Licensing Boards will be held at the Hamilton Hotel, St. Louis, October 25. Reports are to be received and acted on as follows: Uniformity as to scope and character of examinations by state medical boards; uniformity of entrance and graduation requirements to be demanded of medical colleges; advanced standing and uniformity of forms.

Army Health Better.—The annual report of Surgeon-General Robert M. O'Reilly states that the health of the soldiers of the U. S. Army has improved during the past year. There were sent home on sick orders a number equal to 56.44 men per thousand troops. A provisionally favorable report on the treatment of leprosy is given, in view of the marked improvement said to have followed in the case of a soldier, a leper, now isolated at one of the southern army posts.

Tuberculosis Congress.—The so-called International Congress on Tuberculosis, at its session at St. Louis, adopted resolutions calling on all civilized governments to appoint commissioners of public health, with seats in the cabinets or governing bodies of their respective countries, in order to aid in checking the spread of tuberculosis. The question of municipal sanitaria was discussed, and a resolution passed urging government authorities to establish and maintain institutions where tuberculous patients may be isolated and where they may receive suitable treatment for their condition.

CANADA.

Foreign Visitors.—Sir Felix Semon, one of England's throat specialists, has been visiting Dr. H. T. Birkett of Montreal. He is a famous deer stalker in Scotland and has gone on a hunting trip into New Brunswick. —Dr. Thompson, a member of the British House of Commons, who is visiting medical institutions of America, is in Montreal inspecting the hospitals and medical colleges. —Dr. Squire Sprigge, London, England, is visiting in Toronto.

Strathcona's Gift to McGill.—At the opening of the winter session of the Faculty of Medicine of McGill University Dean

Roddick announced that Lord Strathcona had contributed an additional \$50,000 for the general purposes of the medical faculty. Lord Strathcona and Sir William Macdonald have each also contributed \$25,000 toward the proposed new gymnasium. The opening lecture of the session was delivered by Professor Abbott of the University of Pennsylvania, the subject of whose address was "The Study of Medicine and Recent Advances in Medical Science."

Personal.—Dr. Simon J. Tunstall, Vancouver, B. C., president of the Canadian Medical Association, has been visiting in New York, Boston, Montreal and Toronto. —Mr. Irving H. Cameron, professor of surgery in the University of Toronto, has returned from England. Mr. Cameron headed a deputation consisting of Prof. J. J. McKenzie, Dr. G. H. Burnham and himself, which invited the British Medical Association to convene in Toronto in 1906. The council of that association recommended that the invitation be accepted. This will be the second occasion that the British Medical Association has convened in Canada. —Dr. J. A. Leduc, formerly a house surgeon at Notre Dame Hospital, Montreal, has gone to Boston to spend one year in the Civic Hospital, preparatory to taking up work in the new civic hospital to be attached to the new Notre Dame Hospital.

FOREIGN.

Beri-beri Among Japanese.—It is reported that beri-beri is causing considerable suffering among the Japanese troops at the seat of war.

Cholera in Russia.—It is reported that cholera has appeared at Nijni Novgorod and Saratov, towns of about 100,000 population, both situated on the Volga.

Fine for Misuse of von Noorden's Name.—The proprietor of a patent medicine in Germany was recently fined \$125 for the statement that Professor von Noorden was peculiarly interested in the manufacture of a certain pancreas extract.

Visit of French Medical Men to London.—A party has been organized at Paris to visit the medical institutions of London this month. Nearly 150 French physicians and surgeons have handed in their names to the committee, including about 20 professors in the medical faculty. Extensive preparations have been made in London for the reception of the visitors, including a banquet at the Hotel Cecil.

Number of Physicians in Russia.—The number of registered physicians in the Russian empire is now 21,827, of whom 737 are women. All but 2,659 reside in European Russia. Siberia has 788, the Caucasus district 1,224 and the Central Asia possessions 459. The last restrictions have been removed from the medical career for women, and the graduates of the woman's medical college at St. Petersburg now rank in every respect with the graduates of the other medical schools of the empire.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TREATMENT OF UNETHICAL MEMBERS OF COUNTY SOCIETIES.

A president of a county society in Kansas writes: "I have had some trouble in knowing just what to require of members. Nearly all of the members of our society are doing an ethical business, but a few constantly advertise through locals in the daily papers, by announcing births, operations, illness, etc.; also writing them selves up in the paper and letting it appear as though a reporter had done it. Some advertise themselves as medical institutes. Now, for the sake of the society we took these all in who were regularly licensed to practice, and hoped to be able to straighten them out in the society. What course should we pursue so as not to disrupt the society? Some of our members advocate leaving them alone, and others desire stringency. Should this be governed by special enactment by our local society or is it covered by state or national rules? I have the 'Principles of Ethics,' but it is hardly explicit enough for this case."

ANSWER.—There are county medical societies whose members are of broad caliber and liberal spirit that during reorganization received into membership every regularly licensed physician in the county. The original members, actuated by the true and kindly spirit of professional brotherhood, hoped thus to be able to reform the sinners. In some instances their efforts have met with failure, and some of the new members persist in advertising through locals

in the daily papers by announcing births, operations, illnesses and adding their own names. This is petty business, but decidedly reprehensible. If the public was yet sufficiently well posted to realize that those physicians who feel the need of doing this have not much else to commend their services, the matter could be left to natural evolution for its cure, which would, of course, be accomplished by elimination. Unfortunately the public is not prepared to care for itself in this respect, so that the organized profession must act, no matter how unpleasant may be the performance of duty. Such members first should be confidentially interviewed by a tactful committee and urged to do better, and intimation should be made that unless this is done they must forego the real benefits of organization. In case of members who sell themselves to quack advertising institutions the society's duty is clear. These should be told that they must make choice between the society and the institution. In case of refusal to cease advertising by alias they should be expelled. These offenders who are openly regular, but who secretly have their cases more or less fully "written up" for the newspapers, are usually hard to get at, because of the difficulty of obtaining evidence of their secret peccadillo, and frequently because their professional prominence is such that few, if any, desire to talk directly to them as should be done. Tactful older members should be entrusted with this task whenever possible. Such offenders will very seldom require expulsion. In all cases of ethical shortcoming the county society ought always to approach the judgment seat in a spirit of largest charity toward the erring brother. Few of us are without sin. The temptations of competition for existence in an overcrowded profession are great. But the chronic sinner who, after repeated warning and forgiveness, fails to live a professionally decent life has no place in the organization. As to special rules to govern particular misdemeanors, each county society is fully authorized to legislate for itself. The "Principles of Ethics," by resolution of the American Medical Association, was declared to be a "suggestive and advisory" document. As such, and it is a pure and altruistic guide. It should suggest the spirit of the ethical legislation of each county society. The "Principles of Ethics" provides no penalties, this being left entirely to the judgment of the county society. Legislation may thus be varied to suit local needs, and the way is open for interesting simultaneous experiments to determine the most effective methods of maintaining an approximation to the highest ideals of professional deportment. Most of us do not yet realize the many possibilities for professional growth that have been opened up by the reorganization.

AGGLUTINATION TEST FOR TYPHOID.

To the Editor:—Will you give in THE JOURNAL the method for the improved test for typhoid, as mentioned in your editorial some weeks ago; also Ruediger's improvement on it, and where published?

J. WHALEY.

ANSWER—Ruediger's "Improved Technic of Agglutination in Typhoid Fever" appeared in *The Journal of Infectious Diseases*, 1904, vol. 1, p. 236. The method may be briefly summed up as follows: Inoculate a large quantity of plain bouillon (100 to 500 c.c.) with a recently isolated typhoid bacillus, incubate at 36 C. for 24 hours, and then add 1 c.c. formalin for every 100 c.c. of culture. This kills the organisms, and the mixture may be kept for future use, but it must be shaken before using. To make a test proceed as follows: From the lobe of the ear collect 4 drops of blood in a test tube, or a small vial, containing 2 c.c. of a 1/500 solution of formalin in distilled water. This takes the blood, making a clear solution of a dilution of 1/10. To 1 c.c. of this solution add 1 c.c. of the formalized culture, making a dilution of about 1/50, and set it aside where it will not be shaken. If there is agglutination, the organisms collect in clumps, and within an hour or two are seen as a flocculent precipitate slowly settling toward the bottom. It is always best to make a control tube with normal blood, or by simply adding 1 c.c. of distilled water to 4 c.c. of formalized culture. The control tube should remain uniformly turbid. The mixture of blood and formalized culture may also be studied under the microscope in the form of a hanging drop, when agglutination will be observed in the usual way. When dried blood must be used, collect 4 drops on a glass slide, spread it a little by tilting the slide, and allow it to dry. This may later be dissolved in 2 c.c. of distilled water, making a dilution of 1/10, which is used as directed for the solution of fresh blood.

PHYSICIANS' CARDS.

CHICAGO, Sept. 24, 1904.

To the Editor:—Will you inform me if the following card is proper, or would it be better form to omit the word "oculist"?

DR. JOHN JONES.

OCULIST.

Hours: 9 to 1.

Bay State Building, Chicago.

ANSWER.—If unwritten laws, which are the most binding of all regulations, were uniform throughout the country, it would be an easy matter to reply to this question. It is to be regretted that invariable rules governing such matters do not exist in the United States. Thus, the appearance of the word "oculist" on the professional card of a physician would be resented as a deadly offense in some sections of the country, but would be regarded with equanimity and probably with approval in other localities. On the whole, it is not considered good form, and we think there is reason for this. In the first place, the good old word oculist has been made

much use of, by charlatans and by others who would divorce ophthalmology from medicine, so that its employment to designate one who limits his practice to diseases of the eye has somewhat fallen into disrepute. We would, therefore, suggest to our correspondent, if he feels called on to place any qualifying phrase on his card, that he use the words, "Practice limited to diseases of the eye."

REQUIREMENTS FOR PRACTICE IN MEXICO AND SOUTH AMERICA.

— — —, MANTOBA, Sept. 27, 1904.

To the Editor:—What are requirements to practice medicine in South America and in Mexico? Which part of either country would be suitable so far as climate and practice is concerned?

C. W. M.

ANSWER.—We understand that, in order to be a legally qualified practitioner of medicine in Mexico, it is necessary to pass an examination. The examinations vary in the different states, but all are conducted in Spanish and are very severe. In South America a knowledge of Spanish is required, and all examinations, which are principally oral, are conducted in Spanish. The climate varies according to locality, of course.

GRATUITOUS SERVICES TO DENTISTS.

OKLAHOMA CITY, OKLA., Oct. 2, 1904.

To the Editor:—Are physicians bound by any law or code of ethics to furnish gratuitous services to the family of a dentist who is not a physician? A case is now pending in our court, in which a physician is trying to recover a fee from a dentist for services rendered to his child, and the dentist claims that he is entitled to exemption from the payment of physicians' fees, on ethical grounds; and he claims that certain physicians will corroborate his statement in court. Please enlighten the readers of THE JOURNAL on this subject, so they may be enabled to testify intelligently.

S.

ANSWER.—Physicians are not "bound" to give gratuitous services to anyone.

Marriages.

FRANK A. METCALF, M.D., to Miss Rebecca L. Day, both of Chicago, September 21.

SHEPHERD A. WARE, M.D., to Miss Clarice Duncan, both of Springfield, Ill., August 15.

FRANK C. PARKER, M.D., to Miss Grace Croft, both of Norristown, Pa., September 22.

CHARLES A. HENRY, JR., M.D., Fostoria, Ohio, to Miss Mae Weatherston of Chicago, October 4.

ALFORD J. FARNHAM, M.D., Reinbeck, Iowa, to Miss Lillian Burns, in Waterloo, Iowa, September 14.

JAMES HOLLINGSWORTH, M.D., Avon, S.D., to Miss Grace Burgess of Vermillion, S.D., September 28.

VINCENT ALLAN FARRELL, M.D., to Miss Marie Delight Gregory, both of Mason City, Iowa, October 5.

J. W. BOWDIN, M.D., Accomac County, Va., to Mrs. N. D. Pimau, at Newport News, Va., September 22.

HORACE C. DODGE, M.D., Steamboat Springs, Colo., to Miss Nelle A. Dyche of Sabetha, Kan., September 28.

FRANK SCOTT, M.D., to Miss Elizabeth Williams, both of West Virginia, at Roanoke, Va., September 19.

ALBERT B. REKERSON, M.D., Mount Vernon, N. Y., to Miss Mary E. Breck of New York City, September 20.

THOMAS ALLEN GROVER, M.D., Washington, D. C., to Miss Ida Holden Rhodes, at Cartersville, Va., September 21.

MORRISON LE ROY HAVLAND, M.D., Glens Falls, N. Y., to Miss Mabel E. West, at Lake George, N. Y., September 8.

HENRY MARVIN HOGSON, M.D., Lonaconing, Md., to Miss Lulalie Shepherd Wilson, Allegany County, Md., September 15.

Deaths.

Phineas J. Horwitz, M.D., University of Maryland School of Medicine, Baltimore, 1845, of Philadelphia, died at Bar Harbor, Maine, September 28, aged 82. Dr. Horwitz entered the United States Navy as assistant surgeon in 1847. During the Mexican War he had charge of the naval hospital at Fontera De Tobasco. Later he was made assistant chief of the Bureau of Medicine and Surgery in the Navy Department, and subsequently Surgeon-General during the latter part of the Civil War. In 1871 he

was made medical inspector, and later medical director. From 1877 until 1883 he had charge of the Naval Asylum in Philadelphia, and was made president of the Examining Board the following year. He retired from the Navy in 1889.

Israel P. Klingensmith, M. D. Jefferson Medical College, Philadelphia, 1875, a member of the American Medical Association, British Medical Association, ex-vice president of the Medical Society of the State of Pennsylvania, fellow of the American Electro-Therapeutic Association, president of the Indiana County Medical Society, ex-president Westmoreland County Medical Society, local surgeon for the Pennsylvania railroad since 1876, medical director of the Blairsville Infirmary, died at his home in Blairsville, Pa., September 27, after an illness of more than four months, which began with pneumonia and ended in paresis, aged 54.

Thomas H. Williams, M.D. University of Maryland School of Medicine, Baltimore, 1848; assistant surgeon and medical director U. S. Army from 1849 to 1858; resigned at outbreak of Civil War, and became successively surgeon, medical director, inspector of hospitals and assistant surgeon-general in the Confederate service, died suddenly at his home in Cambridge, Md., September 17, from apoplexy, aged 75.

Joseph Bion Scott, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1881, a physician of marked ability, a keen diagnostician and a successful practitioner of Gettysburg, Pa., who had been under treatment for nervous disease due to persistent overwork, hung himself at the Friend's Asylum for the Insane, Frankford, Pa., September 24, aged 48.

Edward P. Catlin, M.D. Rush Medical College, Chicago, 1865, assistant surgeon of the 152d Illinois Volunteer Infantry in the Civil War; for many years a member of the Winnebago County Medical Society, which gave a banquet in his honor on Feb. 10, 1903, died from Bright's disease at his home in Rockford, Ill., September 26, aged 67.

George R. Reynolds, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1867, for four years post-master of Plymouth, Ind., while driving across the Pennsylvania Railway tracks at Jacoby's Crossing, near his home in Plymouth, September 25, was struck by a train and instantly killed, aged 63.

John Jackson Selman, M.D. Medical College of Ohio, Cincinnati, 1838, said to have been the oldest physician in Iowa; a member of the committee that framed the constitution of the state, state senator and president of the senate, died at his home in Bloomfield, Iowa, September 25, aged 86.

J. Lively Johnson, M.D. University of Louisville Medical Department, 1884, died at his home in Louisville, October 4, from typhoid fever. He was a member of the Jefferson County Medical Society, Kentucky State Medical Society and the Mississippi Valley Medical Association.

Arthur G. Watson, M. D. University of Maryland School of Medicine, Baltimore, 1872, a member of the Baltimore City Council, died at the Church Home and Infirmary, Baltimore, September 29, after an unsuccessful operation for malignant disease of the bowel, aged 53.

Charles Burr, M.D. Berkshire Medical College, Pittsfield, Mass., 1839, for 50 years a practitioner of Carbondale, Pa.; some-time president of the Luzerne County, Lackawanna and Carbondale medical associations, died at his home in Carbondale, September 19, aged 89.

Juan N. Navarro, M.D. School of Medicine in the City of Mexico, surgeon-general of the Mexican Army throughout the war with Maximilian, consul-general for Mexico to the United States, died at his home in New York City, September 24, 1904, from apoplexy, aged 81.

Henry C. Wheeler, M.D. Jefferson Medical College, Philadelphia, 1877, died at his home in Carbondale, Pa., from paralysis, after an illness of several weeks, aged 54. He was one of the founders of the Carbondale Board of Health, and established a hospital there in 1899.

Thomas Devereux, M.D. Minneapolis College of Physicians and Surgeons, 1901, Army Medical School, 1903, first lieutenant and assistant surgeon, U. S. Army; a native of Minnesota, died at Manila, P. I., from acute tuberculosis, September 24.

William Conrad, M.D. Tulane University of Louisiana, New Orleans, 1897, not Charles Conrad, as erroneously announced last week, committed suicide by shooting himself through the heart, at his home in Cleveland, September 19, aged 35.

Silas Updegrove, M.D. Department of Medicine, University of Pennsylvania, Philadelphia, 1854, a member of the American Medical Association, and at one time coroner's physician, died at his home in Philadelphia, October 1, aged 75.

Alexander Crawford, M.D. Kentucky School of Medicine, Louisville, 1854, for many years a practitioner of Bardstown, Ky., was killed in a wreck on the Southern Railway at Newmarket, Tenn., September 24, aged 68.

Albion Westley Johnson, M.D. University of Vermont, Burlington, 1861, an old practitioner of Kittery, Maine, died at the Cottage Hospital, Portsmouth, N. H., September 19, after a long illness, aged 76.

James W. Carter, M.D. Kentucky School of Medicine, Louisville, 1881, of Emma, Texas, was shot and killed while playing a practical joke on a friend at Estacado, Texas, September 22.

George H. Williams, M.D. St. Louis Medical College, 1882, for eight years physician to the Missouri State Penitentiary, died at Jefferson City, Mo., September 27, after a lingering illness.

John Lowe Free, M.D. University of Maryland School of Medicine, Baltimore, 1848, died at his home in Stewartstown, Pa., where he had practiced since 1850, September 27, aged 83.

P. Paul Boulanger, M. D. Laval University, Quebec, 1892, founder and manager of *La Revue Médicale du Canada*, died at his home in Montreal, September 29, after a short illness.

George S. Conant, M.D. Bellevue Hospital Medical College, New York City, 1877, died at his home in New York City, September 23, from diabetes, after a long illness, aged 51.

John Purcell, M.D. Apothecaries' Hall, Dublin, Ireland, 1841, for 30 years a physician of New York City, died at his summer home in Larchmont, N. Y., September 26, aged 86.

William D. Vaughan, M.D. Rush Medical College, Chicago, 1897, died September 23, at his home in Norwood, Cincinnati, from tuberculosis, after a long illness, aged 29.

Carl F. W. Kordenat, M.D. College of Physicians and Surgeons of Chicago, 1887, died at his home in Reedsburg, Wis., September 21, from consumption, aged 50.

Wallace M. Purcell, M.D. Jefferson Medical College, Philadelphia, 1862, of Cummings, Ind., died at the home of his daughter in Parke County, September 24.

John J. Mackey, M.D. Bellevue Hospital Medical College, New York City, 1882, of Brooklyn, N. Y., died at Bergen Beach, September 24, aged 50.

Johr M. Steck, M.D. Jefferson Medical College, Philadelphia, 1882, died at his home in Smithsburg, Md., September 23, from cerebral meningitis, aged 51.

Reinhard Wernigk, M.D. Rush Medical College, Chicago, 1882, died at his home in Alhambra, Cal., September 16, after a lingering illness, aged 73.

Albert G. Rogers, M.D., for 30 years a practitioner of Carrollton, Mo., and once mayor of that city, died in Buckhorn, Cal., September 7, aged 72.

Neemias B. Cole, M.D. Long Island College Hospital, Brooklyn, N. Y., 1890, died at his home in Phoenix, Ariz., September 11, aged 67.

Samuel Martin Hileman, M.D. Medical College of Virginia, Richmond, 1862, died at his home in Kerr's Creek, Va., September 21.

Joseph W. Gibson, M.D. Northwestern Medical College, St. Joseph, Mo., 1892, died at his home in Utica, Mo., August 24, aged 47.

W. W. Wickham, M.D. McGill University, Montreal, of Charlottetown, P. E. I., died at Ste. Agathe, Quebec, September 24.

Michael W. Gray, M.D. Philadelphia College of Medicine and Surgery, 1854, died at his home in Cave Spring, Ga., recently.

David Hardie, Jr., M.D. Philadelphia, 1901, died at his home in Wilmington, Del., from Bright's disease, September 21.

R. M. Mitchell, M.D. died at his home in Dry Grove, Miss., September 15, after a long illness, aged 75.

L. G. Murphy, M.D., died at the home of his son in Kansas City, Mo., September 23, aged 75.

Columbus H. Felts, M.D. Illinois, 1883, died at his home in Clark Center, Ill., in August.

Francis Moro, M.D. Ohio, 1844, died at his home in Warsaw, Ind., September 11, aged 80.

M. K. Church, M.D. Merri-ville, Ont., died on September 14, aged 76.

State Boards of Registration.

COMING EXAMINATIONS.

Regular Board of Medical Examiners of Georgia, Capitol, Atlanta, October 11. Secretary, I. H. Goss, M.D., Athens.
State Medical Board of the Arkansas Medical Society, Little Rock, October 11. Secretary, J. P. Runyan, M.D., Little Rock.
Kansas Medical Board, State House, Topeka, October 11-14. Secretary, G. F. Johnston, M.D., Lakin.
Michigan State Board of Registration in Medicine, Lansing, October 11-14. Secretary, B. D. Harrison, M.D., Sault Ste. Marie.
Illinois State Board of Health, Great Northern Hotel, Chicago, October 12-13. Secretary, J. A. Egan, M.D., Springfield.
Board of Medical Supervisors of the District of Columbia, Washington, D. C., October 13. Secretary, Wm. C. Woodward, M.D., Washington, D. C.
Board of Medical Examiners for the State of Texas (Regular), Dallas, October 18. Secretary, M. M. Smith, M.D., Austin.
State Board of Medical Examiners of New Jersey, Trenton, Tuesday, Tuesday evening and Wednesday, October 18-19. Secretary, E. L. B. Godfrey, M.D., Camden.
Louisiana State Board of Medical Examiners, New Orleans, October 21-22. Secretary, Felix A. Larue, M.D., New Orleans.
Board of Medical Examiners of the State of California, San Francisco, October 25. Secretary, Charles L. Tisdale, M.D., Alameda.

Virginia June Report.—Dr. R. S. Martin, secretary of the Medical Examining Board of Virginia, reports the written examination held at Richmond, June 21-24, 1904. The number of subjects examined in was 9 and the percentage required to pass 75. The total number examined was 114, of which 88 passed and 26 failed. The following colleges were represented:

Table with columns: College, PASSED, Year, Per Grad., Cent. Lists various medical colleges and their exam results for 1904.

Table with columns: College, FAILED, Year, Per Grad., Cent. Lists various medical colleges and their exam results for 1904.

The general average for all representatives of the Medical College of Virginia who passed was 79.3; of the University College of Medicine, 81.3; of the University of Virginia, 80.3.

Tennessee April Report.—Dr. T. J. Happel, secretary of the State Board of Medical Examiners, reports the written examinations held at Memphis, Nashville and Knoxville, April 5 and 6, 1904. The number of subjects examined in was 8; total questions asked, 64; percentage required to pass, 75. The total number examined was 278, of whom 166 passed and 112 failed. The following colleges were represented:

Table with columns: College, PASSED, Year, Per Grad., Cent. Lists various medical colleges and their exam results for 1904.

Table with columns: College, PASSED, Year, Per Grad., Cent. Lists various medical colleges and their exam results for 1904.

Table with columns: College, FAILED, Year, Per Grad., Cent. Lists various medical colleges and their exam results for 1904.

The general average of all representatives of the University of Tennessee who passed was 78.5; for all representatives of the University of Nashville who passed, 80.4; for all representatives of Vanderbilt University who passed, 81.4; for all representatives of Meharry Medical College who passed, 78.1; for all representatives of Memphis Hospital Medical College who passed, 81; for all non-graduates who passed, 80.9.

Association News.

NEW MEMBERS.

- List of new members for the month of September, 1904: ARIZONA, Rowan, W. W., Onray. PALMER, R. F., Roosevelt. CONNECTICUT, Sloan, T. G., So. Moorhester. DISTRICT OF COLUMBIA, Adams, A. C., Washington. Elyson, R. M., Washington. Holmes Mary, Washington. Mitchell, Jas. F., Washington. Shaw, John W., Washington. Werber, G., Washington. Wellington, J. R., Washington. FLORIDA, Daniel, R. P., Jacksonville. Terry, C. E., Jacksonville. Pittsburgh, A. L., Brannford. Sawy, H. O., Floral City. Fitzer, A. L., Ft. Harrison. Jones, D. L., Palmetto. Kalchit, J. C., Plant City. Miller, William, Ormond. GEORGIA, Black, A. H., Thomaston. Blackburn, D. H., Oglethorpe. Chesney, Marlow G., Pittman. Horsley, Jos. S., West Point. Harris, I. W., Dawson. Lovorn, Wm. P., Cecil. McBlair, Robt. H., Mt. Vernon. Springer, L., Donaldsonville. White, A. T., Atlanta. INDIAN TERRITORY, Long, Dock, Duncan. Cooke, J. E., Wynnewood.

IDAHO.

Stewart, Jas. L., Boise.
Dutton, C. L., Meridian.
Hurlbert, J. F., Lewiston.
Kirtley, C. L., Custer.
Price, B. A., Rigby.

ILLINOIS.

Newell, Mary Eliz., Braidwood.
Slason, Charles E., Elgin.
Patton, F. P., Glencoe.

INDIANA.

Carey, W. W., Ft. Wayne.
Yung, J. Rudolph, Terre Haute.
Barnfield, J. H., Logansport.
Allen, George S., Dyer.
Clark, Robert J., Mounticello.
English, E. C., Kennesaw.
Green, W. L., Tekon.
Imel, E. S., Petersburg.
Linvill, D. S., Columbia City.
Stewart, Charles S., Auburn.
Schulz, Herman S., La Fayette.
Thiebaut, H. M., Vevay.
Huner, David K., Alexandria.

IOWA.

Allen, W. L., Pella.
Brown, C. F., Centerville.
Buzzard, I. S., Russell.
Carpenter, L. J., Sully.
Crippen, J. H., Waukegan.
Gillespie, L. A., Coin.
Howe, J. E., Greenfield.
Hills, S. C., Creston.
Harris, W. T., Des Moines.
Heady, C. C., Bloomfield.
Kirkpatrick, Wm. J., Farmington.
Kirby, S. C., Grand Junction.
Nicoli, D. T., Clarion.
Oliver, L. B., Sigourney.
Overholt, J. L., Columbus Junction.
Patterson, C. F., Sumner.
Rottier, H. C., Des Moines.
Rohlf, E. L., Waterloo.
Staford, R. H., Sumner.
Sutton, R. H., Shenandoah.
Thomas, S. W., Newbern.
Wilder, J. J., Kingsley.
Wright, W. A., Thayer.
Weaver, A. J., Muscatine.
Williams, J. A., Belle Plaine.
Wherry, J. W., Clarinda.

KANSAS.

Mulvane, G. J., Topeka.
Purves, G. K., Wichita.
Brawley, M. A., Frankfort.
Cummings, J. S., Bronson.
Hallenbeck, G. W., Cimarron.
Leslie, Charles B., Meade.
McCreight, M. S., Oskaaloosa.
Main, G. W., Overbrook.
McCammon, J. A., Reamsville.
McPherson, O. P., Garden Bend.
Morgan, B. F., Clay Center.
Skinner, Benj., Wetmore.
Simmons, C. J., Lawrence.
Stillman, C. S., Manhattanville.
Tull, G. A., Clay Center.

LOUISIANA.

Eshleman, C. L., New Orleans.
Martin, Jos. D., New Orleans.
Gullbeau, Arthur, Breaux Bridge.
Lambert, J. W., Tangipahoa.
Lawson, Geo. B., Shreveport.
Milsread, N. J., Waverly.
Wilson, Geo. F., Blenville.

MAINE.

Durgin, H. I., South Eliot.
Johnstown, Charles E., Kittery Point.
Nickerson, H. M., Portland.
O'Neill, E. D., Biddeford.

MARYLAND.

Aydslette, J. S., Snow Hill.
Chatard, A. A., Baltimore.
Kennard, H. W., Baltimore.
Simmons, T. W., Hagerstown.

MASSACHUSETTS.

Brush, Frederic Brush, Boston.
Boland, E. S., Boston.
Codman, E. A., Boston.
Chase, W. G., Boston.
Hodges, A. D., Boston.
Libby, E. N., Boston.
Murphy, F. T., Boston.
McDonald, S. J., Boston.
Osgood, R. B., Boston.
Quackenbush, Alex., Boston.
Smith, G. C., Boston.
Stone, A. E., Boston.
Scudder, C. L., Boston.
Stoner, James S., Boston.
Thomas, J. J., Boston.
Thornadke, T. V., Boston.
Towle, Harvey P., Boston.
Walton, George L., Boston.

Averill, Geo. G., Cambridge.
Blodgett, H. P., Framingham.
Brewster, Mary J., Northampton.
Bragg, L. R., Webster.
Cutter, A. H., Lawrence.
Clark, T. F., Sutton.
Harrowood, David, Worcester.
Henderson, Geo. D., Holyoke.
Jackson, Wm. B., Lowell.
Jones, Gilbert N., Fellsyde Hills.
Jones, Claud P., Somerville.
Kurth, G. A., Lawrence.
King, J. A., Millville.
Lovell, Chas. D. S., Lynn.
Mead, Geo. P., Wobchester.
Mead, Julian A., Waterdown.
Mackay, Edw. H., Clinton.
Priest, H. B., Groton.
Richardson, Chas. H., Pittsfield.
Spaulding, F. M., Cambridge.
Swasey, Edw., Worcester.
Sylvester, W. H., Natick.
Taylor, James Sr., Worcester.
Tupper, A. M., Rockport.
Yeaton, Geo. W., Medway.

MICHIGAN.

Tolley, E. W., Grand Rapids.
Bourdeau, Patience S., Grand Rapids.
Anderson, H. B., Traverse City.
Belknap, W. H., Greenville.
Boyle, C. P., Frankfort.
Ellis, Elisworth S., Manistee.
Edmonds, Gerald O., Honor.
Givens, P. C., Manistee.
Knowles, Girard F., Manistee.
Kirkbridge, W. J., Fountain.
Lester, Will H., Greenville.
Martin, C. S., Manistee.
McGilluddy, Jas., Shepardville.
Nichols, A. W., Manistee.
Robinson, H. D., Manistee.
Smale, G. A., St. Charles.
Townsend, L. S., Six Lakes.
Weller, W. M., Ithaca.

MINNESOTA.

Sedgwick, J. P., Eveleth.

MISSOURI.

Jonas, Ernest, St. Louis.
Barnes, R. H., St. Louis.
Powell, C. H., St. Louis.
Soper, Horace W., St. Louis.
Zahorsky, John, St. Louis.
Gamble, D. C., St. Louis.
Crevelling, H., St. Louis.
Jacobson, Henry, St. Louis.
Keeble, R. R., St. Louis.
Lange, A. F., St. Louis.
Luton, L. S., St. Louis.
Bailey, F. W., St. Louis.
Patterson, F. A., St. Joseph.
Hill, Howard, Kansas City.
Boggan, P. B., Prairie.
Purkhalter, C. E., Higbee.
Bridges, A. C., Kaboka.
Barnhart, D. A., Huntsville.
Case, Zophar, Kansas City.
Enloe, F. N., Jefferson City.
Gerwig, H. E., Dowling.
Hubbard, J. D., Sedalia.
Mairs, E. J., Newtown.
Morrison, W. S., Rushville.
Nesbitt, E. P., Sheridan.
Porter, J. E., Knob Noster.
Reid, H. L., Charleston.
Scriber, R. M., Richmond.
Schwab, B. C., Ardmore.
Smith, B. F., Southwest City.
Will, S. J., Mehlville.
Wallis, J. H., Metairie.
Zillman, A. W., Indian Grove.
Wood, Leroy M., Pleasant Hill.

NEBRASKA.

Friend, J. B., Munters Hot Springs.

NEBRASKA.

Alton, W. A., Elmwood.
Blanchard, J. S., Kearney.
Calender, J. M., Theford.
Curtis, J. M., Ft. Calhoun.
Clark, Chas. F., Omaha.
Day, Clinton, Broken Bow.
Hess, George J., Chambers.
Lusk, William A., Trumbull.
Likens, W. E., Paxton.
McClurg, T. C., Exeter.
Neely, J. M., Exeter.
Person, Sylvanus, Stanton.
Rosenberg, Frank J., Lexington.

MONTANA.

Friend, J. B., Munters Hot Springs.

NEBRASKA.

Annable, Edwin G., Concord.
Boutwell, H. W., Manchester.
Blanchard, Roscoe G., Iverer.
Davis, Geo. M., Rochester.
Hess, George J., Chambers.
Haskett, Pearl T., Sanbornville.
Jarvis, Leonard, Claremont.

NEW HAMPSHIRE.

Annable, Edwin G., Concord.
Boutwell, H. W., Manchester.
Blanchard, Roscoe G., Iverer.
Davis, Geo. M., Rochester.
Hess, George J., Chambers.
Haskett, Pearl T., Sanbornville.
Jarvis, Leonard, Claremont.

Therault, Joseph, Concord.
Tolan, Geo. A., Dorey.
Wheeler, John, Plymouth.

NEW JERSEY.

Brown, J. S., Montclair.
Dix, J. M., Capt May C. H.

NEW MEXICO.

Gilbert, Jennie K., Alamogordo.
Watson, T. W., Lincoln.

NEW YORK.

Koonz, Albert E., New York City.
Lawler, Michael J., Carthage.
Smith, Herbert B., Corning.

NORTH DAKOTA.

La Rose, Victor J., Mandan.

OHIO.

Morgendroth, S., Akron.
Cooper, Joseph W., Bellare.
Kotershall, Jos. J., Cleveland.
Ingram, Robert, Cincinnati.
Cheney, W. G., Portsmouth.

OKLAHOMA.

Zugg, Clarence Logan, Orlando.
Wiley, Geo. W., Granite.

OREGON.

Cardwell, Herbert W., Portland.
Wilson, Holt C., Portland.
Fanton, A. C., Portland.
Smith, Willard, La Grande.
Bigges, Geo. Lee, La Grande.
Herdman, J. S., Ashland.

PENNSYLVANIA.

Richards, Oscar M., Easton.
Love, J. King, Easton.
Ray, George S., Erie.
Kenworthy, Frank, Pittsburg.
Hopkins, Alfred J., Pittsburg.
Chalfont, Sidney A., Pittsburg.
Meek, Eloise, Johnstown.
Hoskins, Percy H., West Chester.
Cooper, Jesse R., New Castle.
McCarty, John R., Fredonia.
Marshall, Clifford, Sharon.
Parcell, Thomas, Erie.
Reeder, Miltoia T., Millersville.
Snodgrass, David G., Meadville.
Stewart, H., Gettysburg.
Stiepy, Roy E., Smicksburg.
Williams, J. A., McKees Rocks.
White, James K., New Brighton.
Wilson, Loyal W., New Castle.
Walter, John, Lebanon.
Wyant, William W., So. Sharon.

SOUTH DAKOTA.

Carpenter, Cora W., Sioux Falls.
Eide, E. W., Woonsocket.
Fisher, Edgar A., Bryant.
Germain, Wm. A., Sioux Falls.
Mertels, John Jos., Lebanon.
Nelson, J. R., Terraville.
Torwick, Edw. E., Volga.
Taylor, Edw. B., Huron.

TENNESSEE.

Livermore, Geo. R., Memphis.
Bromberg, Perry, Nashville.
Burger, Thos. O., McMinnville.
Brouillette, Pierre L., Jackson.
Cooley, James, Memphis.
Fuller, Jacob L., Gadsden.

Memorandum of changes of station and duties of medical officers. U. S. Army, week ending Oct. 1, 1904.

Gilchrist, H. L., asst.-surgeon. In addition to his other duties, will report in person to Col. Charles L. Heitzmann, asst.-surgeon general, President of the faculty of the Army Medical School, for duty as instructor in hospital corps drill and first aid, vice Capt. Frederick P. Reynolds, asst.-surgeon, relieved.
Maus, Louis M., deputy surgeon general, granted thirty days' leave of absence.

Devereux, Thomas, asst.-surgeon, died in Manila, P. I., Sept. 24, 1904. Cause, acute general miliary tuberculosis.

Gettings, Edward F., asst.-surgeon, left Fort Keogh, Mont., on practice march.

Porter, Ralph S., asst.-surgeon, left Fort Niobrara, Neb., on practice march.

Kierstedt, H. S., asst.-surgeon, left Fort Myer, Va., en route with battalion, field artillery for duty during target practice at Mount Gettysburg, Pa.

Stephenson, Wm., surgeon, leave of absence extended twenty days.
Siles, Henry S., asst.-surgeon, sick leave of absence further extended two months.
Gosman, Geo. H. R., asst.-surgeon, relieved from duty at Camp Geo. H. Thomas, Ga., and ordered to Fort Caswell, N. C.
Roberts, William, asst.-surgeon, relieved from duty at Fort Caswell, N. C., and ordered to Fort Hamilton, N. Y., for duty.

Isham, Andrew J., Sevierville.
Lackey, William K., Ripley.
Miller, Jacob E., Rogersville.
Reed, E. A., Knoxville.
Swoope, Frank, Carthage.
White, E. H., Harrogate.
Walker, O. M., Munford.

TEXAS.

Austin, James L., Rockwall.
Boorman, Thos. G., Princeton.
Ball, John Houston, Crystal Falls.

Bradley, Benj. R., Bondo.
Burt, J. D., Farmersville.
Bridgeway, W. H., Wylie.
Cahy, Clarence M., Tuscola.
Cortey, Sam, Barkville.
Daly, T. J., Boyce.
Davis, Robert L., Princeton.
Denman, Peyton L., Lofblin.
Fibbs, James, Denison.
Hooks, James M., Paris.

UTAH.

Fearse, R. A., Brigham City.

VERMONT.

Reid, W. D., Barre.
Duziel, J. S., Barre.
Camp, C. F., Barre.
Stickney, O. G., Barre.
Sigourd, E. G., Barre.
Rich, F. A., Burlington.
Jonee, J. A., Burlington.
Aldrich, C. P., Brattleboro.
Belvedere, Abner H., Rutland.
Bisbee, Arthur B., Montpelier.
Bates, George L., Morrisville.
Douglass, H. Edwin, Morrisville.
Grimes, Jesse R., Montpelier.
Hayes, G. L. T., Greenfield.
Hartshorn, J. P., St. Johnsbury.
Morrison, Lawrie B., Burlington.
Ross, E. H., St. Johnsbury.
Shaw, Carlos A., Northfield.

VIRGINIA.

Payne, Marshall J., Staunton.

WASHINGTON.

Green, A. de Y., Tacoma.
Kidd, A. B., Seattle.
Manning, J. F., Everett.
Schmucker, D. J., Everett.
Watkins, L. E., Aberdeen.

WEST VIRGINIA.

Cure, Mortimer D., Weston.
Clarke, L. H., Kyle.
Dunlop, J. L., Red House Shoal.
Daniel, Sam A., Welch.
Ferguson, Wm. F., Martown.
Hicks, Wesley D., Central City.
Halteman, Chas. W., Clarksburg.
Lawson, S. B., Logan.
Lewis, George E., Chester.
McGowan, A. M., Leopold.
McLain, William H., Wheeling.
Owen, B. A., Greenville.
Shanklin, Richard V., Gary.
Wright, Martin E., Burlington.
Williams, C. B., Philippi.

WISCONSIN.

Hogue, D. W., Darlington.

WYOMING.

Campbell, George F., Fort D. A. Russell.

The Public Service.

Army Changes.

Fisher, Henry C., surgeon, granted twenty days' leave of absence.
 Vedder, Edward B., asst.-surgeon, granted one month and fourteen days' sick leave.

Usher, F. M. C., asst.-surgeon, granted thirty days' leave of absence.

Chambers, William H., Sorber, Ord. M., Tignor, Edwin P., and Voorhies, Hugh C., contract dental surgeons, relieved from duty in the Departments of the Gulf, Texas, the Missouri and the East, respectively, and ordered to San Francisco for Philippine service.

Bell, Leonard P., Aide, Walter H., Gultard, Alvin M., and Hinson, Morris J., contract surgeons, arrived from the Philippines at San Francisco on the transport *Sherman*, to avail themselves of leave of absence granted at Manila.

Merrick, John X., contract surgeon, ordered to return to station at Fort Missoula, Mont., at the close of the tourist season in the Yellowstone National Park.

Wythe, Stephen, contract surgeon, granted leave of absence for two months from the transport *Buford*, with permission to apply for an extension of one month.

Mason, George L., contract dental surgeon, granted leave of absence for five days before reporting at Fort McPherson, Ga.

Kellogg, William V., contract surgeon, granted an extension of one month to his sick leave of absence.

Whitney, Walter, contract surgeon, relieved from further duty in the Philippine Division, and assigned to duty at Columbus Barracks, Ohio, at the expiration of his present leave of absence.

Vancouver, Alden, contract dental surgeon, returned to duty at Vancouver Barracks, Washington, September 24, from leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Oct. 1, 1904:

Lovering, P. A., medical inspector, commissioned medical inspector, with rank of commander, from June 9, 1903.

Barcus, J. W., asst.-surgeon, ordered to the *Southery*.

Shiffer, H. G., asst.-surgeon, ordered to the *Franklin*.

McDonnell, W. N., asst.-surgeon, commissioned asst.-surgeon, with rank of lieutenant (junior grade) from Sept. 10, 1904.

Hierndon, C. G., medical inspector, detached from the Naval Hospital, Yokohama, Japan, and ordered home to wait orders.

Percy, H. T., surgeon, detached from the *Iowa* and ordered to duty in charge of the Naval Hospital, Yokohama, Japan.

Dennis, J. B., surgeon, commissioned surgeon, with rank of lieutenant commander, from March 3, 1903.

Guest, M. S., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan. 31, 1903.

Peck, A. E., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from March 27, 1903.

Judd, H. W., A. A. surgeon, detached from duty with the Marine detachment, Dry Tortugas, Fla., and ordered to the Naval Hospital, Washington, D. C., for treatment.

Bucher, W. H., surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to the Naval Station, Olongapo, P. I., Benton, F. L., P. A. surgeon, detached from the Naval Station, Olongapo, P. I., and to Naval Station, Cavite, P. I.

Bachmann, R. A., asst.-surgeon, detached from the *Supply* and ordered to the Naval Station, Cavite, P. I.

Wheeler, L. H., asst.-surgeon, detached from duty as recorder of the Naval and Medical Examining Boards, Washington, D. C., and ordered to duty at the Naval Museum of Hygiene and Medical School, Washington, D. C.

Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the week ending Sept. 28, 1904:

Vaughan, G. T., asst.-surgeon general, granted leave of absence for fourteen days from October 18.

Bailhache, Freaton H., surgeon, detailed as a member of a Revenue-Cutter Service retiring board to be convened in New York City.

Stoner, G. W., surgeon, leave of absence for eight days from Sept. 19, 1904, under Paragraph 189 of the Regulations.

von Ezdorf, R. H., P. A. surgeon, detailed to represent the Service at the meeting of the Association of Military Surgeons at St. Louis, October 10-15.

Kerr, J. W., P. A. surgeon, detailed as a member of a Revenue-Cutter Service retiring board to be convened in New York City.

Berry, T. D., asst.-surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Stapleton, N. Y., and report to the commanding officer in command for duty and assignment to quarters.

Rucker, W. C., asst.-surgeon, granted three days' extension of leave of absence from September 28.

Collins, G. L., asst.-surgeon, granted leave of absence for four days from Sept. 20, 1904, under Paragraph 191 of the Regulations.

Smith, F. C., asst.-surgeon, granted leave of absence for seven days from Sept. 24, 1904, under Paragraph 191 of the Regulations.

Ferguson, Bismarck, A. A. surgeon, granted leave of absence for twenty-one days from September 27.

Frary, T. C., A. A. surgeon, granted leave of absence for thirty days from October 1.

Goldsborough, B. W., A. A. surgeon, granted leave of absence for one day, September 29.

Gray, R. H., A. A. surgeon, granted leave of absence for seven days from October 3.

Hallett, E. B., A. A. surgeon, granted leave of absence for three days from September 24.

Light, S. D., W. A. A. surgeon, granted leave of absence for five days from October 9.

McMahon, R. L., A. A. surgeon, granted leave of absence for thirty days from November 5.

Marsh, W. H., A. A. surgeon, granted leave of absence for thirty days from October 7.

Goodman, F. S., pharmacist, granted leave of absence for sixteen days from October 5.

Hall, L. P., pharmacist, to proceed to Norfolk, Va., for temporary duty.

Bierman, C. H., pharmacist, to proceed to Tampa Bay Quarantine, Florida, and report to medical officer in command for duty and assignment to quarters.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Sept. 29, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Asst.-Surgeon-General G. T. Vaughan, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

RESIGNATION.

Sladenburg, Frank, pharmacist of the third class, resigned, to take effect Sept. 20, 1904.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ending Sept. 30, 1904:

SMALLPOX—UNITED STATES.

- Louisiana: New Orleans, Sept. 17-24, 5 cases (Imported).
- Massachusetts: Lawrence, Sept. 17-24, 1 case; Lowell, Sept. 10-24, 2 cases; North Adams, Sept. 20-27, 4 cases.
- Michigan: At 42 localities, Sept. 10-17, present.
- Minnesota: Sept. 12-19, Morrison Co., 1 case; Washington Co., 1 case.
- Missouri: St. Louis, Sept. 17-24, 6 cases, 1 death.
- New York: New York City, Sept. 17-24, 4 cases.
- Pennsylvania: Titusville, Sept. 17-24, 1 case.
- South Carolina: Camden, Sept. 17-24, 1 case.
- Tennessee: Sept. 17-24, Memphis, 1 case; Nashville, 2 cases.
- Wisconsin: Milwaukee, Sept. 17-24, 2 cases.

SMALLPOX—FOREIGN.

- Austria: Prague, Sept. 3-10, 1 case.
- Brazil: Rio de Janeiro, Aug. 7-28, 917 cases, 408 deaths.
- China: Shanghai, Aug. 6-20, 4 deaths.
- Great Britain: Sept. 3-17, Bristol, 2 cases; London, 3 cases; Nottingham, Sept. 3-10, 1 case.
- India: Bombay, Aug. 23-30, 3 deaths; Calcutta, Aug. 20-27, 1 death.
- Italy: Palermo, Sept. 3-10, 8 cases, 5 deaths.
- Mexico: City of Mexico, Aug. 28 Sept. 4, 1 case.
- Russia: Moscow, Aug. 27-Sept. 3, 5 cases, 2 deaths; St. Petersburg, Sept. 3-10, 2 cases.
- Turkey: Alexandretta, Aug. 27-Sept. 3, 1 death; Beirut, Sept. 3-10, present; Constantinople, Sept. 4-11, 9 deaths.

YELLOW FEVER.

- Brazil: Rio de Janeiro, Aug. 14-28, 2 cases, 1 death.
- Ecuador: Guayaquil, Aug. 24-Sept. 1, 5 deaths.
- Mexico: Coatzacoacoas, Sept. 11-18, 8 cases, 2 deaths; Sept. 11-17, Merida, 1 case; Tehuantepec, 2 cases, 1 death; Vera Cruz, Sept. 10-17, 1 case.

CHOLERA.

- India: Bombay, Aug. 23-30, 39 deaths; Calcutta, Aug. 20-27, 4 deaths.
- Turkey: Aug. 22, Bagdad, 127 cases, 105 deaths; Basra, 3 cases, 3 deaths; Bazian, 53 cases, 41 deaths; Ilhit, 61 cases, 28 deaths; Mendelli, 27 cases, 10 deaths; Nasrli, 13 cases, 13 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, July 23-30, 6 cases, 6 deaths

PLAGUE—FOREIGN.

- Africa: Cape Colony, Aug. 13-20, 1 case, 1 death.
- Australia: Perth, July 29, 1 case; Sydney, July 31-Aug. 6, 1 case, 1 death.
- Brazil: Bahia, Aug. 13-27, 10 deaths; Rio de Janeiro, Aug. 7-28, 21 cases, 8 deaths.
- China: Fuchau, Aug. 8, epidemic.
- Egypt: Aug. 20-27, Achmou (district), 2 cases; Alexandria, 3 cases.
- India: Bombay, Aug. 23-30, 59 deaths; Calcutta, Aug. 20-27, 5 deaths; Karachi, Aug. 21-28, 3 cases, 3 deaths.
- Japan: Formosa, Aug. 13-20, 12 cases, 8 deaths.

Society Proceedings.

COMING MEETINGS.

- AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
- Tri-State Medical Society of Alabama, Georgia and Tennessee, Chattanooga, October 12-14.
- Assn. of Military Surgeons of the U. S., St. Louis, October 10-15.
- Mississippi Valley Medical Association, Cincinnati, October 11-13.
- Vermont State Medical Society, Rutland, October 13-14.
- New York State Medical Association, New York, October 17-20.
- Medical Society of Virginia, Richmond, October 18-21.
- American Confederation of Reciprocal Examining and Licensing Medical Boards, St. Louis, October 25.

CONGRESS OF ARTS AND SCIENCE.

Proceedings of the Medical Department, held at the Louisiana Purchase Exposition, St. Louis, Sept. 20-24, 1904.

The meetings of the medical department of the International Congress of Arts and Science, held at St. Louis, were well attended by representative medical men of all nations. The meetings were addressed by eminent authorities of international reputation, and the papers were listened to with great interest.

General Medicine.

The section of general medicine was presided over by Dr. William Osler of Johns Hopkins University, and the speakers announced were Dr. William T. Councilman of Harvard and Dr. Frank Billings of Rush Medical College, Chicago. Dr. Billings was unable to be present, but his paper will appear later in THE JOURNAL.

The Modern Conception and Methods of Medical Science.

Dr. WILLIAM T. COUNCILMAN said that medicine progresses by two methods, namely, speculation and observation. He reviewed the progress of medical science and proved that the modern advancement in medicine has been due to observation of clinical material. He attributes its progress largely to the aid of other sciences and inventions. He said that the laboratory formed the basis for research work by offering methods of staining, culture media, chemical analysis, blood counts and x-ray examinations. He also said that surgery has been a distinct aid in the recognition of disease, and refers to animal and plant experimentation in the same capacity. Dr. Councilman made a plea for more comparative study of plant and animal disease to aid in diagnosis. He said also that the knowledge of infectious disease had advanced by the aid of the science of therapeutics, and that the obligation rests on the profession to co-operate with boards of health and aid in the medical education of the public.

Public Health.

The section of public health was presided over by Dr. Walter Wyman, surgeon-general of the United States Marine-Hospital Service. The speakers were Professor W. T. Sedgewick of the Massachusetts Institute of Technology, Dr. E. J. Lederle, New York City, and Dr. A. J. Reynolds of Chicago.

THE RELATION OF PUBLIC HEALTH SCIENCE TO OTHER SCIENCE.

PROFESSOR SEDGEWICK said that public health science was an outgrowth of the eighteenth century. Epidemiology by Sir George Baker, state sanitation and hygiene by an act of parliament, and personal hygiene by Jenner were the origin of the most important divisions of public health science. In 1854 an important advance was made by the discovery that water may be the ready vehicle of disease; then followed a study and investigation as to the cause and prevention of disease. Professor Sedgewick said that to Pettenkofer and his disciples in Germany and to Angus Smith in England is due the important advances in sanitary chemistry. The environment and its control is to-day one of the most inviting fields for work and education. The science of architecture, including the heating and ventilation of buildings, has been a great feature in public health science. Modern engineering has rendered to public health science a greater service than any other science except medicine. Most institutions of learning neglect the training of their pupils in public health science. The community looks to the medical profession for adequate legislation and administration of public health laws.

PUBLIC HEALTH—ITS PRESENT PROBLEMS.

Dr. LEDERLE'S paper was read by proxy. It stated that one of the most important problems which confronts us is the relation of legislation and administration to public health science. We have no national public health officers. Our boards must be co-ordinated and made a part of a national board of health. Public opinion will be responsible for this progress, still the appointment of public health officers must not be controlled by politicians. Scientific men are needed at the head of our health departments. Scientific men, however, can not work for the small fees now paid. We must not depend on the medical profession alone, but must have a class of educated sanitarians. The prevention of the spread of infection will always belong to public health problems, hence we must have provision for public laboratories. These laboratories should be put under national authority so that serum can be obtained at a lower cost and well distributed, and research work be carried on for the good of the community. Better isolation hospitals should be established. It is also a fact that hospitals for tuberculosis can be maintained much cheaper than allowing the spread of

disease in the community. Laws governing spitting, public noises, and offensive trades should be more vigorously carried out. A national sanitary body would control the water and milk supply, prevent the adulteration of food, control the sale of patent medicines and restrict the sale of drugs to graduate pharmacists.

REDUCTION OF TIME BETWEEN THE PRODUCTION OF MILK AND ITS CONSUMPTION.

Dr. ARTHUR R. REYNOLDS, Chicago, said that while state laws and city ordinances prescribe all manner of requirements for dairies, cows and the constituents of milk and cream offered for sale, nothing is said of the age of the milk. He laid stress on the fact that milk 12 hours old is worth very much more from a dietetic standpoint than milk 24 hours old, while milk 36 hours old is not only of little food value, but is positively harmful to infants. Dr. Reynolds went on to say that old milk not only starves young children, but is an inducing cause of diarrhea and "summer complaint," and causes the excessive infant mortality during the hot weather.

Pediatrics.

This department was presided over by Dr. T. M. Rotch of Harvard University. The first speaker was Professor V. Escherich of the University of Vienna.

RELATION OF PEDIATRICS TO OTHER SCIENCES.

Dr. A. JACOBI, Columbia University, New York, spoke on this subject. The first part of his paper dealt with the history of pediatrics. Dr. Jacobi emphasized the importance of hereditary influence, and the care of the mother to the termination of intranterine life. He said that the mortality of infants is greatest in the first year because the functions which exist for the protection of life are not fully developed, and that the solution of the problem of lowering the mortality is intimately connected with the regulation of labor laws, marriage licenses, factories, etc. Dr. Jacobi made a plea to keep working, and said that a life spent in the service of mankind is well spent.

Ten-minute addresses were made by each of the following-named physicians: Drs. W. P. Northrup, New York City, E. W. Saunders, St. Louis, and John L. Morse, Boston.

Therapeutics and Pharmacology.

This section was presided over by Dr. Hobart A. Hare of Jefferson Medical College.

RELATION OF THERAPEUTICS TO OTHER SCIENCES.

Prof. OSCAR LIEBEICHS of the University of Berlin said that the evolution of therapeutics has been influenced by the scientific advances of the last century, that various drugs and their physiologic action in specific cases have been proven, and chemical changes within the body depend on individual cells. He also said that the difference of chemical action within and without the body affords a fertile field of observation and that the numerous discoveries in the nineteenth century prove that we are making as rapid advances in therapeutics as in other sciences.

THE PROBLEMS OF THERAPEUTICS.

SIR LAUDER BRUNTON, F.R.S. of London, said that the object of therapeutics is first to relieve pain, and second to be able to restore health, and that therapeutics might be called an art. He said that our success with drugs depends on the practical power of recognizing symptoms and the art or skill of administering a remedy. It has been the custom to continue to use certain drugs simply because they have been used with success in the past; now we use drugs for a specific purpose. One of the aims of therapeutics is to defend the body from microbes and to apply drugs that will kill them. The art of therapeutics consists in the discovery and administration of drugs that will not only destroy organisms but produce the least destruction to body cells. Serums which will render the are demanded. He also said that the highest aim of therapeutics is to relieve pain and restore health without altering the natural conditions or environments of individual cells.

Ten-minute addresses were made by the following-named physicians: Dr. G. P. Coromilis, Athens; Dr. Henry Laguer, Berlin; Dr. Hunt, Baltimore; Dr. G. A. Matthews, Chicago.

PREVENTIVE MEDICINE.

This section was presided over by Dr. J. M. Mathews, Louisville, Ky. The chief speaker was Prof. Donald Ross, F.R.S., Liverpool School of Tropical Medicine, whose paper entitled "A Logical Basis of a Sanitary Policy for the Prevention of Mosquitoes," was illustrated by means of blackboard diagrams.

Short addresses were made by Drs. W. H. Welch, Baltimore; George Dock, Ann Arbor, and Frank Jones, Memphis, Tenn.

Neurology.

This section was presided over by Dr. L. F. Barker of the University of Chicago.

The first speaker was Professor Kitasato of the University of Tokio, whose paper covered the subject of leprosy.

The second speaker was Prof. J. J. Putman of Harvard, who read a paper on hysteria, epilepsy, and other nervous diseases.

Psychiatry.

This section was presided over by Dr. William A. White of the Government Hospital for the Insane, Washington, D. C.

Dr. C. L. DANA, Cornell University, read a paper on the "Relation of Psychiatry to Other Sciences."

Dr. E. COWLES, Boston, discussed the importance of mental pathology and physiology and defined the terms neurosis and psychosis.

Pathology.

This section was presided over by Prof. Simon Flexner, director of the Rockefeller Institute for Medical Research.

The first speaker was Prof. Ludvig Hektoen of the University of Chicago. He stated that during the period since 1850 and with the perfection of the microscope, pathology had made greater advance than in all preceding time, and that all the sciences were shedding more light and aiding pathology in its modern advances.

Prof. JOHANNES ORTH of the University of Berlin, read a paper entitled "Pathology and Its Relation to Other Sciences." Professor Kitasato of the University of Tokio also made a short address.

Dr. RONALD ROSS, F.R.S., of Liverpool, gave an interesting talk on the life cycle of the malaria parasite in the stomach of the mosquito illustrated by stereopticon views.

Surgery.

This section was presided over by Dr. Carl Beck of the Post-Graduate Medical School, New York. The first speaker was Dr. F. S. Dennis, F.R.C.S., of Cornell Medical School, whose paper was a review of the surgery of the past 100 years. Dr. Beck discussed the advance of surgery in this country with special reference to anesthesia, which has made the extensive practice of surgery possible.

Internal Medicine.

This section was presided over by Dr. F. C. Shattuck of Harvard.

RELATION OF MEDICINE TO SURGERY.

Prof. T. C. ALLBUTT, F.R.S., of the University of Cambridge, gave a history of medicine and surgery from the earliest days to the present time, and showed how medicine and surgery had made progress hand in hand. He believed that the sciences were interdependent and that advance in one would open new fields in the other.

DEVELOPMENT OF MEDICAL SCIENCE DURING THE LAST CENTURY.

Dr. W. S. THAYER of Johns Hopkins University said that to recognize, to prevent, to heal, are the objects of medical science. After the clouds of tradition had cleared away the advance of medical science became possible. Science swept aside the dogmatism of the older schools. Methods now form the basis of diagnosis. The training of the modern physician requires years of work by the bedside and a broader and better knowledge of all methods for the recognition of disease. The hearty co-operation of hospitals and clinics will enable the stu-

dent to gain proper knowledge. It is the duty of the profession to see that their clinical methods keep pace with scientific research.

Ten-minute papers were read by the following: Prof. Paul Courmont, Lyons, France; Prof. F. G. Novy, University of Michigan, and Dr. Henry Sewall, Denver.

Gynecology.

This section was presided over by Dr. Howard Kelly of Johns Hopkins University. The first speaker was Dr. J. C. Webster of Rush Medical College.

IMPORTANCE OF AN EARLY DIAGNOSIS IN CANCER OF THE UTERUS.

Dr. J. N. SAMPSON, Baltimore, said that cancer of the uterus can be cured if operated on in its incipency. To lessen the list of fatal cases, we demand early diagnosis and an increase in the percentage of operative cases. Hysterectomy does not suffice because of perimetrial metastasis to the lymph nodes or lymph spaces in many cases. He said that a careful study of the condition of the patient as to operative interference is necessary, and that it is necessary to impress the profession, and through them the laity, with the fact that cancer of the uterus, if observed in time, can be cured and that bleeding in some form is usually the earliest symptom.

This paper was discussed by Dr. George Gellhorn, St. Louis, Mo.; Dr. H. Ehrenfest, Dr. F. T. Taussig and Dr. C. H. Powell of St. Louis.

It was moved and seconded that a committee be appointed to investigate carcinoma of the uterus for the purpose of helping the profession and enlightenment of the people at large, and their report be presented at the next national medical meeting.

Dr. Sampson, Baltimore; Dr. F. T. Taussig, St. Louis, and Dr. Clark, Philadelphia, were appointed on this committee.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Seventeenth Annual Meeting, held at St. Louis, Sept. 13-16, 1904.

(Concluded from page 1000.)

Some Clinical Reasons for Advising Early Operations in Cases of Fibroid Tumor of the Uterus.

Dr. RUFUS B. HALL, Cincinnati, discussed this subject under three heads: 1. Which cases should we advise not to be operated? 2. In which cases should we advise later operation? 3. In which cases should we advise early operation? He discussed at some length the clinical history of patients in order to form a correct conclusion. 1. If a patient between 35 and 38 years of age, suffering from a fibroid tumor of the uterus, the tumor and uterus combined making a mass not larger than a cocoonut, had no symptoms other than profuse metrorrhagia, the whole period not extending over five or six days, and she was free from pain except at her menstrual periods, it would be wise and judicious not to interfere surgically. But this patient, during her entire menstrual life, should be considered an invalid by her physician and should report to him at once if her symptoms became aggravated. 2. If she suffered pain in one or both iliac regions at other times than at her menstrual periods, the cause of the pain should be discovered at once and corrected. On the contrary, if her menstrual period was prolonged to ten or twelve days, the loss of blood amounting almost to a hemorrhage, and this hemorrhage could not be controlled or mitigated by the usual internal medication and rest during the period, the advisability of an operation should be considered. 3. Prolonged and severe uterine hemorrhage had not been considered a sufficient reason for advising an operation. A patient suffering from a tumor as large or larger than a cocoonut, who had profuse bleeding at each menstrual period and the period was prolonged for eight, ten or fifteen days, as frequently happened, was in considerable danger. It was his experience that a large majority of those patients in whom the hemorrhage could not be controlled by medicinal remedies in two weeks, came to operation sooner or later. They could frequently stand off the operation two or three weeks, or in some

instances longer, but the anemia was profound, and if some complication arose in the tumor, ovaries or tubes, making an immediate operation necessary, they were in the worst possible condition for it. The chances for a successful operation were greatly diminished. Therefore, when the hemorrhage could not be controlled within a few months, these patients should be advised to have the operation made before the anemia was pronounced. These symptoms, however, were not of so much importance as others, but if permitted to continue for many months they caused profound anemia and lowered vitality, and a high mortality followed the operation.

He regarded hematomata, complicating these tumors, as the gravest complication the surgeon had to deal with in the management of the late cases. His records showed that only one patient in seven operated on for fibroid tumors, where pus tubes were present, developed peritonitis after the operation; while five in every six of those operated on in which hematoma of the ovary existed, suffered from peritonitis following the operation for removal of the tumor. His experience in removing these malignant fibroid tumors had been that within a year or two after the operation for removal of the tumor the patient had a recurrence of malignant disease in the pelvis and abdomen and succumbed within a few months.

Shall We Remove All Fibromata of the Uterus on Diagnosis?

DR. THOMAS B. EASTMAN, Indianapolis, stated that in the 117 cases on which he had operated for fibroid tumor of the uterus, complications which bade fair to result eventually in death were encountered in 43 cases. Hydrosalpinx, either unilateral or bilateral, five times; suppurating dermoid cyst, three times; sarcoma, once; parovarian cyst, once; necrosis of tumor, eight times; cystic degeneration of ovaries, three times; ovarian cyst, four times; intraligamentous development of fibroid, three times; pyosalpinx or salpingitis, seven times; hematosalpinx, once; cystic degeneration of the tumor, once; myxomatous degeneration, three times; adenocarcinoma of the body of the uterus, twice. Among the more prominent complications, appendicitis was encountered once. In addition to the complications inherent in the uterus and its adnexa proper, there were those arising from the pressure of the mass on the bladder, rectum, ureters, and the persistent anemia resulting from prolonged hemorrhages.

In his forty-three complicated cases it was a significant fact that those complications which were inherent in the tumor and which presaged the most certainly fatal results, were those of such character as to preclude a positive knowledge or oftentimes even a suspicion of their existence prior to operation or even a microscopic examination. So far as the danger was concerned, the removal of a fibroma was attended with as little danger as the average abdominal section. The results obtained by various operators warranted one in classing it among the safe operations, the mortality in the hands of skilled men being scarcely more than 5 per cent., a mortality certainly much less than would result from the policy of procrastination, which advocated delay until the forces of death plus those of the operation outweighed those of surgical interference. When one considered the dangerous conditions into which an innocent fibroid might quickly change itself, and the ease and safety to the patient with which it might be removed, he believed that the deduction was evident that all fibroid tumors of the uterus should be removed on diagnosis.

Removal of Skeleton of Ectopic Fetus Ulcerating into Bladder, by Vaginal Cystotomy.

DR. WILLIAM D. HAGGARD, Nashville, Tenn., reported the case of a white woman, aged 31, the mother of two children, who presumed herself to be normally pregnant and expected to be confined August 30, 1900. There was a continuous flow from the uterus for the first three months, and she had pain in the bladder and straining on micturition from the beginning of conception; but there was no history of rupture of the ectopic gestation. On June 20, at six and a half months, while lying down she felt motion for the last time. Previously it had been unusually vigorous, more so than with her two other children. She was confined to her bed for three or four weeks with pain.

She had more or less pain for about a year, and she was a semi-invalid from weakness, pain and tenderness in lower abdomen. The enlargement of the abdomen had gradually, but appreciably, diminished. At the end of a year pus first made its appearance in the urine, and the first day after getting up, a bone, which was a fetal vertebra, made its exit through the urethra. During the second year she had been able to attend to all household duties, but occasionally would have several days of unusual bladder irritation, and pass a bone through the urethra. In the last four months she had passed all the long bones. Sometimes one would catch in the urethra. She would get hold of the free end and gradually pull it out. Commonly several days of comparative comfort would elapse before another one would set up irritation, and finally escape. In this way she passed eighty-five bones. Six weeks before admission to the infirmary she felt the discomfort of another bone and had not been free from it since nor had any bone passed. She had been in bed two weeks with pain in the lower abdomen, which was very intense on motion. Upon examination the bladder was exquisitely tender. She described a small lump to the right of the median line and low down the remains of the once six and a half months' enlargement, but this could not be made out on account of tenderness. The urine was loaded with pus and phosphates, and exceedingly offensive. Curiously enough, the woman did not void it oftener than every six or eight hours. Micturition was very painful, and after the urine was voided free pus was often expressed. Under ether, Oct. 31, 1902, the index finger was made to enter the urethra without much effort, and detected numerous bones, and communicating with the bladder, an opening into a lesser chamber on its right upper surface. There was a mass on the right to be made out bimanually about the size of a small orange, and communicating with the bladder much as a bow window with partially drawn curtains did with a room. The uterus was retroverted and not much enlarged. The bones were much too large to be removed through the urethra, and an incision was made into the vesico-vaginal septum. The finger in the bladder, through the urethra, located the bone, and it was withdrawn with a forceps introduced through the incision. In this way fifty-two bones were removed. Some were embedded in granulation tissue in the remains of the ectopic sac, and were with difficulty removed. The sac and bladder were freely irrigated, and an artificial vesico-vaginal fistula established for drainage, after Emmet's method of sewing the vaginal mucosa to that of the bladder by silver wire sutures. The operation, while tedious, was not attended with shock. The bladder was irrigated twice daily afterward with boric acid solution, and the urine soon became normal. At the end of six weeks the artificial vesico-vaginal fistula was closed successfully by silver wire sutures. A cystoscopic examination with the Bransford Lewis ureter-cystoscope revealed a healthy mucosa, and at the site of the former communication only a slight reddish depression was seen. The urethral catheter failed to disclose any depth to this aperture, and the patient was discharged cured eight weeks after the operation.

President's Address.

DR. WALTER B. DORSETT, St. Louis, president of the association, considered the various operations for the relief of retrodeviation of the uterus. He spoke of the excellent operative work which had been accomplished within the past few years, so that what he had to say was more of a résumé of what had been done surgically. He discussed the methods of operation, saying that the different plans of accomplishing the reposition of the uterus might be classified according to the route selected by the advocates of each. They might be divided into extraperitoneal, vaginal and intra-abdominal. After considering and discussing exhaustively the different methods in vogue and indulging in some criticism of them, he stated that some of the methods did not merit the prominence they had obtained in the estimation of the profession at large, and for the reason that no one could arrive at a proper conclusion as to the best method of relieving the suffering woman without a careful study of the different methods. If one operation was

in accord with the accepted idea of proper surgical technic, the other certainly was not. When one considered the great diversity of opinion as to which was right and which was not, without a proper appreciation of them all, one was certainly at a loss as to the choice of operations. In his opinion one should not consider any operation that did not contemplate the possibility of a thorough inspection of the adnexa from above the pubic bone. He would discard the entire class of operations that contemplated vaginal incision, either anteriorly or posteriorly, on account of the greater liability of sepsis as well as from the impossibility of anchorage to firm structures. While ventrosuspensions and ventrofixations had been condemned as unjustifiable, it was because only the fixation or suspension accomplished by anteverting the uterus and stitching the fundus, or the posterior uterine wall to the abdominal wall, had been considered. It was reasonable to assume that this unnatural suspension or fixation was a causative factor in the production of lengthened adhesion bands for the entanglement of bowel as well as a barrier to the proper development of the pregnant uterus. If, however, a lower segment of the anterior uterine wall was attached lower down on the abdominal wall, and omentum was allowed to drop to or behind the uterine fundus, the bugbears of necessary cesarean sections in labor cases and entangled bowel would be less feared. His own work in obstetrics and with this operation justified him in this statement.

Gunshot Wound of the Hip Joint.

DR. L. H. LAIDLEY, St. Louis, reported a case of gunshot wound of the hip joint, but before doing so referred to the literature of the subject. The patient, aged 18, a visitor of remarkably vigorous constitution and unexceptional health, was shot in a brawl on "The Pike" at the Exposition on the 18th of June. He was admitted to the Emergency Hospital and within one hour an abdominal section was made. On examination it was found that the ball had passed through the abdominal wall near McBurney's point, passing inward and slightly downward. On examining the viscera it was found that the ball had penetrated the cecum, making two openings, passing down into the soft parts and into the pelvis. These were closed by Lembert sutures, the abdomen cleansed of large quantities of blood and escaping contents of the bowel, and closed with through-and-through sutures. The patient left the table within an hour under very favorable circumstances, the pulse being 72, temperature normal. The next morning he complained of great pain in the hip joint, and was unable to move that limb. For ten days his condition was favorable, when he gave evidence of disturbance, especially about the joint. Chills and fever and increased pain suggested an examination with the x-ray, which would have been used earlier were it not for the fact that they had not been provided with such an appliance up to that time. On July 11, after the bullet was removed, an incision was made over the joint, disclosing the presence of pus outside of the joint, which was opened, showing that all of the head of the bone within the capsule was entirely destroyed and fractured; the acetabulum was fractured and necrosed; following up the course of the cavity made by the bullet, the missile was removed. It was lodged in the upper and outer margin of the cavity of the socket. The necrosed portions of the bone were chiseled out and the dead portion of the head of the femur removed, the cavity was curetted, packed with gauze and thoroughly drained. The patient afterward showed evidences of sepsis, which prompted him on July 22 to reopen the wound, wash out the cavity and introduce further drains. Later the patient manifested evidence of acute nephritis, and on examination it was found that he had a large quantity of albumin, with casts, evidently due to toxemia. Since that time, by repeated cleansing of the cavity and thorough drainage, these evidences were disappearing, leaving the patient in a fair condition for recovery. The subsequent treatment would be to free the cavity and its surrounding structures of all suppuration, and by this means he hoped to restore his patient to normal health, probably leaving him with a shortening of the limb and perchance a degree of ankylosis. The patient was exhibited.

Strangulated Umbilical Hernia.

DR. JOHN YOUNG BROWN, St. Louis, reported an interesting case of complicated strangulated umbilical hernia, and presented the patient.

Sterility Due to Retrodeviation of the Uterus and Its Treatment.

DR. HERMAN E. HAYD, Buffalo, N. Y., reported twelve pregnancies following the simple Alexander operation. Among other things, he stated that posterior displacements of the uterus were a very frequent cause of sterility. Pregnancy had frequently followed when such a uterus was placed in position, either by pessary or operative measures. He made an eloquent plea for the simple Alexander operation for a large class of suffering women who had simple uncomplicated retroposed uteri. In reporting the twelve cases in which pregnancy followed the simple Alexander operation, it was pointed out that the ligaments had stood the test of pregnancy and parturition. The canal was never opened *per se*; the internal ring and peritoneal cavity under no circumstances whatsoever. He made a plea that the simple Alexander operation be always employed for this special class of sufferers in whom a pessary was not worn with comfort nor willingly tolerated.

Circumscribed Infection of the Placenta.

DR. ALBERT GOLDSFOHN, Chicago, reported this case. There was a first pregnancy of from three to four months' duration, with severe nausea, and much vomiting almost from the beginning, with the gradual additional development of fever, and finally severe chills and a scanty, foul discharge. There was no alteration in the shape and consistency of the cervix, or of the body of the pregnant uterus. The patient had a rapid pulse, and irregular, high temperature, and chills. The uterus was emptied. The membranes and ovum were intact. The edge of the placenta bore a circumscribed area of broken-down gelatinous tissue, with a very offensive odor.

He gave a brief review of the current views of the pathology of hyperemesis gravidarum and considered the rare etiologic bearing of the above case.

Conservation of the Natural Resistance of the Patient in Surgical Work.

DR. ROBERT T. MORRIS, New York City, in discussing this subject said that the late Lawson Tait was the first great exponent for conservation of the natural resisting force of the patient. Tait operated very quickly. He did as little as possible. He avoided handling viscera; he avoided disturbing the patient's mind with details of what he was about to do. He treated the most difficult cases lightly and patients looked at it in the same light. The repair of surgical injury depended primarily, secondarily and finally on a proper hyperleucocytosis. He used this term in a generic way to avoid elaboration of detail in statement. This was a manufacturing process carried on under the control and guidance of the sympathetic ganglia. The more the surgeon shocked a patient the more he lessened the production of the leucocytes. The common ways of lessening the natural resistance of the patient were prolonged anesthesia and an unnecessary amount of anesthetic. All surgeons had seen patients who had been literally drenched with ether; they had seen patients carried to the danger line with chloroform. On the other hand, surgeons had watched the beautiful work of men who were expert in giving anesthetics, who began with nitrous oxid and a little oxygen, then changing to ether, who did it skillfully, quickly, nicely, and avoided shock, which took away one element of resistance from the patient. Quick work was a point in which Tait excelled. Expeditionary work conserved the natural resistance of the patient. Undoubtedly the resistance of patients was lessened in abdominal surgery with gauze packing. He said that if ten healthy policemen were taken from the street and a yard of gauze was introduced into the peritoneal cavity those policemen the next day would not be in good condition. This being so, how could one expect a patient with septic appendicitis to be in good condition if a yard of gauze was packed into his abdomen. If one drained quickly, got out of the abdomen quickly, disturbed the bowels as little as

possible, made short incisions—in other words, leaving the patient alone as nearly as possible, he would make such a wonderful recovery that one might be accused of taking out a normal appendix. The tendency was to do much.

If a surgeon pricked his finger in operating on a septic case, the surgeon died, while the patient recovered. Why was this? The patient was loaded with bacteria and toxins. The patient had called out all of his resistance factors; his hyperleucocytosis was under way ready to meet infection and bacteria. The surgeon had not called out his resisting factors, hence the bacteria proliferated rapidly and gained ascendancy. Was it necessary for the surgeon to get all of the septic culture media out of the patient's abdomen? No. All he needed to do was to turn the scale; there was a conflict between the bacteria and the leucocytes in that patient's case; the bacteria were winning; the leucocytes were losing. What did the surgeon do? By taking out most of the toxins and bacteria quickly, he turned the scale, turned the balance in favor of the leucocytes, and they went on and won. He took unfair advantage of them, but if he had labored conscientiously in accordance with text-books, and the best authorities, he would have put the patient out of commission where he could not have done it.

Travel Notes.

XI.

NEW ZEALAND.

THE OCEAN VOYAGE—CLIMATE—NATIVES—AUCKLAND—
AUCKLAND HOSPITAL—MEDICAL PROFESSION.

NICHOLAS SENN, M.D.
CHICAGO.

SYDNEY, AUSTRALIA, July 30, 1904.

The American has become during the last twenty-five years an enthusiastic traveler, and the increasing prosperity in our country will only tend to increase his desire to see the outside world and familiarize himself with the greatest of all subjects—man—his customs and habits in various parts of the globe, as well as the conditions, climatic and otherwise, which influence his physical and mental characteristics. The observing traveler will have become aware that

"Men's characters and habits are not influenced so much by the peculiarities of family and race as by the physical features of their native land and their mode of life—things by which we are supported and by which we live."—Cicero.

The people of the United States spend annually \$160,000,000 in touring the old world; very few, indeed, direct their steps westward, and we as a nation know very little of New Zealand, the land of geysers, mountains, glaciers, fjörds, and the Maoris, of the great continent of Australia, its strange animals, trees and flowers, its vast plains, impenetrable forests, and the home of one of the most primitive of all races. The American globe trotter usually selects the Japanese route. For a summer trip the Australian route is decidedly the best.

VOYAGE FROM SAN FRANCISCO TO NEW ZEALAND.

The southwestern part of the world, New Zealand and Australia, are now readily accessible to the traveler by the establishment of a regular steamer service. The three sister ships of the Oceanic Steamship Company, the *Sierra*, *Sonoma* and *Ventura*, modern 6,000-horse power steamers, make the trip regularly every three weeks. The table is excellent and the service faultless. The distance from San Francisco to Auckland is nearly 6,000 miles, and the time to cover it 17 days. The monotony of the voyage is broken by making stops at Honolulu and Pago Pago long enough for the passengers to get a good glimpse of the tropics, their inhabitants, animal life and products of the soil. Between these places is the desert ocean, and the passenger who does not know how to improve his time profitably might be tempted to complain of

"The burden of the desert of the sea."—Isaiah xxi, 1.

We never saw a sail or puff of smoke on the whole voyage,

except in the harbors. The interested traveler has, however, enough to see and observe. The endless, trackless waste of the ocean in itself is something wonderful to contemplate, in its various moods of peace and rest, anger and storms. The glorious sunsets paint picturesque sky, sea and clouds that delight the eye of the most unappreciative of the wonders of Nature. The starlit sky and the silvery moon enlighten the evenings and shorten the long nights in the tropics. One day out from Honolulu the sun crossed our ship, and two days before we reached Auckland the full moon, from its lofty position, smiled directly down on the very tips of its masts. The great crest-covered furrows ploughed by the ship on each side reminded one of the speed with which we move on, and at night hypnotize and delight the sense of sight by their phosphorescent illumination in the form of myriads of diamonds, which come and disappear in the twinkle of the eye. The animals encountered in the South Pacific are few, hence more eagerly looked for. That daring, tireless mariner, the sea-gull, followed the wake of the ship nearly the entire distance. Brown and white, large and small, these graceful flyers circled in the air, with little effort on their part, coming and going by simply spreading their wings, their sharp eyes fixed on the turbulent water whipped into a diminutive storm by the revolving screw, patiently waiting for their time to feed on the refuse of kitchen and table, and the moment it appeared in the agitated waters, with unerring aim would dash from their height with the speed of an arrow, grasp and greedily devour the cherished morsel. The flying fish, single, in pairs, or in schools of many, when the sea is quiet, frightened by the approach of the ship would dash from their briny element into the air and make their short flights in gentle curves, striking the water at a distance of about thirty yards, rebound and make one or two other flights, finally to disappear with a splash from whence they came. With these things around and about you and useful books to read, the longest sea voyage is stripped of its monotony. From Honolulu to Samoa the average temperature in the cabins on the port side of the ship was 80 to 82 F. At one time my thermometer registered 100 F. in the sun. The southwest wind was constant. In less than four hours after leaving Samoa a cold breeze set in which forced the passengers to lay aside the white suits and rummage their trunks for clothing of a more somber color and heavy underwear. That evening blankets were in demand, and next day those not used to a colder climate paced the deck in fur and overcoat. This sudden change in the temperature reminded us that we were approaching a part of the world where the seasons are the reverse of ours.

From now on the sea became rough, which, combined with a heavy wind and drizzling rain, soon cleared the decks. At noon, July 26, we passed several barren islands, and soon the rugged, hilly, almost treeless coast of New Zealand was sighted, and at 2 o'clock we reached the wharf of Auckland. The harbor of Auckland is one of the finest in the world. All the navies of the world would find here ample room, not only as a place of safety, but enough space in which to maneuver.

CLIMATE.

We found New Zealand in the grasp of midwinter, however not with ice or snow, not even frost. The grass had lost its emerald green, and trees with deciduous leaves were about the only reminders of the New Zealand winter. Many of the garden flowers, roses and violets, were in full bloom, and the grassy slopes of Mt. Eden were checkered with a little white flower that peeped through the low grass, anxious to inform the visitor that it had survived the rigors of the sub-tropic winter.

The snowclad mountains and the extent of the island in a line from south to north, give to the New Zealander a wide range of choice climate. On the whole, the climate is mild, equable and agreeable, extremes of cold and heat are unknown. The perpetual snow line is 7,500 feet above the lever of the sea. The great forests in the southern part of the islands secure an adequate rainfall throughout the year. During the summer months, from October or November to April or May, the weather is as nearly perfect as can be

found anywhere—days of light sunshine, with pleasant breezes and cool nights. Mt. Cook, 13,349 feet, is the highest of the many mountain peaks.

NATIVES.

The natives of New Zealand are the Maori, a chivalrous, proud, noble race. They are Polynesians of the same origin as the inhabitants of all the islands of the South Sea. Their physical and mental characteristics have, however, undergone marked changes since they made their first appearance in New Zealand. Tasman, who discovered the islands in 1642, but did not land, and Captain Cook, who visited them several times between 1769 and 1777, found them densely populated at that time, and until subdued by the British they were hardy, war-loving people.

War was a passion with them, but their greatest national characteristic was their love of the land. "Let us die for the land" was their war cry that resounded through all the ages of their possession. Civilization has made them law-abiding citizens of the colonial government and loyal to the king, as was shown during the South African war, when many of them expressed a strong desire to join the British forces. The men are tall, powerful, square, with a brown skin, jet-black eyes, scanty beard, straight or slightly curly hair, with an open, frank countenance. The women are well built, with copious hair, worn in flowing tresses or pompadours, and many of them with handsome features when young. There are about 20 per cent. more males than females. The climate of New Zealand has made its impression on this race. They had to protect themselves against cold by clothing and closed habitations.

The New Zealand flax or hemp (*Phormium tenax*), a liliaceous plant, from the leaves of which the fibers are obtained, are from 3 to 9 feet long and from 2 to 3 inches broad, furnished them with material for the texture of their garments, as well as the feathers of birds and the skin of fur-bearing animals. The scarcity of tropical fruits and starch-yielding tubers made the struggle for life more difficult than in the more favored islands of the South Pacific, something which could not fail in improving their physical condition, and in developing their mentality. The Maoris have a taste for art, as is amply shown by their rude wood carvings and the architecture of their houses. Tattooing was formerly extensively practiced, but the operation is performed in an entirely different manner than in Samoa and Tahiti. As the natives have always worn clothes of some kind they select the face, the most exposed part of the body, for the tattooing. The chiefs undergo the most elaborate process of the tattooer's art. With a sharp shell lines and scrolls are cut in the superficial parts of the skin, always radiating from the nose, and into these scratches the pigment is rubbed and permanently deposited. The women only tattoo the lower lip and chin in straight lines. Christianity has taken the place of Paganism, but is not held with much fervor by the people. Pagan customs and superstition remain. Some Maoris have taken to farming and the professions, but the bulk of the race is living in dull idleness, depending on the liberal government for their support. The young people realize the advantages of an education, and are profiting by the schools located in all of the settlements, as in it they see the only means that will prevent complete extinction of their race. Like all Polynesians, the Maoris have brought their tribute to the altar of civilization. The acute infectious diseases, syphilis and tuberculosis, brought to their islands by the whites, have reduced the population numbering hundreds of thousands, to something like 40,000. In 1891 the native population numbered 43,642, of whom 2,119 were half-castes. In 1896 the total population of New Zealand was 743,214, of whom 39,854 were Maoris and half-castes. Improved sanitary measures and a better appreciation of hygiene by the natives have contributed much in diminishing the mortality among the natives, and will, it is to be hoped, prevent the extinction of this noble race.

THE CITY OF AUCKLAND.

From the harbor the city of Auckland, with its over 60,000 inhabitants, presents a charming sight. It is spread out over a large surface encircling the capacious harbor and perched on

many hills. The two-story houses and cottages are built of brick or wood, and many of the business houses in Queen Street, the main thoroughfare, are solid structures of stone or brick and cement. Most of the streets have asphalt pavements, and are kept scrupulously clean. The electric lighting and tramway conveniences compare well with any of our modern lively western cities. The many churches, excellent schools, capacious hospital, museum and public library speak well for the intellectual life of the island city. The drive to Mt. Eden, with its bowl-shaped extinct crater, within the limits of the city, is one of great scenic beauty. I made this tour in company with Dr. Lewis in his automobile. I noticed when we made a short stop at the foot of the mountain that Dr. Lewis and his coachman held a short consultation, the significance of which I did not understand at the time. Dr. Lewis steered the French machine. The ascent was slow, and when we came to a few yards of steep grade the coachman lent aid to the quivering vehicle by a vigorous *vis-a-tergo* until this obstacle was overcome, when the rest of the ascent was made without any further difficulty. When we reached the summit the doctor and coachman shook hands, and the former said in a triumphant tone, "I told you so." It seems that there had been some misgivings concerning the possibility of accomplishing this feat, as the doctor had never attempted it before. His faith in the power of his machine had been vindicated. The view from the summit of the mountain is inspiring. The dizzy depth of the crater and the panorama all around leave deep and permanent impressions on the memory of the astonished tourist; the sight of the first is awe inspiring, the contempla-



Auckland Hospital.

tion of the surrounding scenery pleasing and full of surprises. From the summit twenty other extinct craters can be seen, and the wide expanse of the Pacific on both sides. The well-painted wooden houses and the pale red brick houses, with their silvery roofs of corrugated iron, and the harbor, with its vessels, looked like a toy city made for the amusement and instruction of children. Eucalyptus and pine trees, the lovely gardens attached to nearly all the houses, and the straight, clean streets added much to the beauty of this fairy scene. The city is supplied with pure water from the mountains, and a system of sewerage is now under completion. On an average 100 cases of typhoid fever occur annually. Malaria is almost unknown.

THE AUCKLAND HOSPITAL.

Auckland has only one public hospital, the Auckland Hospital. It is supported by appropriations made by the general government and the city. The main building was built about fifty years ago. It is built on the summit of a high hill, from which a splendid view of the harbor and city can be obtained. Seen from the harbor it is one of the most conspicuous landmarks of the city. The city has set aside for it a large tract of land, and the part around the buildings is well laid out in drives and walks, and ornamented by trees, flowering shrubs and flowers. The main building, of brick and cement, is three stories high, with large wards, well lighted and ventilated. A few years ago a Mr. Coatley donated to the hospital the munificent sum of \$160,000, out of which four brick pavilions for women and children have been built, and \$15,000 is now being spent in the construction of a modern

Therapeutics.

operating room, and equipments for the same. This operating room, now nearing completion, will be flushed daily from above, and the skylight of a double glass roof is constructed in such a manner that the light will be concentrated at a place corresponding with the location of the operating table. Dr. John C. Collins, the medical superintendent, took great pains to describe this feature of the operating room, as well as its ventilation. By the use of an electric apparatus the air of the room can be exhausted at any time it becomes contaminated. The operating room used at the present time is on the first floor, but is inadequate for modern requirements. The medical staff is comprised of three physicians, three surgeons, one oculist and aurist, no gynecologists and no obstetricians. The hospital proper and pavilions can accommodate 210 patients. Patients with means are required to pay, the amount depending entirely on their means. A charming feature in the wards of this hospital is an abundance of fresh-cut flowers on high, narrow, long tables at the foot of the beds, in constant sight of the patient when awake. The hospital has its own training school for female nurses, with an attendance of 64 at the present time. They are in training for three years, but receive a small compensation after three months. Among the interesting surgical cases shown by Dr. Collins were the following: A Maori who, by the accidental discharge of a shotgun he was handling, shot away the larger part of the body of the left side of the lower jaw. Edema of the larynx was threatened, and a tracheotomy was made. At the end of twenty-four hours the tube was removed, and although the left side of the face remained greatly swollen, he is improving rapidly. Several cases of compound fracture; resection of cecum for tuberculosis, gastro-enterostomy for stricture of the pylorus; extensive fracture of the skull in a boy, for which trephining was performed. On an average about 100 laparotomies are performed in the hospital every year by the different attending surgeons. This comparatively small number of abdominal operations, however, does not represent the bulk of this kind of work done in the city, as only the attending staff is permitted to operate in this institution, and many of these, and all other physicians perform their operations on private patients at their homes, or in one of a number of little private hospitals conducted by nurses. There seems to be no unanimity among the surgeons in the use of anesthetics and suturing material. Chloroform, ether and A. C. E. mixture are used as anesthetics, and silk, silkworm gut, catgut and kangaroo tendon as suture material according to the preference of the different operators.

THE MEDICAL PROFESSION.

I had abundant opportunity to experience that the medical profession of Auckland is cordial and hospitable. Dr. Edward W. S. Sharman, the quarantine physician of the port, after completing his inspection of the steamer, took me ashore in his steam launch, and from there directly to Dr. T. Hope Lewis, the most prominent surgeon of the city. To these two gentlemen, who gave me their whole time during the entire afternoon, I am greatly indebted for what I saw and learned in their city. There are 40 practitioners in Auckland. There is only one specialist for the eye and ear. All of the physicians do their own operating, including all kinds of gynecologic work. Dr. Lewis is the only one who is gradually leaving general practice, and will soon devote himself exclusively to surgery. The fees in Auckland are not high. Visits are charged for according to the patient's means from 75c to \$2.50. The maximum figure is very seldom reached. For any capital operation \$250 is regarded, even by the wealthy, as a very large fee, and most of the difficult operations are paid for at the rate of \$100. Most of the physicians are graduates of English and Scotch universities, and consequently their practice of medicine and surgery represents the teachings of British authorities. They are all members of the British Medical Society, and depend for the current medical literature largely on its official organ, the *Journal of the British Medical Association*. The New Zealand branch meets once a year, and the city, or local branch, monthly. These meetings are well attended, and the transactions represent the clinical and scientific work of its members.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Tabes Dorsalis.

Faure, in the *Lancet*, gives it as his opinion that the iodids and mercury are not responsible for the relaxations and diminutions in the symptoms which sometimes occur during the course of the disease, for such ameliorations are the rule. He further states that the disease is progressive in a third of the cases; it is arrested, improved, or gets well in about one-fourth of the cases; in the remainder it proceeds slowly, with periods of quiescence, and at times affecting the life of the patient seriously.

PROGNOSIS.

1. Early diagnosis means earlier treatment and better results.
2. The very general employment of mercurials and iodids in syphilis is probably a reason for the diminution in the evolution of tabes.
3. The tabetic is cared for in a hygienic manner as the tuberculous cases are, and he is not allowed to sit and fold his hands and resign himself to the fatal sentence which used to be pronounced against him as soon as the diagnosis was made.

GENERAL DIRECTIONS.

1. He must not allow the patient to think that there will be a complete and radical cure within a few months, or that there is any specific remedy for the disease.
2. He must not allow his patient to abandon himself to his lot as one without hope or to think that his disease is inevitably tending toward death, for such is not the case.
3. The patient should be told that the disease will probably not improve, that it will diminish his capacity for work, and he will have some suffering.
4. Watchful care on the part of the medical attendant and willing co-operation on the part of the patient will often avoid complications.
5. The patient may be told that tabetic patients have been known to recover.

SPECIAL DIRECTIONS.

1. Keep the bladder and bowels clean. 2. Avoid underfeeding and insomnia. 3. Live as much as possible in the open air. 4. Avoid overwork, either mental or physical. 5. Watch with care the condition of the circulatory system. 6. An annual "cure" of one or more months' duration should be taken, when the patient should have special treatment and training to repair the damage already done by the disease and put himself in a condition to resist complications. a. By special exercises he should increase the respiratory activity. b. He should also train his excretory system as regards urination and defecation. He may regain control of the lost voluntary motion. c. He may also submit himself to a special hygienic course of thermal hydrotherapy, and finally employ all methods which experience has already shown to be useful in cases of tabes.

Neurasthenia.

Merck's Archives recommends the following combinations:

B.	Tr. nucis vomice		
	Tr. conii. ʒā.....	5i	4
	Tr. calumbæ		
	Tr. galbaniæ. ʒā.....	ʒiiss	6
	Essentiæ anisi	mx	165
M.	Sig.: Twenty drops in water before meals.		

During the meal or following it a combination similar to the following is recommended to be taken in wine:

R. Strych. arsenatis	.....gr. i	60	001
Cal'ii glycerphos.	.....gr. v		32
Syrupi aurantii	.....5i		4

M. Sig.: Take at one dose in a wineglassful of wine after each meal.

Acute Otitis Media and Prophylactic Measures.

Parsons, in the *Northwestern Lancet*, gives the following advice as to the treatment of this condition:

1. Remove all hypertrophic and degenerated conditions of the pharyngeal lymphoid structures.
2. Treat the catarrhal conditions of the nose and nasopharynx and keep the mucous surfaces clean with alkaline antiseptic douches to aid in preventing the infectious material from entering the eustachian tube.
3. Douching should be done carefully and blowing the nose should be done with caution.
4. Prohibit digging away in the external auditory canal to remove cerumen.

ACTIVE TREATMENT.

1. A free movement of the bowels is desirable.
2. In the earliest stages the congestion and secretion may be lessened by the administration of the following:

R. Atropin	.....gr. i	00013
Aconitini, āā	.....gr. 1	500

M. Sig.: Give as a single dose every hour until their physiologic effect has been produced.

3. For the pain chloroform may be ponred into the ear, or the application of a 10 per cent. solution of cocain and adrenalin solution may be made to the drum head, and is often efficacious; or dry heat from a hot salt bag.

Inflation of the tympanum with the vapor of menthol and camphor will often relieve the pain by the action of the drugs and the equalization of the air pressure.

R. Mentholi	.....gr. i	06
Camphoræ	.....gr. x	65
Liquid alboline	.....5i	30

M. Sig.: Use locally to inflate the tympanum.

4. When all other efforts to relieve pain have failed, a thorough inspection of the drum head should be made, and if there is an accumulation of secretions behind it, a free incision of the membrane is demanded. This should be done under strict aseptic precautions as to instruments and field of operation. If pus is present the ear is to be packed loosely with sterile gauze, and a sterile dressing put on the outside.

There is difference of opinion as to whether these cases should be treated by the so-called dry method, which consists in packing the external auditory canal with dry sterile gauze after first cleaning out the canal, dry swab, or by the irrigation method. The author believes there are advantages in both methods, but if there is much pus present he prefers free irrigation with a 1 to 1,000 formalin or bichlorid solution, used until the return flow is clean, and followed by the instillation of a 10 to 20 per cent. argyrol solution. The argyrol is allowed to run into the tympanum through the perforation by inclining the head, and the external canal is then packed, inserting a small wick through the opening if possible. If the secretions gum up the canal they are easily removed by the application of peroxid of hydrogen. The discharge must be attended to carefully until it has ceased.

Chronic Otorrhœa.

Nouvelaux Remedes quotes Meniere as stating that carbolic acid is the best remedy for this disease. Hot water is injected into the affected ear, which is then painted with:

R. Acidi carbolicj (crystals)	.....gr. xv-lxxv	1-5
Glycerini puris	.....mxxxv-cl	1.30-8 20

M. Sig.: Use locally.
Later, when the flow has diminished, use:

R. Glycerini puris	.....cl	8 20
Hydrarg. chlor.	cor. ....gr. 3/40-3 8	.005-0'025

M. Sig.: For local use.

Carbolated glycerin, besides acting as a cure, has a distinct analgesic action in otorrhœa.

Chapped Hands.

Blake of London, "Eczema and Its Congeners," states that the following application made at night is an excellent method of preventing eczema of the hands in cold weather:

R. Phenol	.....	5 parts.
Cade oil	.....	10 parts.
Nutritive cream	.....	500 parts.

M. Sig.: This should be vigorously rubbed in to promote free circulation. It is a good plan to wear a pair of loose leather gloves at night.

Ptyalism.

The *Medical Press* recommends the following:

R. Tinct. myrrhræ	.....5iii	12
Potass. chloratis	.....5ss	2
Sodij chloridi	.....5ii	8
Aque dest. q. s. ad.	.....5viii	240

M. Sig.: Use as a mouth wash. Repeat every two hours.

Hysteria.

Goodell recommends the following combination:

R. Ext. sumbul	.....gr. xx	130
Ferri sulphatis æssiæ, āā	.....gr. xl	260
Acidj arsenosi	.....gr. ss	103

M. Pt. pil. No. xx. Sig.: One or two pills three times a day.

To Remove Warts.

The *Med. Review of Reviews* recommends the following:

R. Ext. cannabis ind. fl.	.....5i	4
Acidj salicylicj	.....gr. x	160
Collodion q. s. ad.	.....5ss	15

M. Sig.: Paint freely with a camel's hair brush twice daily.

For Falling Hair.

Walsh recommends the following combination to prevent the falling out of the hair:

R. Acidj salicylicj	.....5iii	12
Acidj carbolicj	.....5i	4
Olei ricini	.....3iii	12
Spiritus vini rect. q. s. ad.	.....5vi	180

M. Apply freely to the scalp once or twice daily.

Medicolegal.

Death from Cut in Trimming Corn.—The United States Circuit Court, in Pennsylvania, holds, in the case of *Nax vs. Travelers' Insurance Company*, that where there was a self-inflicted knife cut of the insured's toe while he was trimming a corn, and later, blood poisoning ensued, and resulted in his death, the injury was an "accidental, external, and violent" one within the meaning of an accident policy.

Hospital Not Liable for Negligence of Surgeon.—The Second Appellate Division of the Supreme Court of New York holds, in the case of *Wilson vs. the Brooklyn Homeopathic Hospital*, that a corporation existing as a public charitable institution, operating as a hospital is not liable, in conducting its hospital, for negligence in operating on a patient who pays only for board and attendance, and not for the surgeon's services, in the absence of proof that it failed to exercise reasonable care and diligence in the selection and employment of the surgeon. Nor was such a hospital rendered liable by testimony that the superintendent said that surgical treatment was included in the expense of room and board where it was clearly shown that the superintendent had no authority whatever to make any contract in behalf of the hospital to receive compensation for the services of surgeons or physicians in its employ.

No Authority to Employ Physician.—The Supreme Court of Minnesota says, in the case of *Legault vs. Minneapolis Fire Department Relief Association*, that the association was organized "to afford relief to such active members as may become sick, disabled, or injured," etc. The articles of association further provided that "any active member of the association who shall become sick or disabled or so unable to attend to his duty as a fireman, shall receive from the association while such sickness or disability continues such sum per week for sick benefits as may be designated by the by-laws." "In case

of an accident to any active member and his condition demands his immediate removal to a hospital the attending surgeon or any officer of the association may have such removal made at the expense of the association, and the president shall, as soon as practicable, call a meeting of the board of trustees," seven in number, to take such action as they shall deem proper. The by-laws provided for the duties of a surgeon, who should, "on notification from the president or vice-president of injury or sickness to an active member, visit and examine him and make a report," and also provided for "visits of such surgeon to the sick person," and for compensation at a specified rate for consultations by him, and other duties to be thus performed by that officer. The Supreme court holds that these articles and by-laws did not authorize or justify the employment by one of the officers (vice-president) of the association of a physician, not the regular surgeon of the association, to render medical services for a member injured at a fire, for an indefinite length of time, without the authority of the board of trustees. It says that while the general statement of the purpose of the association was to care for sick and disabled members, this was limited to the manner provided for in the articles and by-laws, and a contract for treatment not contemplated or prescribed therein could not be reasonably implied; and all persons dealing with the association must be held to do so with full knowledge of the limitations contained therein. Nowhere in the articles was there a provision which extended the general statement of the purposes to care for disabled members by the employment of a physician other than the regular physician of the company to render services without the authority of the board of trustees after proper notification. It was not definitely set forth and could not be implied.

Monomania, Immorality, Insanity and Insane Delusions.—The Supreme Court of Georgia says, in the case of Bohler vs. Hicks, that monomania is partial insanity, as contradistinguished from general insanity; the monomaniac is sane generally, but is insane on a particular subject or class of subjects. The party afflicted with monomania is conscious of his ability to manage his affairs, and is utterly unconscious that, with respect to any particular subject-matter, he is irrational or of unsound mind. The very name "monomania" implies partial insanity, and excludes the idea of any sort of ratiocination as to the particular subject to which the partial insanity relates. Monomania cannot be implied because a person takes a narrow or prejudiced or utterly illogical view of a particular subject. It is not the result of any conclusion; the person does not arrive at his conviction because of any attempt either at reasoning or investigation; the partial insanity is the offspring of a disordered intellect. A man may be utterly abandoned to every form of lust, and, though he has departed entirely from the paths of virtue, such depravity alone does not evince insanity. His conduct may be the result of a depraved nature, a conscious departure from the path of rectitude because of a depraved, but deliberate, choice; a preference for a sinful and immoral life over one of right doing and correct living. A sane man may have improper relations with women, and may persist in his wrongdoing despite the interference of others. Such perverse conduct does not amount to insanity. The conclusion that a testator was a monomaniac is not warranted by the bare circumstance that, actuated by a spirit of resentment against his wife, he disinherited her in his will for the sole reason that she had interfered with him in carrying out his deliberate choice to lead an immoral and dissolute life. An insane delusion was said by Sir John Nicol, in the celebrated case of Dew vs. Clark, 3 Add. Ecc. 79, to exist wherever a person conceives something extravagant to exist, which has no existence whatever, and he is incapable of being permanently reasoned out of that conception. The correctness of this definition of an insane delusion has been recognized in the great majority of the English and American cases. The delusion must spring spontaneously in the mind of the person, and not be the result of evidence of any kind. An "insane delusion" does not mean a mistaken conclusion from a given state of facts, nor a mistaken belief

as to the existence of facts. An erroneous conclusion of a sane person may arise from incorrect reasoning, or from a deduction from information which he supposed to be correct. The true test between a delusion, used in the sense of a mistake of fact, and a delusion which is the offspring of a deranged mind, is that the latter springs spontaneously from disordered intellect, while the former is the result of an erroneous conclusion based on either a mistake of fact, or an illogical deduction drawn from such facts as they really exist. The subject-matter of an insane delusion must have no foundation in fact, and must spring from a diseased condition of the intellect. If the testator undertakes to make an investigation, and arrives at the conclusion that a certain state of facts exist which in point of fact does not exist, such conclusion may be attributable either to a mistake in judgment or a mistake of fact, and will not be evidence of insanity.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

September 24.

- 1 *Tuberculosis of the Abdominal Lymph Glands; Complications. Differential Diagnosis and Treatment. Charles F. Painter and Wm. G. Erving.
- 2 *Concerning the Syndrome of Conus Medullaris and Cauda Equina. Alfred Gordon.
- 3 Case of Congenital, Supracrotoid Dislocation of the Hips with Cross-legged Progression. Henry Ling Taylor.
- 4 *Nerve Blocking to Prevent Amputation Shock: Illustrative Reports of Two Thigh Amputations. Hermann B. Gessner.
- 5 Case of Ruptured Tubal Pregnancy; Operation: Followed by Sepsis, Septicemia, Erysipelas; Recovery. Wm. H. Teller and Moses Behrend.
- 6 *Garlic: a New Cure for Tuberculosis and Lupus. John Knott.
- 7 *Insomnia of the Aged. Charles J. Aldrich.
- 8 Button in the Ear 27 Years. Deafness Cured by Its Removal. J. J. Richardson.

1. **Tuberculosis of the Abdominal Lymph Glands.**—The purpose of Painter and Erving is to show that tuberculosis of the abdominal lymph glands may give rise to spinal symptoms; to distinguish symptoms produced in this way from similar symptoms produced by other diseases, and to suggest that in some cases vertebral tuberculosis is caused by a direct extension from tuberculous abdominal lymph glands. There are three sources of infection: 1. Direct extension from adjoining diseased tissues, which is uncommon and of minor importance. 2. Infection from the blood stream, which is not infrequent. 3. Infection through the lymphatics, which is almost invariably the mode of infection in the more or less chronic and isolated gland lesions. Often the glandular involvement is more or less localized, and a fatal termination is due to intestinal obstruction, peritonitis and formation of abscesses progressing outward. Among cases with spinal symptoms, mesenteric tuberculosis must be differentiated from Pott's disease, aneurism of the abdominal aorta, malignant disease, especially cancer, osteoarthritis, osteomyelitis and other inflammatory diseases in or about the spine. The treatment of inflammations of the abdominal lymph glands is divided into (a) general, perhaps the most important; (b) mechanical—fixation of the spine in order to give relief from pain; (c) operative—the same rules holding good for the treatment of abscesses derived from broken-down lymph glands as obtain in the treatment of abscesses in tuberculous bone lesions. The prognosis is good as compared with that of vertebral tuberculosis in the same class of patients. The most serious features of the disease are extension to, and involvement of the vertebral column, rupture into the peritoneal cavity and intestinal obstruction in consequence of the pressure on coils of intestine or the matting up of such coils in the products of inflammation. Much can be done to favor the prognosis, according to the extent to which it is possible to provide efficient treatment and the intelligent co-operation of the patient. The paper concludes with a report of nine cases.

2. **Syndrome of Conus Medullaris.**—Gordon attempts to prove that the lower portion of the spinal cord, the conus medullaris,

contains special and independent centers for micturition, defecation, erection, ejaculation, and for the anal reflex, and cites a case in confirmation of his belief.

4. **Nerve Blocking to Prevent Amputation Shock.**—Gessner reports two cases in which he made use of the method advocated by Cushing with very satisfactory results. He recommends the procedure as one well worthy of further trial, promising much that is good, and so far, appearing to be attended by no disadvantages.

6. **Garlic in Tuberculosis.**—Knott reviews the therapeutics of garlic and calls attention to (a) the favorable reports that have been issued in connection with its administration in serious bronchial affections, and (b) the experiments of Carazani, who attempted to show that a sufficiently generous use of garlic in tuberculosis will produce immunity to its infection. Of a group of guinea-pigs kept in an atmosphere charged with tubercle bacilli, those whose daily diet had contained 1 gram of garlic were found at the end of three months to be free from tuberculosis, while the others were all badly infected. The efficiency of garlic in pathologic conditions of the respiratory mucous membrane is due to its essential oil, which is almost wholly composed of allyl sulphid, which is eliminated very largely through the respiratory tract.

7. **Insomnia of the Aged.**—According to Aldrich this condition is due to starvation of the brain cells, the result of narrowed capillaries and an impoverished blood supply. The condition can be relieved by diffusible stimulants and some hot and easily digestible and agreeable food taken at bedtime, and repeated during the night if necessary.

New York Medical Journal.

September 21.

- 9 *Summary of an Experimental Research Into Strychnin in Shock and Collapse, with Illustrative Protocols. G. W. Crile.
- 10 *Some Unusual Forms of Acute Myelitis. B. Sachs.
- 11 Ready Methods of Formulating Modified Milk Mixtures. E. K. Sheldermine.
- 12 The Present Condition of Tenoplasty. (Continued.) Prof. Vulpius.
- 13 Some Causes of Menstrual Disorders in the Girl. R. S. Hill.
- 14 *Immunify. Anna M. Stuart.

9. **Strychnin in Shock.**—A careful investigation has been made by Crile as to the action of strychnin in shock and collapse. In the majority of instances, in the normal animal, when sufficient strychnin is given to cause an increased excitability of the spinal cord, as indicated by heightened reflexes and an increased muscular tone, a rise in blood pressure was noted. In smaller doses occasionally a slight intermediate fall, a slight immediate rise, or later irregularities were noted, but no noteworthy change occurred. Following the administration of physiologic doses of curare and convulsive doses of strychnin, the blood pressure rose as high as in the experiments in which convulsions did occur. When both vagi and accelerantes were severed, curare and strychnin given, the general effect on the blood pressure did not differ materially from the effects of corresponding doses on the normal animal. Small doses of strychnin on the whole seemed to improve respiration. Larger doses were frequently followed by respiratory failure. After the blood pressure had reached the stage of terminal helplessness, the administration of saline solution caused a rise which continued for some time during the flow. The administration of adrenalin was followed by a rise in proportion to the amount given. Bandaging and other means of external pressure produced a rise of blood pressure. Digitalis administered in the terminal breakdown in most instances produced no effect. The details of the experiments are given in full as observed in six dogs.

10. **Acute Myelitis.**—Sachs discusses the acute myelitis which is not due to trauma, specific infection or infectious diseases, and reports a case in which the symptoms pointed to an acute transverse myelitis, yet the autopsy failed to reveal the first sign of any inflammatory process. The case admits of no other interpretation than that of being an ischemic necrosis due to a general arterial sclerosis. The author also reports a case of streptococcal myelitis. Both these cases are recorded for the purpose of insisting that the spinal cord does at times become the seat of morbid processes which befall the brain

much more frequently, and that it will not do to restrict the term myelitis to the morbid process that can be distinctly traced to trauma, syphilis and the ordinary acute infectious diseases.

14. **Immunity.**—Stuart believes in the possibility of destroying the power of the blood to develop immunity by a lack of use; that the typhoid, pneumonia and consumptive patient will stand a better chance of developing his own antitoxin if we conserve his strength and stop irritating his tissues with foreign substances. In our eagerness to destroy the germ, says Stuart, we are forgetting to build up the immunity of the patient against the germ.

Boston Medical and Surgical Journal.

September 22.

- 15 The Tendencies of the Practice of Medicine as a Profession and an Art. Lewis M. Palmer.
- 16 *Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. Percy Musgrave.

16. **Examination of Pleural Fluids.**—Musgrave details the technic of cyto-diagnosis, inocopy and the results obtained in 50 animal inoculations made with a fluid obtained from pleural exudates with a view to determining the specific cause of the effusion. The article is not complete in this issue, and a summary of results will be given later.

Medical News, New York.

September 21.

- 17 Home Treatment of Tuberculosis by Means of Hospital Dispensaries. John W. Brannan.
- 18 *Bone and Cartilage in the Tonsils. James E. Newcomb.
- 19 *The Distinction Between Fracture of the Neck of the Femur and Epiphyseal Disjunction in Early Life with Reference to Its Influence on Prognosis and Treatment. Royal Whitman.
- 20 *The Rectal Administration of the Newer Hypnotics. Morris Manges.
- 21 *The Medical Treatment of Appendicitis. A. J. Hall.
- 22 The Correction of Abnormal Conditions of the Blood Relative to Surgical Operations. S. C. Emley.
- 23 *Addison's Disease, With and Without Renal Tuberculosis. Charles F. Wittington.

18. **Bone and Cartilage in Tonsil.**—Newcomb speaks of the presence of true osseous and cartilaginous tissue in the tonsil and reports the case of a woman, aged 30, who had an abnormally long styloid process projecting into the tonsil, the tip of which was removed accidentally during a tonsillectomy. Other cases that have appeared in the literature are cited.

19. **Distinction Between Fractures.**—The object of Whitman's paper is to call attention to two forms of fracture of the neck of the femur, of which an accurate diagnosis may have an important influence on treatment. Simple fracture should be treated by fixation at the limit of normal abduction, an attitude which implies restoration of the depressed neck to its normal position. Partial epiphyseal separation should be treated by direct operative reposition of the head. Excision should be an operation of necessity rather than of choice. One should never be content with mechanical support, however efficient it may be in relieving the immediate symptoms. Recognizing the fact that normal function is dependent on normal form, the aim should be to remedy deformity whenever it is practicable.

20. **Rectal Administration of Hypnotics.**—The value of the rectal administration of some of the newer hypnotics, such as sulphonal, trional and veronal, is emphasized by Manges. Although the first two are almost insoluble, clinical experience proves that they are absorbed by the rectal mucous membrane, and that the speed of absorption is about the same as when the drugs are taken by mouth. Hedonal, chloralose, and chlorotone are so slightly soluble as to be practically worthless in this connection; on the other hand, sulphonal acts more powerfully than trional. Heroin, chloralamide and phenacetin are also readily absorbed. Veronal is freely soluble and may be administered in suppository form or in solution, either in warm milk or preferably in diluted sherry to which a little salt or sugar has been added to increase the speed of absorption. No irritation of the rectum following the administration of any of these hypnotics has been observed.

21. **Medical Treatment of Appendicitis.**—Hall is a firm believer in the medical treatment of appendicitis because, he says, the tendency of the disease is toward recovery. He ad-

vices, however, that in recurrent cases an operation should be performed during the interval after recovery from the second attack. The medical treatment as carried out by him is as follows: Absolute rest in bed; relaxation of the abdominal muscles by flexing the thighs and supporting the knees by pillows. A liquid diet, chiefly composed of milk, four to six enemas a day, and copious enemas of soapy water or sweet oil every four hours. A hot flaxseed poultice over the whole abdomen, replacing it every two or three hours, night and day, until the temperature is normal. The only counter-indication for the use of enemas, or at least one calling for great care in their use, is the involvement of the lower bowel in the inflammatory process. The larger the amount of liquids consumed the better, as they not only nourish the patient, but by means of the diuresis produced render material aid in the elimination of toxic material. Creosote, minim 1, in two drams of lime water, may be administered every two or three hours, and arsenite of copper, grain 1/100, every three hours. The arsenite of copper is employed as an intestinal antiseptic and prevents or diminishes tympanites and the tendency to vomiting, and has a marked anodyne effect. If the vomiting does not subside, and should it become stercoraceous, occlusion or paralysis of the bowel is indicated, and operation is the only hope of relief. Opiates and cathartics should never be given.

23.—See abstract in THE JOURNAL, xlii, p. 1586.

Medical Record, New York.

September 21.

- 24 *Operations on the Eyeball in the Presence of an Infected Conjunctival Sac. Charles S. Bull.
 25 *The Use and Abuse of Athletics. Robert E. Coughlin.
 26 *Clinical Study of Certain Forms of Pericarditis, with Report of Pericardial Effusion Complicating an Extensive Burn of the Chest. H. E. Lewis.
 27 Social Causes of Criminal Abortion. Inez C. Philbrick.
 28 The Genesis of Sleep. A. E. Gibson.
 29 Tetanus in Secondary Syphilis. E. C. Hyde.
 30 Polymiazin Among Enlisted Men of the Marine Corps. R. O. Marceur.

24. The Eyeball in Infective Conjunctivitis.—Bull summarizes his paper as follows:

1. A careful microscopic and bacteriologic examination should be made of the contents of the conjunctival sac in every suspected case, carrying the examination as far as the cultivation of the bacteria in a proper medium, and the subsequent inoculation of the germs.

2. If toxic germs are found in great numbers, no matter what their varieties, no operation on the eyeball should be undertaken until the germs have disappeared, and the conjunctival sac has been rendered as sterile as we can hope to make it.

3. If there be suppurative disease of the lachrymal passages, whether of canaliculi, sac or nasal duct, all operations on the eyeball are positively contraindicated. The lachrymal sac must be excised, and the lachrymal puncta must be obliterated by the galvanocautery, before any operation on the eyeball is undertaken. In the case of conjunctival dacryocystitis, or of a mucocle of the sac, both canaliculi should be incised, and the sac injected daily with an antiseptic astringent solution, and free irrigation through the nasal duct carried out until all secretion has ceased. Even in cases of great urgency, as, for example, acute inflammatory glaucoma, the writer would not feel himself justified in modifying the above statement.

4. If the secretion of the conjunctival sac on examination is found to be purulent, but the bacteria are few in number and of slight toxic variety, operations may be done on the eyeball when necessary, but these eyes should be opened and examined twice in the twenty-four hours, and the conjunctival sac gently irrigated with warm normal salt solution, or warm sterilized boracic acid solution, and then the eye should be immediately rebandaged.

5. In operating on the eyeball in the presence of an apparently normal, sterile conjunctival sac, the following steps should be taken: First, The forehead, eyebrows, temple, cheek, bridge of the nose, and external surface of the lid should be carefully cleansed with hot water and soap and dried with aseptic cotton pads.

Second, The margins of the lids should be carefully but gently rubbed with sterilized moist cotton pads, and simultaneously irrigated with a warm sterilized physiologic salt solution.

Third, Careful irrigation of the conjunctival sac with the same sterilized normal salt solution and then closing the lids with a moist sterilized cotton pad.

6. In all cases the bandage should be removed and the eye examined under the strictest aseptic precautions, as strict as those employed at the time of operation.

7. On the first sign of infection of the wound, the edges of the lids are to be thoroughly cleansed in the same manner as at the time of operation; the conjunctival sac is to be thoroughly irrigated with the sterilized normal salt solution; the wound is to be re-opened and exteriorized through its entire length with the galvanocautery; and the anterior chamber is to be gently but carefully irrigated with a sublimate solution (1:5000); and then the conjunctival sac must be again irrigated, and the lids must be closed simply under a moist sterilized pad.

25. Use and Abuse of Athletics.—Coughlin considers physical over-exertion and its effects on the general health as well as on the individual functions, and the benefits to be derived from

a moderate indulgence in athletic exercise. The prime object of athletics is improvement of the general health, but to obtain good health muscle building is not a necessity. There is no evidence to show that athletics and muscle building improve the constitution; in fact, to obtain health one must not be in a perfectly trained condition, owing to the effects of severe training on the nervous system. It is necessary to keep in mind the fact that hypertrophied muscle always has a tendency to degenerate. This is especially true of the heart muscle. Athletics are beneficial when properly and judiciously applied, and are very injurious when indulged in indiscriminately.

26. Pericarditis.—According to Lewis, pathologic conditions of the pericardium are by no means as uncommon as may be inferred from their infrequent ante-mortem recognition. Pericarditis, if looked for, will be found to occur much more frequently than is commonly supposed. The symptoms of the condition may be obscure or they may be overshadowed by those of some other disease, such as Bright's disease, and therefore go unrecognized. Many factors contribute to the production of this condition, and one case is reported by the author in which a burn on the chest was followed by pericarditis. The treatment is but little understood. Lewis says that the pain can be relieved promptly by dry cupping or counter-irritation over the painful region. Absolute rest in the prone position is important. Anti-rheumatics are useless and nothing approaches the value of opium salts in large and often repeated doses, always administered in saturated solution. Heart tonics and stimulants are contraindicated unless there is evidence of cardiac failure. When effusion occurs and the conditions are not alarming, it is always safe to wait. When the effusion becomes alarming, paracentesis is the only thing to do.

St. Louis Medical Review.

September 17.

- 31 *Observations on the Cause and Treatment of Hay Fever. W. P. Dunbar.
 32 *The Practical Value of the Immunity Theory. A. P. Wasserman.

31. Hay Fever.—Dunbar's paper is a review of present-day knowledge of the etiology of hay fever, with a brief reference to the author's serum treatment. Attention is called to the fact that the results accruing from the use of the antitoxin are far superior when the serum is used strictly as a prophylactic. It is very difficult to stop a severe attack of hay fever by using the antitoxin as a curative agent. The average success, according to statistics of several hundred cases, seems to amount to about 65 per cent. Efforts to make a preparation that can be used hypodermically are still being carried on, and since it has been proven that the antitoxin part of the serum is resident entirely in the globulin, Dunbar is now experimenting with an antitoxin from which the albumin has been eliminated, in order to find out whether it can be used without causing any irritation. Dunbar is also engaged in the manufacture of an antitoxin to be used in the prevention and treatment of the autumnal catarrh prevalent in this country and due to the pollen of goldenrod and ragweed.

32. Immunity.—This paper by Wasserman is a very brief review of the subject of immunity and serves to convey the information that the author has succeeded in isolating a toxin which is bacterioid to the diphtheria bacillus. This new sera is dried *in vacuo*, and pulverized or made into pastilles. The patient merely sucks the pastilles or snuffs up the powder. This serum is to be used in conjunction with diphtheria antitoxin, because a patient treated and cured by antitoxin may still have in its throat diphtheria bacilli possessing the power of infecting other children.

Cincinnati Lancet-Clinic.

September 21.

- 33 Traumatic Neurosis. David I. Wolfstein.
 34 The Plea of Insanity. Robert H. Grube.
 35 Two Cases of Pancreatitis. Wm. J. Gillette.

Archives of Ophthalmology, New York.

September.

- 36 *Bacteriologic Study of Trachoma. Arnold Knapp.
 37 Unusual Dilatation of the Superior Temporal Artery and Vein of the Retina. R. L. Millikin.
 38 Adeno-sarcoma of the Eyelid. J. M. Mills.
 39 Glaucoma Simplex: Report of Cases. C. Horstmann.

- 40 Peculiar Change in the Choroid After Ophthalmia Nodosa. W. Reiss.
- 41 Two Cases of Family Macular Degeneration of the Cornea. C. A. Veasey.
- 42 Case of Pseudoleukemic Lymphomata of the Eyelids. Followed by a Generalized Formation of Lymphomata. A. A. Deutoil.
- 43 *The Present Status of Cervical Sympathectomy for Glaucoma-Simplex. Robert G. Loring.

36. **Bacteriology of Trachoma.**—During the past two years Knapp has made bacteriologic examinations of 120 cases of trachoma. An influenza-like bacillus, identical with the Mueller "trachoma bacillus" was found present in 8 of the cases. It was found in great numbers in a case of clinically "acute" trachoma. This organism could not be differentiated from the true or pseudo-influenza bacillus either morphologically, culturally or by animal experimentations. Knapp is inclined to believe that its presence in these cases of trachoma was accidental, inasmuch as there is a form of influenzal conjunctivitis which constitutes the only manifestation of influenza. The organism found was of small size, rounded ends and stained with difficulty—best with diluted carbol-fuchsin. It grows only on hemoglobin media as small, dewdrop-like colonies scarcely visible to the naked eye. The culture can be continued indefinitely on proper media. The bacilli were found to be non-pathogenic for rabbits.

43. **Cervical Sympathectomy.**—The present status of this operation in the treatment of glaucoma simplex is discussed by Loring, who says that while in acute and chronic inflammatory glaucoma the removal of the superior cervical ganglion has failed to establish its claim as a rival to iridectomy, and that little of a more favorable nature is to be expected from it in the future, the matter is entirely different in glaucoma-simplex. Here iridectomy is admitted to be of much less value, in some cases seeming even to diminish rapidly what little vision remains. Loring has collected from the literature 60 cases of glaucoma-simplex treated by sympathectomy, counting each eye as one case. In a great majority of the cases there is a more or less striking improvement following sympathectomy. But when those cases are ruled out that were reported without subsequent observation of some weeks or months, at least, the verdict is not so favorable. Many cases soon suffer a relapse, the vision becoming the same as before operation or even worse, or a glaucoma-simplex develops rapidly into an acute glaucoma. This happened in 4 of the 60 cases. Of the 60 cases, the number that was observed for three months or more is 41. Of these 29, or 70 per cent., were improved for three months or more with no record or relapse. Few of the cases were observed longer than one year. The remaining 12 cases are reported as relapsing within various periods from nine weeks to one year, 4 of these becoming acute glaucoma. Serious after-results from sympathectomy are not reported either from the single or double operation. Loring believes that sympathectomy is a distinctly justifiable operation that ought to be more often tried as a final resort in glaucoma-simplex when, notwithstanding myotics, iridectomy and sclerotomy, the disease progresses steadily toward eventual blindness.

Journal of Advanced Therapeutics, New York.

- 44 Chronic Ulcers Cured by Metallic Electrolysis. Francis B. Bishop.
- 45 Dispensary Treatment of Tuberculosis. J. L. Barton.
- 46 Absorption of a Large Uterine Fibroid by X-rays. J. E. Hett.
- 47 Retrospect of the Second International Congress of Electro-Therapeutics Held in Switzerland. Robert Newman.
- 48 *Radiography. Herman Grad.
- 48. **Radiography.**—Grad discusses this subject with reference to its technic, the apparatus used, and the elements that enter into the successful use of the x-ray for skiagraphic work.

Chicago Medical Recorder.

- 49 The Flap Method in Herniotomy; Imbrication a Complete Solution. E. Wyllys Andrews.
- 50 *Autoplastic Suspension of the Uterus, with Report of Cases. F. H. Martin.
- 51 *Hemiphilia with Postpartum Hemorrhage. Robert Gay.
- 52 Three Cases of Penetrating Wounds of the Chest involving the Diaphragm and Abdominal Viscera. Daniel H. Williams.
- 53 Placenta Previa Complicated by Uterine Tumor. E. M. Heidor Schiller.
- 54 Points on Adenoids and Adenoid Operation. E. F. Snyderacker.
- 55 Varicose Veins and Ulcers of the Leg and Their Treatment. W. S. Royce.

50. **Autoplastic Suspension of the Uterus.**—Autoplastic surgery, says Martin, is a simple, quick, safe and efficient suspension of the uterus attended with a minimum of risk of fixation, and does away with any form of permanent buried suture material, by substituting living peritoneum which is utilized in such a way that its vitality and integrity are maintained. A strip of peritoneum, one-third of an inch wide, is severed with scissors from one side of the wound; the upper end of this strip is severed from its peritoneal attachment, thus leaving a ribbon of peritoneum attached at its lower end beneath the lower angle of the wound to the parietal peritoneum above the bladder. The uterus is brought forward, a ligature carrier is passed from behind forward just back of the crest of the uterus, beneath its peritoneal covering for a distance of half an inch, and as it emerges at the crest of the uterus it is made to grasp the end of the ribbon of peritoneum and drawn back through the original opening, so that the uterus is suspended by the peritoneal strip. The uterus is slid well down on it until the fundus lies forward beneath the lower angle of the wound. A supporting catgut ligature is passed through the peritoneal coat of the uterus just behind the peritoneal ligament, and the uterus is temporarily suspended by this by passing the two free ends through the peritoneum and deep fascia on either side of the wound and tying it. The upper free end of the peritoneal strip is secured by including it in the running catgut suture which closes the peritoneum, thus re-uniting it to the peritoneum from which it was severed. Martin has examined the uterus bimannually after suspension by this method in over 300 cases, at periods varying from two weeks to eight years, and has always found the results to be an excellent one. Six pregnancies occurred in this series, and in none of them did the woman suffer any unpleasant symptoms during gestation or labor. There was no appreciable pull on the uterus or abdominal wall; the cervix was normal in location. The paper is closed with the following summary:

1. A very small percentage of uncomplicated retroversions may be cured by correcting an anterior position of the cervix by lengthening the anterior vaginal wall and shortening antero posteriorly the mucous membrane of the posterior vaginal vault after the Schickling method.
2. The Alexander operation of shortening the round ligaments is a safe, rational and permanently satisfactory procedure in persistent retroversion in which no pelvic complications exist demanding a peritoneal opening and should be pursued as a routine operation in such cases.
3. In slight adhesions of the fundus of the uterus with little other pathology to be palpated, a posterior vaginal incision may be made by one accustomed to deep vaginal operation, the adhesions separated and the sacrotuberine ligaments shortened.
4. With slight adhesions present and little pathology to be demonstrated, an anterior vaginal incision is justified in the hands of an experienced operator, provided that he adopts a vaginal round ligament operation for correcting the displacement and never a fixation.
5. When an Alexander operation is contraindicated in a persistent retroversion, because of doubt as to pelvic adhesions or diseased adnexa, it should become a routine procedure to open the peritoneum by a short exploratory incision through the abdominal wall above the symphysis for the purpose of managing the adhesions and diseased adnexa.
6. Some form of simple superficial ventral suspension should be followed as a routine method of retaining the uterus forward in cases where sterility is rendered imperative from the nature of the accompanying procedure, or when the patient has passed the menopause.
7. When the repair of complicating conditions in retrodisplacements requires a uterotomy, the operative procedure leaves the woman with child-bearing possibilities, a superficial ventral suspension or intraperitoneal shortening of the round ligaments should be employed to retain the uterus forward.
8. In a small but definite percentage of cases of complicated retroversions where accompanying pathology is such as to cause extensive denudations of the peritoneal covering of the uterus, or where the repair work on the appendages is such as to be liable to lead to dystocia, the surgeon should at once render the patient sterile by amputating the tubes into the horns of the uterus, obliterating them by inversion sutures, and then suspend the uterus.
9. In performing a suspension or an Alexander, one important element of danger can be eliminated by substituting for dead permanent suture material my autoplastic methods of securing the suspensory ligaments.

51. **Hemiphilia with Postpartum Hemorrhage.**—Gay reports a case of postpartum hemorrhage in a hemiphilic complicated by intrapartum sepsis. Following the birth of the placenta, and in the absence of cervical laceration, there continued a considerable amount of oozing which, in spite of ergot, packs, and massage, continued until the pulse ran up to 175 twenty-four hours after delivery. The temperature rose steadily until it reached 105.3 on the fourth day. On the eleventh day it took

on a distinctly septic character; on the twenty-fifth day metastatic abscesses were opened, and from thence onward the pyrexia rapidly disappeared. The highest temperature record was 106.8, the lowest 97.6. Pure cultures of streptococcus were isolated on the ninth day from the cervix and also from the pus of abscesses on the arms and legs. The treatment consisted of hot intra-uterine douches, saline infusions, calcium chlorid, grain 10, every four hours. The uterine oozing ceased at the end of the fourth day. When the patient seemed in extremis, irrigations of the colon were begun. Tepid salt solution was allowed to filter in without intermission, except for a daily cleansing soap and glycerin enema, for five days. After this only two quarts were allowed to run into the colon every six hours, and at the twentieth day of the disease colonic irrigation was discontinued. Gay emphasizes the value of these irrigations, and is convinced that they were instrumental, to a very large extent, in saving the life of this patient.

Northwestern Lancet, Minneapolis.

September 15.

- 56 *Gastrostomy in Esophageal Stricture. James H. Dunn.
57 Medical Organization. George W. Baker.
58 *Disseminated Miliary Tuberculous Peritonitis, with Lesions of Primary Intestinal Tuberculosis Involving the Appendix and Cecum. Andrew J. Hosmer.

56.—See abstract in THE JOURNAL of July 2, p. 70.

58. **Tuberculosis.**—A case of disseminated, miliary, tuberculous peritonitis with ileus, and one of primary intestinal tuberculosis involving the appendix and cecum are reported by Hosmer. The first patient, a male, aged 20, family history negative, was perfectly well until six months before seeking medical aid. At that time there began a pain in the abdomen, principally toward the right side. He lost in weight and his abdomen became a little more prominent. When the obstruction occurred the abdomen was greatly distended, the pulse very rapid, temperature only slightly elevated, and the patient in a very critical condition. On opening the abdomen it was found that the obstruction was one of so-called paralysis of the bowel due to extensive tuberculous disease. An enterostomy was performed, and later six inches of the intestine was removed, and anastomosis being affected with a Murphy button, reinforced by the Halsted stitch. The patient recovered from the operation and apparently from the disease. The history of the second case is somewhat similar to that of the first, except that the pain was of three years' duration. There was no loss in weight. The pulse was about 100; temperature normal; abdomen retracted, very sensitive and hard. On palpation a sensitive, moveable mass, the size of a child's fist, was felt in the cecal region. At the laparotomy it was found that the mesenteric glands were slightly enlarged. The appendix, about four inches of the cecum and a portion of the ileum were greatly thickened and apparently agglutinated together. The intestinal wall was nearly destroyed, and an early perforation appeared imminent. The appendix, a portion of the ileum and the ascending colon above the ulcerated area were resected, and an anastomosis made between the ileum and the ascending colon by means of a large Murphy button without cutting the walls of the gut or using ligatures. The anastomosis was reinforced by means of a Halsted stitch. In the first case the button was passed on the tenth day, and in the second case on the seventh day. The patient was discharged after three weeks and has been in excellent condition ever since.

Detroit Medical Journal.

September.

- 59 The Conscientious Surgeon. C. T. Newkirk.
60 *Chronic Synovitis. Vine LaRue Smith.
61 Artificial Feeding of Infants. W. G. Hutchinson.
62 Panophthalmitis Due to Septic Embolism; Metastatic. Eugene Smith.
63 A Plea for Alkaloids. S. J. Wilson.
64 Should a Physician Dispense? F. G. Scott.

60. **Chronic Synovitis.**—The treatment followed by Smith consists of the use of an appliance which secures extension and counterextension, together with mild mechanical stimulation over the affected part. In one case cited, a chronic synovitis at the ankle joint, the appliance was made of steel, with a sandal, two bars and two bands, with joint at the ankle. There were six buckles on the sandal, three on each side, which fas-

tended to a plaster bandage around the ankle, and two buckles at the top of the bars, fastened to plasters on the limb. The appliance was also provided with a set screw at the ankle which prevented motion. By this means the foot was held rigidly, as in a plaster cast, and the disadvantages of the latter were done away with. The foot was brought into an extended position by means of an elastic toe strap. The result in this case was an excellent one. In a second case cited, one of chronic synovitis of the knee joint, the patient was fitted with an appliance made of steel, a sandal, two bars, four bands and a sent-piece. In this case joints were made at the knee and at the ankle, with two buckles, one on each side of the sandal, which were fastened with plaster on the limb, thus giving extension. The sent-piece was fastened to the appliance with a ratchet, thus giving counter-extension. A ratchet was also provided beneath the knee by which the limb was straightened slowly, and with practically no pain to the patient. In both cases the parts were stimulated by vibratory massage.

Medical and Surgical Monitor, Indianapolis.

September 15.

- 65 Asthenopia and a Few Facts That Ought to Be Generally Known About It. David W. Stevenson.
66 Cancer of the Larynx, with Report of a Case. W. H. Williams.
67 Some Phases of Tuberculosis. B. Van Swerlingen.
68 Prophylactic Use of Antitetanin Serum—Two Cases. E. S. Alexander.
69 *The Manner of Stripping the Seminal Vesicles. Joseph Titus Eastman.

69. **Stripping the Seminal Vesicles.**—Stripping of the seminal vesicles, says Eastman, not only empties these organs of pathologic contents, but stimulates as does a sound in the urethra and promotes re-absorption of inflammatory infiltrations and exudation. It is essential that a distinct plan for the expression of the contents of the vesicles be followed. A long forefinger offers some advantage in the manipulation of these organs; still, if the operator possess the requisite skill and if he patiently overcomes the resistance of the perineal muscles, the shortness of the index finger becomes a matter of less importance. Eastman employs the right index finger in stripping the left vesicle (the patient being in the standing position), and the left index finger in stripping the right vesicle. In this way each vesicle may be compressed between the finger and the corresponding side of the bony pelvis. Instead of simply pushing against the vesicle with the finger tip, the tip of the finger may be passed to the inner side of the vesicle and from above downward along the inner posterior aspect of the vesicle as the organ is drawn and compressed laterally against the firm resisting pelvic musculature.

Archives of Pediatrics, New York.

September.

- 70 *An Analysis of 118 Cases of Lobar Pneumonia in Infancy. John Lovett Morse.
71 *Acute Myocardial Insufficiency in Some Infections in Children. P. Forchhammer.
72 Gastrointestinal Toxemia. D. K. Rachford.
73 *Percussion of the Skull with Especial Reference to the Occurrence of MacEwen's Sign in Meningitis and Cerebral Disease of Children. Henry Koplik.
74 Congenital Hypertrophic Stenosis of the Pylorus in an Infant, with Report of a Case. John Dornbig.

70. **Lobar Pneumonia in Infancy.**—Morse's findings may be summarized as follows:

Lobar pneumonia is more common and occurs relatively more frequently in comparison with bronchopneumonia in infancy than is generally supposed. The analysis of these cases shows the following points: The onset was less stormy than is generally thought. It usually began with fever and cough, which were often accompanied by apathy or drowsiness. Movement of the abdomen was not a constant symptom. A whole lobe was more often involved than a part. The left lower lobe was the one most commonly involved. The right upper lobe and right lower lobe came next in frequency. The portion of the lungs involved was relatively the same in the fatal cases as in those which recovered. As a general rule, the area involved was larger in the fatal cases. The average duration of the fever in the cases that recovered was about eight days, being nearly the same in both years. The course was more often short in the first year, however, than in the second. As a rule, the average duration of the fever in the uncomplicated fatal cases was 12.5 days; that is, the duration of the fever was longer in the fatal cases than in those that recovered. The highest temperature was usually between 103 F. and 106 F., the number of crises being the same for each degree. The temperature fell by crisis in 68.8 per cent. Crises were less common in the first than in the second year. Collapse during the crisis was very unusual. Pseudo-crises were not very common, but irregularities and remissions in the temperature

were not at all unusual. The mortality was lowest when the temperature did not rise above 103 F., and highest in those cases in which it went over 106 F. The degree of fever between 103 F. and 106 F. had no apparent effect on the mortality. A high temperature was no more fatal in the second year than in the first year. The usual pulse rate was between 150 and 170. No case died in which the pulse was not over 140. The rate of the pulse, when it was above 140, had little or no apparent influence on the mortality. The usual respiratory rate was between 55 and 80. No case died in which the respiration was below 55. The rate of the respiration, when above 55, had no apparent effect on the mortality. The mortality, excluding the cases in which death was due to empyema, was nearly 23 per cent. It was almost twice as great in the first as in the second year, being 32 per cent. and 18 per cent. respectively. Otitis media was the most common complication, occurring in 18 per cent. Empyema was the next most frequent, occurring in about 8 per cent.

The prognosis of lobar pneumonia in infancy varies decidedly with the age of the infant, and to a certain extent with the amount of lung involved. The prognosis is good when the temperature is not over 103 F. It is serious when it is above 106 F. Variations between these points make little or no difference in the prognosis. The prognosis is good when the pulse is not over 140 or the respiration over 55. The amount of the increase above these limits is of little importance.

71. **Acute Myocardial Insufficiency.**—Forchheimer points out the large number of the acute myocardial insufficiencies developing in connection with the infections in childhood—scarlatina, diphtheria, rheumatic fever, septicemia, typhoid fever and pneumonia. For uncomplicated myocardial insufficiency the first principle in the treatment is absolute rest. The digitalis group of drugs may be used; their efficiency depends largely on the amount of myocardium affected. Predisposing causes should be controlled. Stimulants will be required in most of the cases, from alcohol to camphor or ether, according to the severity of the case. The convalescence must be especially guarded, and for the purpose of strengthening the myocardium mechanical means are invaluable—Swedish movements, massage, vibratory methods. The diet is the same as in all myocardial affections. Laxatives that act violently should be avoided. Strychnia may be used for its general tonic effects. Nitroglycerin should never be used unless there be anginous attacks. Care must be taken to exclude the existence of vasomotor paralysis, when nitroglycerin does harm. For the treatment of vasomotor paralysis, Forchheimer advises hypodermic injection of adrenalin. Inasmuch as its effects are transitory, the injections have to be repeated every two hours. Saline transfusions are used in the beginning in order to keep up the heart's contractions. Ice-bags are put on the abdomen to stimulate the splanchnic reflex. After the most violent symptoms have passed over, caffeine soda salicylate is given every two to four hours, alternating with adrenalin, which is gradually dropped.

73. **Percussion of the Skull.**—After careful investigation, Koplik advises that the MacEwen sign must be accepted with great caution in the case of infants below 2 years of age. It is one of the most useful signs of fluid in the lateral ventricles of the brain in various forms of meningitis, especially of the tuberculous type, and in tumors at the base of the brain. He emphasizes that in seeking this sign the patient must assume the sitting posture, as otherwise error is inevitable.

Medical Age, Detroit.

September 10.

- 75 Differential Diagnosis and Complications of Appendicitis. Daniel N. Eisendrath.
- 76 Headaches. G. W. Hunter.
- 77 Anemism of the Aorta. Charles L. Mix.

Medical Fortnightly, St. Louis.

September 10.

- 78 A Decade in the Profession. J. T. Woodward.
- 79 Mastoid Disease and the General Practitioner. H. Jurgens.
- 80 Diagnostic Therapeutics. A. L. Benedict.

American Practitioner and News, Louisville, Ky.

September 1.

- 81 Purulent Inflammation of the Mastoid Process and Its Terminations Illustrated with Cases. Adolph O. Pfingst.
- 82 Hydrophobia. C. A. Edden.
- 83 Massage and Electricity Versus Osteopathy. John English.

Merck's Archives, New York.

September.

- 84 Conium Maculatum and Its Alkaloids. J. M. French.
- 85 An Index of Diseases Alphabetically Arranged with Their Modern Treatment. G. Bjorkman.
- 86 Puerperal Eclampsia. R. C. Winterhaute.

Denver Medical Times.

September.

- 87 Case of Spleno-medullary Leukemia Cured by the X-ray. Thomas B. Eastman.

- 88 The Obstetric Anatomy of the Pelvic Soft Parts. T. Mitchell Burns.
- 89 Argument Supporting the Principles on Which "A Model Act" is Drawn. S. D. Van Meter.

Texas Medical Journal, Austin.

September.

- 90 Preventive Legislation in Forensic Medicine. Clark Bell.
- 91 Medical Treatment and Management of an Attack of Appendicitis—With a Review of Some of the Literature of the Subject Both Old and New. Boyd Cornick.

New York State Journal of Medicine, New York.

September.

- 92 Adenoids. Importance of Early Recognition and Removal in Children. Stephen W. Wells.
- 93 Acute Gastro-enteric Intoxication of Infants. G. F. Rice.
- 94 Some Diseases Demanding Prompt and Accurate Diagnosis. Allen A. Jones.
- 95 Some Encouragement in the Treatment of Malignant Growths. Benjamin W. Starns.
- 96 Eczema. Homer Geunig.

Vermont Medical Monthly, Burlington.

July 25.

- 97 Why is the Profession of Killing More Generally Honored Than That of Saving Life? Henry James.
- 98 Tuberculosis Dependent on Toxicemic States. T. D. Crothers.

Medical Examiner and Practitioner, New York.

September.

- 99 *Influence of Heredity on the Expectancy of Life. H. R. Frank.
- 100 *The Influence of Life on the Acceptance of Risks for a Life Insurance Company. Percy C. H. Papps.
- 101 *Expectancy of Life in Morbid Conditions of the Cardio-vascular System. Robert J. Dwyer.
- 102 *Expectancy of Life in Morbid Conditions of the Respiratory System. Edwin Ryan.
- 103 *The Nervous System in Relation to Life Assurance. H. C. Scadding.
- 104 *Life Insurance. James Thorburn.
- 105 *Expectancy of Life in Morbid Conditions of the Genito-urinary System. F. Le M. Grasset.

99.—*See abstract in THE JOURNAL of August 20, title 129, p. 573.

- 100.—*Ibid., title 135, p. 573.
- 101.—*Ibid., title 131, p. 573.
- 102.—*Ibid., title 132, p. 573.
- 103.—*Ibid., title 133, p. 573.
- 104.—*Ibid., title 134, p. 573.
- 105.—*Ibid., title 130, p. 573.

Atlanta Journal-Record of Medicine.

September.

- 106 Enterocolitis, Cholera Infantum, Dysentery and Painful Dentition. E. Van Goldtschoren.
- 107 Simple Method of Home Modification of Milk and Its Application in Infant Feeding. Louis C. Rougla.
- 108 The Relationship of Albuminuria to the Life Insurance Company. W. E. Wilmerding.

Memphis Medical Monthly.

September.

- 109 Some Thoughts on Needed Medical Legislation in Tennessee. Wm. Krauss.
- 110 Ulcer of Rectum. D. A. Walker.
- 111 The Diagnostic Significance of a Chill. B. F. Turner.
- 112 Effusion Following Pneumonia. J. D. Hopper.
- 113 Interstitial Hemorrhagic Cyst of the Stomach Wall—Traumatic. F. D. Smythe.
- 114 Typhoid Fever. Robert M. Sterratt.
- 115 A Few Jottings from the Swamps of South Arkansas. W. S. Robinson.
- 116 Abnormal Development of Genitals. Report of a Case. W. L. May.
- 117 Purulent Tympano-mastoiditis as a Sequel to Influenza. W. R. Hayale.

Alabama Medical Journal, Birmingham.

August.

- 118 Treatment of Puerperal Septicemia. Joseph T. Coulbourne.
- 119 Cancer of the Lip. E. J. W. Peters.
- 120 Perforation in Typhoid Fever. T. A. Casey.
- 121 Regarding the Widal Test. James S. McLester.
- 122 Fake Advertising in Religious Journals. E. H. Sholl.
- 123 Case of Spleno-medullary Leukemia. W. W. Harper.

Mobile Medical and Surgical Journal.

August.

- 124 Typho-malarial Fever. W. F. Betts.
- 125 "Psychic Impressions as a Therapeutic Agent." Stephen C. Henderson.
- 126 Hyoscin. W. McLean Pitts.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

September 17.

- 1 Discussion on the Prophylaxis of Malaria. Drs. Stephens, James, Ross, McLeod, Manson and others.

- 2 *Discussion on the Leshman-Donovan Body. Drs. Leshman, Donovan, Manson, Bruce, Hutchinson and others.
3. Supplementary Notes on the Tsetse Fly. E. E. Austen.
- 4 *A New Trematode of Man. H. F. Conyngham.
- 5 A New Trematode. John Catto.
- 6 The Fungus of Tinea Imbricata. P. W. Bassett-Smith.
- 7 The Congo Floor Maggot. J. E. Dutton, J. L. Todd and C. Christy.
- 8 *Leprosy—a Curable Disease. T. J. Tonkin.
- 9 Climatic Bubo from Which an Organism Was Cultivated. James Cantile.
- 10 Antivenin in Snake Bites. Leonard Rogers.
- 11 Infectious Jaundice. F. M. Sandwith.

2.—See abstract in THE JOURNAL of September 3, p. 690.

4. **A New Trematode.**—The amphistoma Watsoni, isolated from the small intestine of a negro who had died of starvation and diarrhea, is described by Conyngham as being pear-shaped, flattened ventrally and slightly indented posteriorly, at the margin of the posterior sucker, and of a dark slate color. The anterior sucker is retracted and lies at the bottom of a sulcus, which is terminal and ventral; the posterior sucker being sub-terminal and ventral. The genital pore lies about a quarter of the length of the parasite from the anterior end, and is rather prominent. The cuticle of the body is marked with transverse ridges, these being coarser and better defined on the ventral surface; the latter is flattened, surrounded by an elevated ridge and bulges posteriorly. The worms measure 8 mm. long, 5 mm. at the point of greatest breadth, this tapering gently anteriorly to 2.5 mm.; their greatest thickness is about 4 mm.

8. **Leprosy.**—Tonkin supports the proposition that leprosy is a disease not only markedly amenable in any of its grades to intelligent direction, but one from which, both with and without treatment, recovery may take place. He believes that leprosy is a disease that often yields to the influence of improved circumstances, whether that improvement be the result of wise supervision in an institution or a fortunate course of events outside. He urges the importance of the recognition by the profession as well as by the laity of the curability of the disease, as in this way only can the authorities be made to adopt such measures as will tend toward a cure of the disease.

The Lancet, London.

September 17.

- 12 *The Surgical Treatment of Acute Intestinal Obstruction. Arthur E. Barker.
- 13 Some Remarks on Twenty-three Cases of Typhsalpinx. E. S. Bishop.
- 14 The Red-light Treatment of Smallpox. (Supplementary paper.) T. F. Ricketts and J. B. Byles.
- 15 Inspection of the Antrum of Highmore. J. Brown Kelly.
- 16 The Visual Fields in Tobacco Amblyopia. N. Bishop Harman.
- 17 Cancer Facts and Cancer Fallacies. Herbert Snow.
- 18 Case of Spontaneous Gangrene of the Skin in a Hysterical Female. W. A. Mearns.
- 19 *Case of Bullet Wound of the Brain. Wm. Sheen.
- 20 Case of Congenital Word Blindness. Sydney Stephenson.
- 21 Ten Cases of Epithelioma of the Tongue in Women. Charles R. Keyser.
- 22 *The Plate Cultivation of Anaerobic Bacteria. H. S. Frenlin.

12. **Intestinal Obstruction.**—Barker calls attention to the fact that too much stress has been hitherto laid on the mere removal of the mechanical stoppage and not enough on the evacuation of the putrid material which is killing the patient. The older method of emptying the bowel by colotomy is unsatisfactory as the bowel is in a state of paresis or complete paralysis and expels its contents very slowly, so that until it is cleaned out the cause of the paralysis remains in great part. The best course in many of these cases, probably in all, that are still within the reach of any operative procedure, is to resect the tract of paralyzed and distended bowel at once. This does not apply to recent cases where the bowel is not seriously damaged by the retained feces and is manifestly sound at and above the seat of obstruction. Barker does not establish drainage in most cases, but closes the abdomen at once unless there be general peritonitis, having a great belief in the power of the peritonium to take care of itself. The after-treatment is of extreme importance. Patients should in all instances sit up in bed from the first as much as possible, and only lie down for sleep, so as to overcome the tendency to hypostatic pneumonia. They should begin at once to take a mixture of 10 grains of

carbonate of bismuth three times daily, which he believes to be the best intestinal antiseptic. Albumin water, with 1 dram of brandy, should be given from the first, by mouth, in small quantities, and nutrient enemata and instillation under the skin of normal saline solution or 5 per cent. solution of glucose is recommended as a routine procedure. Half a liter morning and evening may be given, if necessary. It is not well to check a diarrhea, as this material must be evacuated before the patient is safe. Bismuth cleanses the gut and so arrests the diarrhea. Cold sponging and warm drinks will take care of the possible temperature. If the fever is due to pulmonary emboli or pyelitis, the general strength should be sustained by the use of the usual stimulants.

19. **Bullet Wound of the Brain.**—In the case related by Sheen the bullet was located by the x-ray, without which, says the author, surgery is helpless. The skiagrams in this case were taken laterally and antero-posteriorly, and localization was performed by the double impression on the single plate and the MacKenzie-Davidson cross-thread localizer. In the diagnosis, stereoscopic views are of great help, giving in the matter of relations and direction confirmation of other methods of localization. Stereoscopic views of foreign bodies lying deep in the cranial cavity do not, however, give a very clear idea of the exact depth, owing to the absence of intervening landmarks. From the stereoscopic plates a "plastographic" view was made, one print in green being superimposed on the other in crimson, to be viewed through green and crimson glasses. This is the first time the method has been applied to x-ray work, and the author suggests that there may be a future for it as a means of illustrating stereoscopically x-ray photographs in medical journals.

22. **Anaerobic Plate Cultures.**—To carry out the process required for the establishment of anaerobic conditions in plates, Frenlin's method of procedure is as follows:

The rim of the chamber is well vaselined, the plates are placed in the stand, and a small test-tube of ordinary sugar bouillon or other reducing fluid colored with a drop of saturated alcoholic solution of methylene blue, is placed in the support provided for it. Eight grams of pyrogallic acid are first introduced into the chamber, followed by 80 c.c. of a 10 per cent. solution of caustic potash. The stand carrying the plates and tube is now lowered into the chamber by the handles and the lid is carefully put on. The whole apparatus can then be incubated. The process of the absorption of oxygen from the chamber and its contents by means of the alkaline pyrogallic solution can be noted by observing the change in color of the methylene blue indicator; as anaerobiosis is established the color entirely disappears. If the color does not disappear it is evident that there is a fault either in the apparatus or technique, and this must be found and remedied. It must be remembered that the absorption of oxygen within the chamber causes a considerable tendency to leakage of air inwards which must be prevented by careful attention to the seal. Bacteriologically the results obtained in this large chamber are quite satisfactory and bacillus tetani can be readily grown in it.

Indian Medical Gazette, Calcutta.

August.

- 23 *Case of Malignant Dermoid Cyst of the Neck. D. M. Moir.
- 24 *Carbolic Acid Treatment of Plague. Mir Hidayatullah.

23. **Malignant Dermoid Cyst.**—Moir gives the history of a patient with a large tumor covering the whole of the right side and front of the neck, and overlapping the chest to the level of the second rib. The tumor resembled an inoperable sarcoma, but on palpation a distinct thrill was felt. The tumor mass was removed by excision, and on microscopic examination of the tissue the tumor was found to be a tubulodermoid with cystic degeneration, taking its origin in a persistent branchial cleft the epithelium of which had undergone carcinomatous change. All the evidence in the case showed that the cyst was not the result of the softening of a metastatic deposit in the cervical glands, secondary tube, and epithelomatous growth in the mouth or nasopharynx, but was due to the distension of a tubulodermoid resulting from the imperfect closure of one of the branchial clefts, probably the third, epithelium of which had undergone the carcinomatous change.

24. **Carbolic Acid Treatment of Plague.**—The author has had considerable experience with carbolic acid in the treatment of plague, and when given in large doses in the commencement of the disease it has proved very useful. The acid was given in 12-grain doses every second hour to adults and in smaller doses

to children. It was given dissolved in water and sweetened with syrup and sandalwood, colored with a little tincture of cardamon. He gave it well diluted and advised his patients to drink large amounts of diuretic, cooling drinks, especially the water of watermelon and ordinary melon seeds ground in a mortar and mixed with water. Cardiac tonics such as digitalis, strychnin and rum were given, when necessary, as in the old or weak. In favorable cases the temperature fell several degrees within forty-eight hours, and within five days of the commencement of the treatment, the temperature was normal. Of 18 cases treated in this way, 12 were cured, and 6 died; 17 were bubonic cases and 1 was septicemic. Of those who died 5 were bubonic and 1 septicemic. In only 2 of the 18 cases was carbolic acid poisoning discovered, but this promptly disappeared on reducing the dose. The author concludes that septicemic cases are not influenced much by the use of carbolic acid.

Journal of Laryngology, Rhinology and Otolaryngology, London.

September.

25 President's Address. Urban Pritchard.

26 *Some Observations on the Mode of Origin of Nasal Polypi. Eugene S. Yonge.

26. Origin of Nasal Polypi.—A careful microscopic study was made by Yonge of the nasal mucous membrane with a view to determining the changes that take place during polypus formation, from the inception of the process to its completion. He submits the results obtained, from which he draws the following conclusions: 1. In the majority of instances, mucous polypi are probably consequent on and certainly coincident with inflammation of the mucous membrane of the nasal cavity. (2) The primary mechanical process is a localized edema of the inflamed mucous membrane, which edema, on account of certain structural peculiarities of the lining membrane, does not, in the great majority of cases, develop in any intranasal area, but that of a portion of the middle turbinal and of the middle meatal region. Analogous structural peculiarities are present in the mucous membrane of some of the accessory sinuses. (3) The determining cause of the edema in the regions specified is the degeneration and cystic dilatation of the mucous glands. (4) The particular shape which polypi usually assume, their number, probably the appearances of recurrences in some instances, and other special peculiarities of these growths are due to the edematous mucous membrane being thrown into folds and to the normal folds becoming edematous. Certain of the folds quickly increase in size by the absorption of serous fluid and favored by gravity, and finally present the appearance of ordinary mucous polypi. (5) The "polypoid" outgrowths which take origin on the inferior turbinal and more rarely on the septum, generally differ markedly in microscopic structure from mucous polypi, and although they claim a common inflammatory origin, these conditions are distinct, principally on account of the dissimilar structure of the nasal regions from which they respectively take origin. Yonge is arranging to conduct some experiments with a view of producing mucous polypi artificially in animals, on the basis of the causative influence of glandular changes.

Semaine Médicale, Paris.

- 27 (XXXIV, No. 35.) Le traitement chirurgical du chancre mou (of soft chancre). Carle (Lyons).
- 28 Malarial Infection from Mosquitoes in a Ship on the Open Sea. G. Reynaud. Abstract.
- 29 Acute Edema of the Lungs as Epileptic Equivalent. U. Alessi. Abstract.
- 30 (No. 36) *De la talalgie et de son traitement chirurgical. E. Vincent.
- 31 Asthmato-genic Action of Dust from Certain Lime and Clay Soils. Mollé. Abstract.
- 32 Temperature of Nursing in Relation to Menstruation of Mother. Weill. Abstract.
- 33 Bacteriology and Pathogenesis of Infectious, Disseminated Gangrene of the Skin in Children. Auché. Abstract.
- 34 Two Cases of Ossification of the Crystalline Lens. E. Aubineau. Abstract.
- 35 Experimental Study of Gouty Deposits. J. J. van Loghem. Abstract.
- 36 Acute Cholecystitis. G. Scanni. Abstract.

30. Talalgia and Its Surgical Treatment.—Vincent remarks that the talalgia may be caused by a hygroma of the serous bursa or by an ossifying process with hyperostosis most marked at the points of attachment of the muscles and tendons, but the most common form is that not accompanied by any deform-

ing process. Whatever the lesion, it is always accompanied by a neuritis of either central or peripheral origin, as the primal disturbance is always due to the action of some toxin. Generally the toxin is secreted by the gonococcus, but other agents can sometimes be incriminated. The action of the toxin in question is restricted to the region of the heel. In one case it induces the formation of a hygroma, in another an ossifying process, in another the bone and tendon tissue is affected, but the nerves of the region suffer in every contingency, with the neuritis as the result. Treatment to be effectual must remove the cause, that is, clear out the toxins, when order will be restored at once. Medical treatment should be given a trial first, rest, revulsion along the spine, hydrotherapy, local massage and dry hot air. If this fails or gives but transient relief, an incision about 6 cm. long down to the bone, under local anesthesia, will allow all the proliferating tissue to be scraped out and the serous bursa ablated, no matter whether it appears diseased or not. The fibrous tissue should be scraped and abraded. This procedure facilitates the absorption of the toxins and may possibly destroy the nerve filaments which are suffering from the neuritis. The result has always been a complete cure in his experience, even of the most rebellious, long-established cases.

Centralblatt f. d. Grenzgebiete, Jena.

Last indexed page 158.

- 37 (VII, No. 9.) *Rectal Feeding. F. Reach.—Ueber Rectalernährung. (Commenced in No. 5.) Critical review of the literature.
- 38 *Appendicitis und weibliches Genitale (female genitals). R. Pollak. (Commenced in No. 5.) Critical review of the literature.
- 39 (No. 11.) *Ueber Hari (Akupunktur) und Kjin (Moxenbehandlung) in Japan (revulsion and puncturing). E. Okada.
- 40 (No. 13.) *Heart Defects and Pregnancy. R. Pollak.—Herzfehler und Schwangerschaft. (Commenced in No. 10.) Critical review of the literature.
- 41 (No. 14.) *Die Bedeutung der Leukocyten für die Diagnose intrabdomineller Eiterungen (suppurations). R. Türkel. Critical review of the literature.
- 42 (No. 15.) *Irritable Bladder. M. Hirsch.—Die reizbare Blase. Critical review of the literature. (Commenced in No. 13.)
- 43 *Das mal Perforant. C. Adrian. (Commenced in No. 9.)

37. Rectal Feeding.—From his review of 128 articles on the subject of feeding by the rectum, Reach thinks we can safely count on the carbohydrates being absorbed by the rectum in considerable amounts and utilized by the organism, although the absorption is not complete. Fats are not taken up well in nutrient enemata, but their absorption can be promoted by addition of pancreas, which has also a favoring action on absorption of albumin. The opinions of various authors in regard to absorption of albumin vary widely. Individual conditions have much to do with it. The use of predigested albumin does not seem to offer any advantage, especially as such substances easily irritate the intestine. Casein and milk are not adapted for rectal feeding; Reach's personal experience has corroborated the general views in this respect. In regard to absorption of egg albumin, experiences have differed. It is certain that it is not absorbed in many cases, and defibrinated blood not much better. There is no reason for preferring the albumins to the carbohydrates; the arguments are all on the other side. In cases in which the nutrient enemas are merely supplementary to ordinary feeding, the carbohydrates are much superior. Dextrin deserves particular attention in this respect. The slight stimulating action exerted by the carbohydrates can be increased by the mode of using them and by addition of opium. At best, however, rectal feeding is unable even approximately to supply the requisite amount of energy even for debilitated bedridden patients. Reach concludes with the indications for rectal feeding and the technic. He remarks that the physician very often deceives himself when he thinks that he is making a "high" injection.

38. Appendicitis and Female Genitalia.—Pollak concludes from his study of 300 recent articles by writers of various nationalities, that the German operators are becoming converted to the principles of the American and French surgeons in regard to the advisability of prompt operating in appendicitis. The various views in regard to the connection between the genitalia and appendicitis and the modes of treatment are discussed in detail.

39. **Revulsion and Acupuncture in Japan.**—Okada's communication was presented at the Austrian Congress of Neurology last May. It was accompanied by specimens and views of the measures described. The "kju" is a kind of fibrous vegetable substance which is sold in the shape of small cylinders about 5 mm. long and 1.5 to 4 mm. thick. One is placed on the skin, slightly moistened to make it adhere, and it is then lighted. It burns or, rather, glimmers slowly, and exerts a mild thermal irritation on the skin. When it is desired to have the irritation stronger the cylinder is applied several times to one spot and an irritating salve is rubbed in. It is sometimes applied with pressure. The fibrous substance is compressed into a sausage-like roll about 18 cm. long, very compact and hard. A few layers of paper are placed on the skin and the "kju" is lighted and applied, pressing it down into the paper. As it can not get air, it burns very slowly and merely scorches without burning the paper, causing an agreeable sensation of warmth and pressure at the spot. The "kju" was known and used fully 1,350 years ago, but was then forgotten for a thousand years. It is a favorite remedy for neuralgias, headache, etc., and although practiced now only by charlatans or by physicians of the old Chinese school, yet to this day it is in use in families from the lowest to the highest. The instrument used for acupuncture is a long, fine gold or silver needle, scarcely thicker than a hair, 4 to 6.5 cm. in length, mounted in a metal handle, and with a protecting guide outside. It is inserted up to the hilt, and the procedure is scarcely at all painful. The points where this acupuncture is allowable are carefully defined. Okada thinks that the points have been empirically determined by the track of an aching nerve, as they follow the nerve in some instances and in others not. The extremities are the favorite points, and it is assumed that acupuncture of certain fingers or toes has a distant action in curing certain affections such as eye troubles, toothache, etc. Okada has had the "kju" applied to his own person several times. Once or twice it was done as a tonic measure, and a few times as a punishment for some boyish prank. He does not attempt to estimate the therapeutic value of these procedures, as he has had so little experience with them. He regards them as harmless and beneficial to a certain extent. He has witnessed violent colic subside under the influence of a few applications of the acupuncture, but does not venture to say how large a share suggestion may have had in the result.

40. **Heart Defects and Pregnancy.**—Pollak draws no special conclusions from the 245 articles which he summarily reviews, but his article presents a good picture of the views and practices of the leading clinicians of the day on this subject.

41. **Leucocytosis in Intra-Abdominal Suppurations.**—Turkel discusses the question as to the diagnostic import of leucocytosis in these cases, citing the views of nearly seventy authors on the subject, with their clinical experience in regard to the blood findings. In conclusion he emphasizes the four points which must never be forgotten in diagnosing by this measure: 1, exclusion of concurrent causes for the leucocytosis; 2, repeated determination of the number of leucocytes; 3, large numbers of leucocytes (20,000 to 25,000), with indications of involvement of the peritoneum, and finally, that negative findings should never be cited as evidence.

42. **Irritable Bladder.**—Hirsch draws the clinical picture of irritable bladder from his own clinical experience and study of 124 articles. He regards it as a well-defined symptom-complex whose clinical basis is an objectively evident hyperesthesia of the bladder mucosa. It may occur with or without pathologic findings. The latter is the nervous variety, the other is accompanied by simple, non-inflammatory hyperemia. They differ slightly in their manifestations and materially in their etiology and therapeutic indications. Irritable bladder entails in time a number of consequences which usually render the affection irreparable. Even without these, it is a very obstinate trouble, owing to the vicious circle which becomes established between the urinary impulses and the hyperemia of the mucosa. Treatment is generally very slightly effectual, as is evident from the large number of measures proposed for

the affection. It has been called by various names, but that of irritable bladder or hyperesthesia vesicæ is by far the most suitable.

43. **Mal Perforans.**—Not much has been written on the subject of mal perforans that has escaped Adrian's vigilant search, as is shown by his bibliography of 445 titles. He reviews the various articles cited and discusses the always grave prognosis and the treatment. The latter should be mainly prophylactic in persons predisposed by tabes, diabetes, etc. Their footwear should be carefully adapted to avoid pressure on the site elected by mal perforans. Cleanliness and rest in bed are the chief factors in treatment and the lesion may heal in time. Instances are on record in which a complete cure followed absolute rest in bed for a month. Caustics should generally be avoided. The outcome of treatment generally depends on the underlying affection. Cures have been reported from the constant and induced electric current, and from galvanism and faradism, or their combination. Thyroid substance has been tried without avail, as also elastic compression. Mercurial treatment has been successful in certain cases, but not in others. Surgical treatment fails when an affection of the spinal cord is the fundamental trouble. Cases due to arteriosclerosis usually indicate amputation, as gangrene is almost sure to develop sooner or later. Treatment is most promising in the cases due to peripheral paralysis following traumatism. The longer the interval since the injury and the larger the space between the stumps of the severed nerve, the less certain the results, although in one case on record the severed nerve was sutured a year after mal perforans had developed. The ulcer healed soon after the nerve had been reunited. Chipault's method of treating mal perforans by stretching the tibialis or its branches after excision of the ulcer has been tried in 79 cases, with immediate success in all but 10. Of the few cases followed for more than a year 3 are known to have been completely cured for two years, 6 for three, 4 for four, 2 for five, and 1 for six years. This permanence of the result of this "elongation trophique," as Chipault calls it, certainly warrants further trials. Delagenière prefers to expose the nerve for a considerable extent and dissociate its fibers, separating the nerve into its elements and destroying all the vessels which accompany the nerve, in order to thoroughly modify the previous conditions. He cured by this means a bilateral mal perforans in a man of 27. He calls it "hèravage," that is, the harrowing of the nerve, borrowing an agricultural term.

Deutsches Archiv f. klinische Medizin, Leipsic.

Last indexed page 861.

- 44 (LXXX, Nos. 3-4) Sebom in Health and in Cutaneous Affections. P. Linser (Breslau).—Ueber den Hauttaug beim Gesunden und bei einigen Hauterkrankungen.
- 45 Ueber Urin und Urin-Sedimente bei normalen Personen, bei rheumatischen Erkrankungen und nach der Einwirkung von Salicyl-Präparaten. C. Killeberger and R. Osentius.
- 46 Ueber die Haut-Temperatur des gesunden Menschen (skin temperature in health). J. Oehler (Tübingen).
- 47 Die Typhus-Bewegung auf der med. Klinik in Kiel von 1885-1902, nebst Bemerkungen über die Abkühlung durch Wasserlassen (cooling with water cushion in typhoid). W. Pfeiffer.
- 48 Ueber Pseudo-Aszites als Folge-Zustand chronischer Enteritis. L. Töbler (Heidelberg).
- 49 Ueber die Viskosität des menschlichen Rintes bei Schwitz-Verfahren (blood during sweating). F. Lommel (Jena).
- 50 Ueber die Adipositas dolorosa. Schwabenbecher (Tübingen).
- 51 Ueber natürlliche und künstliche erzeugte Leukotoxine. H. A. Christian (Boston).
- 52 Congestio-Checking Action of Cobra Venom. P. Morawitz (Tübingen).—Ueber die gerinnungshemmende Wirkung des Kobrasgiftes.
- 53 Eotropin bei Schanflach zur Verhütung von Nephritis (prophylaxis in scarlet fever). Rittersack (Heilbronn).
- 54 Portal Thrombosis and Changes in Liver. F. Steinhaus (Dormmund).—Ein seltener Fall von Pfortaderthrombose mit hemorroidischer Infarzierung und Nekrotisierung der Leber (zueleich ein Beitrag zu den Veränderungen der Leber nach Pfortaderthrombose).
- 55 Ueber Hæmophilie und Wirkungsweise der Hæmagglutinine. K. Siek (Tübingen).

45. **The Urine in Health, in Rheumatic Affections and After Salicylic Medication.**—The research reported from Frankfurt shows that normal persons exhibit traces of albumin in the urine to a proportion of fully 58 per cent. of all normal subjects. The normal urine is also liable to contain particles cast off by the kidneys, the same findings as are encountered in afebrile rheumatic affections. In the febrile cases the find-

ings are the same only in more pronounced degree. The febrile rheumatic affections induce a toxic "nephritis" which manifests itself clinically by an increase in the formed elements, especially of the granulated tube casts. This "nephritis" heals under the salicylates. The latter also are liable to induce a characteristic "nephritis," which, however, heals under their continued administration. The findings in 10 out of 93 normal subjects examined are tabulated, as also 5 out of 13 cases of afebrile rheumatic affections, and 5 out of 53 febrile rheumatic cases. The most interesting tables are those of 3 typical examples out of 66 cases under salicylate treatment. Fully 1,200 separate examinations were made, with an average of 17 to 19 or more in each case.

46. Cutaneous Temperature in Health.—Among the points learned in the research reported by Oehler is the fact that the temperature of the skin grows less when food is withheld. When food is being taken the skin and rectal temperature run a parallel course, although the external temperature has more influence naturally on the former.

47. Cold-Water Bed in Treatment of Typhoid.—This article reviews the experiences at Kiel with 513 cases of typhoid. It is the practice at Quincke's clinic, whenever it is deemed inadvisable to move the patient for the Brand baths, to spread an empty rubber water-bed between the mattress and the sheet. It is then pumped full of water, using about 50 quarts for adults and 33 for a child, at a temperature of 50 to 64 F. It is refilled once to three times a day. The patient's temperature is not so abruptly lowered by this water-bed as when a cold bath or pack is used, but the reduction is much more permanent. It is particularly useful in case of intestinal hemorrhage, heart weakness, peritonitis, thrombosis or whenever muscular exertion from any cause is to be avoided. It also tends to prevent bedsores. Its place is to supplement, not substitute, other hydratic measures. In case of somnolence or when it is necessary to stimulate the circulation the cold bath is preferable. The water-bed is especially useful when the nursing personnel is limited. It is a rubber bag about a yard long by three quarters of a yard wide or a trifle larger. It is filled by siphon action from a vessel standing about four feet from the floor. Out of the total 513 cases discussed, 360 were treated with cold water and 157 by the water-bed, but only 72 by the latter alone. In 85 cases baths and packs were used in combination with it. A rectal temperature of 39.5 C. (103 F.), is the signal for cold water in some form.

48. Pseudo-Ascites as Consequence of Chronic Enteritis.—See editorial, page 116.

53. Urotropin to Prevent Nephritis in Scarlet Fever.—Buttersack's indorsement of the prophylactic use of urotropin has attracted much attention (see THE JOURNAL, xli, page 1309). In the dosage he advocates .05 to .5 gm. three times a day—there need be no fear of disturbances, even in case of recent nephritis. When it is not given as a preventive during the entire course of the disease it should be administered at the first trace of albumin in the urine. He explains its action as due to the liberation of nascent formaldehyd in the glomeruli and tubules, neutralizing the scarlatinal toxins or destroying the bacteria exactly at the points where the morbid process starts. His experience was limited to 10 cases, but he relates the details of 3 in which the typical scarlet fever followed soon after diphtheria or rheumatic endocarditis, with an evident predisposition to trouble on the part of the kidneys. There was not a trace of nephritis in a single one of the 10 children treated with the urotropin or some similar preparation.

Münchener medicinische Wochenschrift.

- 56 (LI, No. 33). *Desinfektion der Gallenwege und innere Antisepsis. F. Kuhn (Carlsruhe).
 57 *Serum Treatment of Articular Rheumatism. Menzer (Halle).—Die Ergebnisse der Serumbehandlung des akuten und chronischen Gelenkrheumatismus.
 58 Heart Weakness and Morphine. O. Rosenbach.—Herzschwäche und Morphium Injektion.
 59 Ueber spezifische Beeinflussung der diastatischen Ferment im Bluteserum bei Zufuhr verschiedener Kohlehydrate. M. Ascoli and A. Bonfanti.
 60 Ueber Digitalin (digitoxinum solubile). M. Cloetta.
 61 Hysterical Stuttering. L. Merzbacher.—Kasuistische Beiträge zur hysterischen Artikulationsstörung, speziell des hysterischen Stotterns.

- 62 *Zur Pathogenese der Polyenteritis. S. Auerbach.
 63 Disseminirte Pat. Tlisse Necrosis of Abdominal Cavity with Pancreas Intact. Häfner.—Ausgedehnte disseminirte Fettgewebsnekrose der Bauchhöhle ohne Erkrankung des Pancreas.
 64 Ueber das Endothellom der Nasenhöhle (of nasal fossa). F. Röpke.
 65 Simplifizierte Tamponing for Cavities. Präüss.—Eine Vereinfachung der Tamponade.
 66 Ohne oder mit "Rapid-Tamponator" (with or without). R. Putz (Meran).

56. Effective Internal Disinfection of the Biliary Passages.—Kuhn has been applying in the clinic the results of his experimental research in this line. As he has previously reported, thymol, menthol and the salicylates are the only drugs out of a long list tested which displayed any efficacy in this respect without serious by-effects. Salicylic acid passes into the bile in large amounts and even in a comparatively weak concentration checks the fermentation of the bile. All the numerous tests resulted positively, and justify the assumption that the salicylates can be used for effectual disinfection of the biliary passages. Exhibition of the salicylates, therefore, in cases of cholangitis and cholecystitis is to be commended to the general practitioner. Further tests of a combination of two or more of the above mentioned drugs seemed to demonstrate a still more effectual action. He found that the gas-producing power of the bile derived from a biliary fistula was very much reduced when the subject was under the influence of the salicylates alone or combined with menthol or thymol. Bile from a biliary fistula exhibits progressive fermentation, but when the subject has been taking the above drugs the fermentation is much less intense and subsides much earlier. The effect of the drugs is not perceptible until after they have been duly absorbed and it lasts for some time after they have been suspended. The best internal medication in case of inflammation in the biliary passages is, consequently, salicylic acid and its salts. Kuhn lauds his method of determining the gaseous products as an accurate test of the decomposition of a fluid. He regards it as a physiologic-chemical test, more delicate than chemical analysis. It would be difficult by the latter alone to recover the salicylic acid in the bile, while its fermentation-inhibiting action is unmistakably apparent even with minimal amounts present. He adds a trifle of sugar, infects with a little intestinal content, and sets the vessel in the incubator at 37 C., examining it at four-hour intervals to note the production of gas. The results of the various experimental and clinical tests are tabulated, the findings all emphasizing that in salicylic medication we have a powerful weapon on our command for controlling inflammatory processes in the biliary passages. Among the subjects with biliary fistulæ treated with the salicylates was one whose bile displayed a gas-forming power as follows: After addition of 1 per cent. sugar and infection with a little fecal material and incubation at 37 C., the amounts of gas in the fermentation tubes at the fourth, twelfth, twenty-fourth, thirty-sixth and forty-eighth hours were respectively 1, 3, 5, 8 and 10 cm. These same figures were found at every repetition of the test. On the other hand, after sodium salicylate had been given the patient in 1 gm. doses every four hours, the amount of gas that formed was only .2, .3, .8, 1 and 2.5 cm. at the corresponding hours. Aspirin displayed nearly as much efficacy in the same dosage, the amount of gas being .8, 1.5, 2, 3, and 3.5 cm. at the corresponding hours.

57. Success of Serum Treatment of Articular Rheumatism.—THE JOURNAL has previously described Menzer's successful application of an antistreptococcus serum in the treatment of articular rheumatism. Two years of experience have confirmed its efficiency for both acute and chronic articular rheumatism. It transforms the latter into a curable form, it seems to provide much better chances for recovery from endocarditis, and further seems to protect against recurrences better than any other means known to date. He groups his results in tabulated form. They include 29 acute and 22 chronic cases, with 3 in which the treatment was first applied in a recurrence, and 2 of chorea. He found that the appetite was always good under the serum treatment, and the general health did not suffer as under drug medication.

62. **Pathogenesis of Polyneuritis.**—In the case reported the multiple neuritis observed was ascribed to the subject's occupation, with an alcoholic predisposition. He had been a busy waiter in large hotels or restaurants for years, and the neuritis affected his legs and the muscles used in carrying and balancing his load of dishes.

Therapie der Gegenwart, Berlin.

- 67 (XLV. No. 9.) *Humidity of Air as Factor in Heat. F. Frankenhäuser.—Die Luftfeuchtigkeit als Wärmefaktor.
 68 *Ueber Puffertungs-Kuren (reduction of obesity). K. Bornstein (Leipzig).
 69 *Ueber den Einfluss des Curare bei Tetanus. P. Bergell and F. Levy.
 70 *Ueber die Wirkung der Radium-Emanation auf bösartige Tumoren (cancers). A. Braunstein (Moscow).
 71 Zur Behandlung des Plattfußes (flat foot). A. Sachs.
 72 New Remedies and Measures for Idiary Lithiasis. G. Klempfner.—Ueber neue Mittel gegen die Gallensteinkrankheit.

67. **Humidity of the Air as a Factor in Heat.**—Frankenhäuser thinks that in order to apply Dalton's law to the human body we must modify it to read that the rapidity of evaporation from the surface of the body is proportional to the difference between the molecular pressure of the vapor escaping from its surface and the molecular pressure of the moisture already in the air. He has been studying the question at the Hydrotherapeutic Institute of the University of Berlin, and emphasizes the importance of this law for practical hydrotherapeutics. He estimates the pressure of the vapor from the lungs as approximately 43 mm.; of the naked, wet body at 48 mm., and of the lightly clothed body as 9.5 mm. at 15 C.; 14.7 mm. at 20 C., and 23.6 mm. at 25 C. The results obtained from various hyriatic measures vary as the humidity of the air of the room allows free evaporation from the surface of the body or not. When the evaporation is too rapid the subject is liable to be chilly, the vitality depressed, and he "catches cold" on coming out. When the temperature of the bathroom is 22.3 C. and the humidity 69, the pressure of the moisture in the air is equivalent to 13.6 mm. The actual heat in such a room, according to Dalton's formula, would be 22.2 plus twice 13.6. This is equal to 49.4 C. (121 F.). With a temperature of 20 C. and pressure of 27 mm. the actual heat of the room is 28 plus twice 27, equal to 82 C. (180 F.). In the steam room of a "Russian" bath, with a temperature of 46 C. and pressure of 75.16 mm., no evaporation from the body can take place; there is actual condensation on its surface and thus heat is added to it. The actual heat of such a room is equal to 196.4 C. On the other hand, a "Roman" bathroom with a temperature of 80 C. and 3 mm. pressure, has an actual heat of only 80 plus twice 3, equal to 86 C.

68. **Reduction of Obesity.**—Bornstein's principles of treatment of obesity include an abundant supply of albumin, as this imparts vigor to the cells. It is not necessary to give it in the form of meat. He allows a certain amount of fats, too, as they tend to reduce the appetite for other foods. He also allows soups and beverages, regarding the former as pre-eminently adapted to satisfy hunger by filling the stomach while supplying very little nutrient material. The patients should under-eat, but not go thirsty. They should satisfy their hunger with vegetables, soups, etc., and build up on albumin and exercise. They come out of the course with considerably more albumin in their tissues, although their obesity is reduced and they have not been hampered by the annoying restrictions of the usual anti-fat diet.

69. **Influence of Curare in Tetanus.**—After much experimental research, which is described in detail, as carried on at von Leyden's clinic, curare was used in the treatment of 3 clinical cases of tetanus. The results are a confirmation of the favorable experiences of Vella and Hoffmann in an early day. Modern scientific methods have enabled these experiences to be repeated on a large scale, avoiding the risks on which the early experimenters were shipwrecked. Claude Bernard first proclaimed the importance of curare in tetanus, and the present research has confirmed his view that it is the most important and most valuable symptomatic means at our disposal for the treatment of tetanus. The curare was used in the form of curaril, a preparation made in Berlin, which is durable, cen-

stant and pure, capable of very exact dosage and free from cumulative action. The tetanic convulsions of animals can be temporarily arrested, or at least allayed, and the course of the disease rendered much milder under the influence of curaril. In the clinic the curaril arrested the severe tetanic convulsions in one case for two hours, without displaying the slightest by-effect. In another, milder case, the convulsions were permanently controlled with the drug and the patient recovered. The curaril does not cure the tetanus, but it seems to effectually control and arrest the tetanic spasms, and is thus able to tide the patient past the stage of danger from suffocation by spasm of the muscles of respiration. It does not combat the fever nor heart weakness. Serum treatment is still indicated as before. The antitoxin binds the poison circulating in the blood, while the curaril controls the threatening symptoms caused by the poison that has already entered into combination with the cells. Morphin and chloral are still indicated also as sedative and narcotic, but the abolition of the spasms is the most important indication and this apparently can be accomplished with the curaril.

70. **Action of Radium Emanations on Malignant Tumors.**—Braunstein announces that he has benefited a number of cases of cancer by injection of a radioactive water or ingestion of radioactive bismuth. He produces the radioactive water by dissolving .1 to .2 gm. radium chlorid in water, distilling it in a Würzburg jar with a Liebig apparatus. The distillate is a radioactive fluid which he calls aqua beta, and uses for local injection into accessible tumors. For treatment of cancer in the stomach or esophagus he produces a radioactive powder by placing radium bromid, in substance or in solution, in a jar with some bismuth and leaving them in contact three to five days. The radioactive powder thus obtained he calls bismuth beta. It is applied topically or by ingestion. In these two forms the radium emanations have a marked and direct therapeutic action on the malignant growth, while they do not entail ulcerations. As the radium is capable of giving off these emanations indefinitely, it can be used over and over again. The radioactive bismuth lodges at the narrow part of the esophagus in case of a cancerous growth, and exerts its specific action exactly at the point where it is needed. Injection of the radioactive water into the tumor is followed by the destruction of the cancer cells without injury to the skin or surrounding tissues or ulceration of the surface of the cancer. The action of the emanations seems to be that the cancer cells are primarily and directly devitalized and are then absorbed. None of his patients is cured, as he instituted the treatment only last January, but the results in many of them are so encouraging that he considers it a duty to urge others to try this simple method of treatment. One of his patients was a man of 54 with carcinoma of the cardia. He had become rapidly emaciated and was unable to take any solid food. He drank 3 gm. of the bismuth beta in water, six times in seven-teen days, with the result that he was able to swallow better and his weight remained stationary. In the other cases of cancer of the esophagus the ability to swallow solid food was partially restored and the patients felt much better in every instance.

Wiener klinische Rundschau, Vienna.

Last index page 765.

- 73 (XVIII. No. 32.) *Die Diagnose der Hematurie. W. Hirt. (Commenced in No. 31.)
 74 (No. 33.) Klinisches zur Fistula auris congenita. A. Bing.
 75 A. E. Vogl. Ein Lebensbild. (Commenced in No. 28.)
 76 (No. 34.) *Klinischer Beitrag zur Hemisphären-Atrophie. M. Hirt. (Commenced in No. 32.)
 77 Die Reform des Irenwesens (of care of the insane). H. Schläss.
 78 (No. 35.) *Ueber hereditäre, infantile Tabes. R. Kaufmann.
 79 *Zur Behandlung von Katarrhen der Luftwege und der Lungen mit Arznelndämpfen (medicated vapors). M. Saenger (Madrebrunz). (Commenced in No. 34.)
 80 Zur Verwendung des Suprarenins und Adrenalins bei Blutungen (in hemorrhage). B. Müller.

73. **Hematuria.**—Hirt reviews the various causes of hematuria and describes a number of cases to illustrate the difficulty of differential diagnosis in many instances. When the patient is seen during the course of a renal hemorrhage it can readily be traced to the kidney in most cases, but some may require exploratory incision of the kidney. Hematuria

proceeding from the bladder or prostate can generally be diagnosed with ease. The discovery of the bacilli is the only decisive evidence of tuberculosis. In one case the bladder was ruptured during extirpation of an ovarian cyst, but the rupture was not discovered at the time. A few drops of bloody urine were noticed soon after, although the general condition was excellent. The bladder was filled with a warm solution of boric acid as a diagnostic measure. The patient collapsed in a few minutes and died in less than half an hour. In another case an elderly man suffered from hematuria, with nothing to account for it except considerable arteriosclerosis. Before the patient could be examined with the cystoscope he died suddenly. The necropsy revealed cerebral apoplexy and numerous small arteriosclerotic aneurisms in both kidneys, the other organs comparatively sound. Another patient suddenly presented hematuria, without pain and with no other symptoms, no history of gout. Two weeks later dull pains were noted in the left side, and the left kidney was found enlarged, the urine from this kidney blood-stained. A small protuberance was seen at the mouth of the left ureter, suggesting tuberculosis, but no bacilli were found in the urine. The diagnosis wavered between tumor and tuberculosis, when a small concretum was evacuated with intense pains, and the hematuria ceased at once.

76. Atrophy of One Hemisphere.—Two cases are described and illustrated to show the difference between atrophy of a hemisphere due to disease, and caput obstipum due to intra-uterine pressure on the skull. Persons in the first category are generally victims of epilepsy, or are mentally deficient, while persons in the second category are comparatively normal.

78. Case of Juvenile Tabes.—The lad of 10 was the son of a tabetic father and healthy mother. At the age of 6 he developed incontinence of urine, and at 9 gastric crises. Kaufmann thinks that a hereditary tendency to tabes must frequently occur, but is overlooked when the patients are not seen until adult age. He concludes with the remark that we know certain important predisposing causes for tabes, but that the direct cause for it is as much a mystery as ever.

79. Inhalation Treatment of Catarrh of the Air Passages.—Saenger has been using for three years an apparatus which allows the vaporization of substances too insoluble to be used as a spray. He gives views of the simple apparatus and describes its workings, affirming that medication by means of fumes or gases deserves much more attention than it has yet received. The scantiness of the results obtained by this form of therapeutics to date has been due to the imperfectness of the apparatus used. With improved technic the results in his hands have been remarkably fine. He uses menthol, Peruvian balsam, turpentine, eucalyptus, cypress and other oils, with dimethylformal, the latter consisting of two molecules of menthol to one of formaldehyd. He reviews his experiences in detail.

Gazzetta degli Ospedali, Milan.

Last indexed page 1017.

- 81 (XXV, No. 73.) Per l'analisi dell'acido glicuronico e degli zuccheri. A. Ferrannini.
- 82 Caso di pericardite acuta reumatica. G. Berghinz.
- 83 Caso di pseudo-leucemia linfatica con decorso clinico particolare. E. Chiesotti.
- 84 (No. 76.) A proposito di nefrosine. C. Tarchetti.
- 85 Contributo allo studio dei disturbi di secrezione dello stomaco: 2 casi di acaloridria. G. Curlo.
- 86 La cura d'uva (grape cure). F. Melocchi.
- 87 Polinevrite e paralisi di Landry in seguito ad influenza. E. Brachi.
- 88 (No. 79.) Su di un caso di tibia dorsale spasmodica (malattia di Erb Charcot). C. A. Crispotti.
- 89 Sul reattivo di Schoenlein-Almen per la ricerca del sangue (of the blood). A. Chelli.
- 90 Acidità urinaria in rapporto all'età, costituzione individuale e alla tubercolosi. A. Campani.
- 91 Sulla febbre apiretica. L. Masciagnoli.
- 92 La cura medica dei fibromiomi uterini. L. Carini.
- 93 (No. 82.) Sulla genesi dei calcoli salivari. G. dal Fabbro.
- 94 Della presenza del bacillo di Eberth nelle urine dei tifosi. G. Corsini.
- 95 Sulla diazoreazione. G. Campanella.
- 96 La soluzione eterea di iodofornio nella otite media purulenta cronica. V. de Cizna.
- 97 (No. 85.) Su di una rara forma di cardiopatia congenita. O. Crozzolini.
- 98 Studio delle ectosiosi. A. Pellegrini and G. Conforti.
- 99 Anchilostomosi ed anguillulosi. E. Leonardi.

- 100 *Le inspirazioni anormali nella diagnosi precoce della tubercolosi polmonare. C. Giulio.
- 101 (No. 80.) Fra i reattivi della incoordinazione dei movimenti. Fenomeni "dell' piede sollevato" e cause che lo influenzano ("raised foot" sign). M. Gay.
- 102 L'attuale valore dell'inoscopia. B. Bonardi.

92. Medical Treatment of Uterine Fibromyoma.—Carini had occasion to treat a woman of 42, who presented an interstitial fibroma with firm and multiple adhesions. The anemic condition and solid adhesions contraindicated extirpation and medical treatment, according to Hildebrandt, was instituted, the ergot being supplemented by fluid extract of *hydrastis canadensis*, and a tonic containing iron arseniate. The tumors vanished, and the general health recuperated, the patient eats and digests well all kinds of food and considers herself cured.

100. Inspiration in Diagnosis of Tuberculosis.—Giulio advises examination of the inspiration in numbers of healthy subjects. This will educate the ear so that slight variations from normal will be readily detected, and the diagnosis of incipient tuberculosis thus be made possible. The best way is to auscult the lung region carefully, point by point, during inspiration, examining first one lung and then the other, at alternate inspirations, the ear over the symmetric points in turn. After careful study of the inspirations alone the expirations can then be examined.

Riforma Medica, Palermo and Naples.

Last indexed page 671.

- 103 (XX, No. 27.) *La glicosuria alimentare negli epatici (in liver affections). S. De Rossi.
- 104 *La ricerca del sangue nel contenuto del tubo digerente (occult blood in contents of digestive tract). E. U. Fittipaldi.
- 105 Etiologia e patogenesi del così detto tumore infiammatorio della ghiandola salivare. F. Gangitano (Palermo).
- 106 *Serosa-muscular Flaps for Hemostasis in Liver and Spleen.* L. Baldassari (Ferrara).—I lembi siero-muscolari nell'emostasi epatica e splenica.
- 107 Linfoctemia, mielocitemia, pseudoleucemia. F. Schupfer (Bacelli's clinic, Rome) Abstract.
- 108 Treatment of Habitual Constipation. G. Rummo. Editorial. Twelve formulae.
- 109 (No. 28.) *Ricerche comparative su alcune proprietà biologiche dei bacilli del tifo e del bacterium coli. G. Martiniotti (Bologna).
- 110 Dei bacilli acidi e della loro presenza in alcuni casi nella cute. R. Campana.
- 111 Sul valore della citodiagnosi dei versamenti cavitari (of effusions). S. G. Gramigna (Turin).
- 112 *Morbo di Basedow. E. De Renzi. Abstract.
- 113 (No. 35.) *Ergografia del riflesso rotuleo. G. Boeri.
- 114 Nuovo metodo per la colorazione del corpo interno emoglobinico nei globuli rossi dei vertebrati (new stain for red corpuscles). G. Pighini (Ceni's laboratory, Reggio Emilia).
- 115 Note su alcuni casi di tumori addominali. Contributo alla semeiotica dei tumori del grande epiploon. U. Benenati (Naples). (Commenced in No. 28.)
- 116 *La nuova scoperta del Prof. Otto von Schrön (phthisiogenic micro-organisms). C. Galbo.
- 117 (No. 30.) *Tubercolosi sperimentale delle ghiandole salivari. P. L. Fiorani.
- 118 La "cura di Gilbert" nelle pleuriti essudative. M. Landolfi.
- 119 La nevrosia spinale sessuale (sexual). Mingazzini. Abstract.

103. Alimentary Glycosuria in Liver Affections.—De Rossi of Bacelli's clinic first established on healthy subjects the minimal amount of sugar that would induce glycosuria in health. He then tested a number of persons with some liver trouble, and tabulates the results of 38 tests. Adding these to those reported by Sachs, Strauss and Ferrannini there are now 75 cases of liver affections on record which responded positively to the alimentary test with levulose in all but 5 instances. Saccharose and glucose give very uncertain and contradictory findings, but the levulose glycosuria can be relied on. When levulose is given in doses surpassing 1.9 gm. per kilogram it induces glycosuria even in healthy subjects. The elimination of the levulose commences generally in an hour after its administration, and may continue for two to six hours, but usually lasts only three or four. The amount eliminated is very small, and not dosable in the clinic, requiring the Trommer test. The amount given ranged from 60 to 100 gm. of levulose, equivalent to 1.25 to 1.84 gm. per kilogram of body weight.

104. Determination of Blood in Contents of Digestive Tract.—Fittipaldi remarks that all the tests for determination of "occult" blood in the feces and stomach content presuppose that the blood is dissolved, which is not necessarily always the case. It is frequently inclosed in mucus, especially in catarrhal conditions, and this prevents the action of the re-

agents on the blood. He has been using a technic which overcomes this difficulty, while its simplicity, facility and reliability in the most difficult cases render it superior in other respects, as has been demonstrated in three years of experience at De Renzi's clinic. The solid flakes in the stomach content obtained by lavage or in diluted feces are heated with 5 or 6 tablets of caustic potash to each 40 c.c. of fluid, until the mucus is completely dissolved. In case of the presence of blood, a characteristic reddish tint is imparted to the fluid, and a film with greenish reflexions forms on the surface. It is then set aside for five or six hours, when the filtered fluid will show still more characteristic tints, the reddish brown shading into green reflexions. The most characteristic sign, however, is the vanishing of the reddish tint when the filtrate is shaken up, exposed to the air, the oxidation causing the red to change to a brownish yellow. This technic is sufficiently accurate for most cases, but may be supplemented by spectroscopic examination.

112. **Exophthalmic Goiter.**—De Renzi prefers to treat febrile conditions in this affection with antipyrin rather than quinin. Thyroid treatment aggravates instead of improving the symptoms. He advocates absolute repose and isolation, even plugging the ears to keep out sounds.

113. **Ergography of Knee-jerk.**—A number of tracings are given showing the knee-jerk as mechanically elicited by a hammer and pendulum automatic contrivance. The tracings are of three types: high curves at first, gradually declining, the normal type; low at first, then increasing, then declining, the type observed in neurasthenics; and high and continuously high, the exaggerated reflexes of hemiplegia. The character of the tracings indicates that the knee-jerk is in reality a direct response of the quadriceps to sudden excitation of its tendon.

116. **Micro-organism of Pulmonary Phthisis.**—The discovery by von Schrön of the phthisiogenic micro-organism has already been chronicled in THE JOURNAL, page 478. In this description, written by one of his assistants, the announcement of this discovery is styled "one of those great scientific events which cast new and unexpected light on the old arguments." Schrön's lecture on the subject was accompanied by stereoscopic views, but the details of his technic have not yet been published. [De Renzi's *Nuova Rivista Clinico-Terapeutica* contains a letter from von Schrön, dated June 20, in which he states that the most important result of his researches is the demonstration that the caseous masses in the phthisic lung are formed principally by a large microbe, entirely different from the tubercle bacillus. It starts its growth as a delicate thread, straight at first, then tortuous, then ramifying to distinct tree formation, with subsequent enlargement and growth of the side branches until it resembles a lichenoid fungus in its development. When fully developed it grows capsules, somewhat similar to spores. At first these capsules are homogeneous little spheres, staining readily. In time they become granulated, and then pass into a phase in which their contents seem to be nothing but threads, mited in bunches in the ripe capsule. These threads differ completely from bacilli, spirilla and vibrios. When they escape from the capsule they invade the epithelial cells of the alveoles in the lungs. A cell thus invaded looks like Medusa's head, as only part of each thread bores into the cell, and the rest projects. The protoplasm of the cell soon becomes entirely consumed, and the nucleus alone persists. The threads grow and assume the arborescent form, with final capsule fruit formation to complete the cycle. The senile forms undergo fatty and mucous degeneration, thus originating the caseous detritus, and the cavity thus formed enlarges by the constant invasion of the tissues by the proliferating microbe. The tubercle bacillus may also find lodgment in the cavity, but the two processes are distinct entities. Schrön believes that the tubercle bacillus is generally the pioneer. Serum treatment of tuberculosis has always failed in phthisic subjects. Success is attainable only when the toxins of the phthisiogenic microbe can be included in the treatment. Drop pure cultures of this microbe have

been obtained, and also cultures in symbiosis with the tubercle bacillus, but no pure cultures have yet been secured *in vitro*. —Ed.]

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

ESSENTIALS OF CHEMISTRY, ORGANIC AND INORGANIC. Containing Also Questions on Medical Physics, Chemical Philosophy, Medical Processes, Toxicology, etc. By Lawrence M. Wood, M.D., Formerly Demonstrator of Chemistry at the Jefferson Medical College, Philadelphia. Sixth Edition, Thoroughly Revised. By A. Ferrie Wiltmer, Ph.D., Formerly Assistant Demonstrator in Physiology at the University of Pennsylvania. Fully Illustrated. Cloth. Pp. 225. Price, \$1.00 net. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

A TEXT-BOOK OF HUMAN HISTOLOGY. Including Microscopic Technic. By Dra. A. Böhm and M. von Davdloff, of Munich and G. Carl Huber, M.D., Professor of Histology and Embryology in the University of Michigan, Ann Arbor. Second Edition, Thoroughly Revised and Enlarged. With 376 Original Illustrations. Flexible Cloth. Pp. 523. Price, \$3.50 net. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

A TEXT-BOOK OF CLINICAL DIAGNOSIS. By Laboratory Methods. For the Use of Students, Practitioners and Laboratory Workers. By L. Napoleon Boston, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories of the Medico-Chirurgical College, Philadelphia. With 320 Illustrations, Many of Them in Colors. Cloth. Pp. 547. Price, \$4.00. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

PROGRESSIVE MEDICINE, VOL. III, SEPTEMBER, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Nineteen Illustrations. Pp. 284. Per Annum, in Four Cloth-bound Volumes, \$9.00. Philadelphia and New York: Lea Brothers & Co.

BERI-BERI: Its Symptoms and Symptomatic Treatment. An Essay Printed by the Board of Trinity College, Dublin, for the Author. By Percy Netterville Gerard, B.A., B.Sc., B.A.O., M.D., Dublin University. Cloth. Pp. 95. Price, \$1.00. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co., 1904.

BERI-BERI: Its Symptoms and Symptomatic Treatment. Being Extracts from "An Essay on Beri-Beri." Printed by the Board of Trinity College, Dublin, for the Author. By Percy Netterville Gerard. Cloth. Pp. 4. Price, 50 cents. Philadelphia: P. Blakiston's Son & Co., 1904.

EXAMINATION OF THE URINE. By G. A. de Santos Saxe, M.D., Pathologist to the Columbus Hospital, New York City. Fully Illustrated, Including 8 Colored Plates. Flexible Leather. Pp. 301. Price, \$1.50 net. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

TRANSACTIONS OF THE NINTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. Held in Lexington, Ky., April 30 and May 1 and 2, 1903. Paper Pp. 269. New York: Published by the Society, 1903.

HOW TO COOK FOR THE SICK AND CONVALESCENT. Arranged for the Physician, Trained Nurse and Home Use. By Helena V. Sachse. Second Edition, Revised and Enlarged. Cloth. Pp. 297. Price \$1.25. Philadelphia: J. K. Lippincott Co., 1904.

DISCURSO LEIDO EN LA APERTURA ANTAL DE LOS ESTUDIOS de la Pontificia Universidad de Santo Tomas de Manila, Edin 2 de Julio de 1904. R. D. P. Joaquin Recorder & Dorda. Edición oficial. Paper. Manila: Colegio de Sto. Tomas, 1904.

CURA E GIGIENONE DELLA TUBERCOLOSIS PULMONARE. Seconda edizione. Paper. Pp. 147. Dott. Carlo Ruata, Prof. di Materia Medica e d'Igiene nell'Università di Perugia. S. Lapi, 1904.

NEW PATENTS.

Patents of interest to physicians, etc., recently granted:

- 76768. Hypodermic syringe. Henry J. Detmers, Columbus, Ohio.
- 767522. Spirometer. Henry T. Lyttleton, Marshall, Texas.
- 767595. Massage implement. Alvah U. Patchen, Syracuse, N. Y.
- 767718. Truss. John M. Simmons, Thomasville, Ga.
- 768561. Antiseptic compound. Alphonso M. Clover, Ann Arbor, Mich.
- 768562. Forming organic peroxid acids. Alphonso M. Clover, Ann Arbor, Mich.
- 768563. Antiseptic compound. Alphonso M. Clover, Ann Arbor, Mich.
- 768523. Massage implement. Gustave Dittmar, Washington, D. C.
- 768048. X ray tube stand. George R. Hogan, Chicago.
- 768133. Door closer and check for operating disinfecting devices. Frank A. Martin, Chicago.
- 768244. Suppository machine. Francis J. Stokes, Philadelphia.
- 768721. Electrode for therapeutical purposes. Wm. B. Bassell, Columbus, Ohio.
- 768861. Catameter and. John L. Minzes, Rochester, N. Y.
- 768827. Apparatus for treating disease by light rays. Charles F. Stewart, Chicago.
- 769451. Surgical pad. Wm. E. Ambrose, Washington, D. C.
- 769452. Phototherapeutic apparatus. Will F. Arnold, U. S. Navy.
- 769463. Massage roller. Elmer Blanchard, Coopersville, Mich.
- 769593. Formaldehyde hydresulfites and making same. Louis Descamps, Lille, France.
- 769483. Surgical instrument. Frederick E. Leavitt, St. Paul, Minn.
- 769420. Illuminant attachment for head-mirrors and laryngoscopes. Alfred F. Watch, Philadelphia.

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No. 16.

Original Articles.

ETIOLOGY OF CHOLECYSTITIS AND CHOLELITHIASIS.*

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In considering the diseases of the gall bladder it is necessary to recognize that this viscus constitutes one of the most vulnerable points for infection in the abdominal cavity, and in this respect is analogous to the fallopian tube and the appendix.

A difference is noted in comparison with the appendix in that in the latter structure infective agents are more or less constantly present in its lumen normally, while the gall bladder is generally free from micro-organisms; furthermore, infection of the gall bladder concerns itself more with the contents than the walls, the sterile bile becoming a culture medium for micro-organisms, while in appendix infection the coats are more prominently involved.

The liability of the gall bladder to disease is due mainly to its position, interposing itself as a guard between the bacterial hordes of the intestine and the liver; and in the immunity which the liver appears to possess the gall bladder exerts a very important rôle.

In the majority of instances the bile is free from micro-organisms during health, this being particularly true of the gall bladder, the cystic and hepatic ducts, while the common duct usually contains a greater variety of micro-organisms.

Netter,¹ Naunyn,² Leubuscher, Gilbert and Girode³ and Myaki⁴ found the bile free in healthy animals. Fraenkel and Krause⁵ examined the bile in 130 cases at autopsy and found it sterile in 105 instances, and in 11 cases of gallstones it was also free in 5 cases.

Mieczkowski⁶ made cultures of the bile in 15 cases during life and found it sterile in all cases. Mikuliez, in examinations of the bile in 23 cases of operations for gallstones, found micro-organisms present in 18 cases; in the other five instances the bile was sterile.

It has been a matter of some discussion whether the bile acts as a bactericide or if micro-organisms find in the bile a good culture medium. While formerly it was

supposed to be antagonistic to the growth of bacteria, it is now demonstrated that a great many pathogenic micro-organisms flourish in it quite vigorously.

Dominici and Rodet found that micro-organisms which cause infection of bile passages thrive in bile media. Maly and Ernich, Leubuscher, Rohman, Bates, Fraenkel and Krause,⁵ and Mieczkowski⁶ observed that both typhoid and colon bacilli develop well but slowly in human bile.

It has been noted that when bile is thick it specially favors the growth of colon bacilli. Again, Ehret and Stoltz⁷ observed that fresh, non-sterilized bile has bactericidal properties and their observations confirm those of Mosse, finding it a poor culture medium. Mignot⁸ and Myaki⁴ report that colon bacilli live for many months in the gall bladder, there being some lessening in the virulence, but this is readily regained when developed in proper media. There are considerable observations to show that bacteria, like typhoid and colon bacilli, streptococci and staphylococci, which are normally present in the intestine, develop very or moderately well in bile, which, from personal work, I have been able to confirm.

In a contribution of Talma, bile is regarded as a mild bactericide of the colon bacillus and more strongly so for diphtheria and typhoid bacilli. Fütterer⁹ and Lauriac found living typhoid bacilli in the gall bladder months and years after an attack of the disease. These observers also claim that the bile contains normally substances which inhibit the growth of a majority of colon and typhoid bacilli.

The number of micro-organisms exerts a great influence on the fate or vitality of the contained micro-organisms, and again the bacterial activity is much more prominent in the gall bladder than in the bile ducts. It is further noted that the epithelium of the bile passages and liver cells resists infections greatly.

The question now arises, How and when does infection of the gall bladder take place? From clinical and experimental observation it is evident that infection occurs principally in two ways—first, by way of the blood, descending, or hematogenous; second, ascending, or by way of the common bile duct; the latter way is observed far more frequently clinically.

The first form is exemplified chiefly by the infections following typhoid fever, the avenue of infection being usually the portal or systemic circulation.

Infection of the gall bladder through contiguous tissues may take place, but it is not very common in human pathology. By reason of its isolated position it is but rarely involved in general infection of the peritoneum.

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1. Netter: Progrès Médical, 1886, p. 992.

2. Naunyn: Klinik der Cholelithiasis, 1892.

3. Gilbert and Girode: Comptes Rendu Soc. de Biolog., 1890.

4. Myaki: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1900, vol. vi.

5. Fraenkel and Krause: Zeitschr. f. Hygiene, vol. xxxii, 1899, p. 97.

6. Mieczkowski: Quoted in Nothnagel's Encyclopedia of Pract. Med., p. 540.

7. Ehret and Stoltz: Mitt. a. d. Grenzgeb. d. Med. u. Chir. vol. iv, 1900.

8. Mignot: Arch. Gen. de Méd., August, 1898.

9. Fütterer: Medicine, 1895.

That the infection is facilitated by an interference with the drainage of the gall bladder is very evident, because so long as there is no obstruction to the flow of bile to cause stagnation the liver is able to excrete large numbers of micro-organisms through the bile. Experimentally the elimination of bacteria by the bile from the general circulation is demonstrated by the researches of Fütterer⁹ and Chiari,¹¹ Myaki⁴ and Cushing,¹² in connection with typhoid bacilli; Ferraresi, Quarries, with glanders bacilli; Corrado, Nicati, Oemler, Strauss and Chamberland, Oresti, Pernice and Alessi, Bernabei, with staphylococci and pneumococci; Friedlander with anthrax bacilli and cholera spirilla; Blachstein, Letienne, Biedl and Krause and Mengel with streptococci and colon bacilli. Clinically bacteria are demonstrable in the gall bladder in systemic diseases like pneumonia, typhoid, septicemia, pyemia and tuberculosis. The importance of typhoid bacilli in connection with the gall bladder has been specially emphasized in the work of recent years; in most instances the route of passage has been the circulation, but again migration by way of the common bile duct is very probable in certain cases. In connection with typhoid fever the typhoid bacilli have been demonstrated in the gall bladder by Chiari,¹⁰ Naumyn,¹¹ Chauffard, Cushing,¹² Welch, Sailor,¹³ Stockton²⁴ and others, both in a pure state and associated with other bacteria. In many instances the bacilli were found a long time after the typhoid infection; by Welch, three to four months; Miller,¹⁵ seven years; von Dungen,¹⁶ 14½ years; Groba,¹⁷ 17 years, and Hunner,¹⁸ 18 years after an attack. Flexner states that 50 per cent. of the cases of typhoid at autopsy contain typhoid bacilli in the gall bladder, and Keen reports 75 cases of typhoid bacillus infection of the gall bladder in typhoid fever. Again, typhoid bacilli have been in the gall bladder without any previous history at all of typhoid infection. It is thus illustrated that typhoid bacilli may exist dormant a long time in the gall bladder and yet retain their vitality and virulence.

There is little doubt but that the ascending form of infection of the gall bladder by way of the common bile duct is unquestionably the more frequent; and this is certainly the more common mode of invasion observed clinically, which is usually an extension of inflammation from the duodenum. The kinds of micro-organisms found correspond to those naturally inhabiting the small intestine, the colon bacillus always predominating.

EXPERIMENTS.

That any obstruction of the bile facilitates this migratory infection is shown by frequent illustrations. So long ago as 1876 Charcot and Gombault¹⁹ found stones and bacteria in bile after ligating the common duct in dogs. Netter²⁰ in 1886, after aseptic ligature of the common duct in rabbits, obtained cultures of bacteria from bile. In ligation of the common duct above the ampulla it takes but a few days before the same organisms appear in the bile and liver which are present normally in the duodenum and in that portion of the com-

mon duct distal to the ligature. Even injection of bacteria below the point of ligation is followed by passage through the ligature. In personal experiments I have noted that infection into the gall bladder of very virulent bacteria, as pneumococci and colon bacilli, when the flow of bile was not interfered with, was always without serious consequences. The introduction of aseptic foreign bodies in connection with bacteria greatly favors the growth of the bacteria injected. In the experiments of Ehret and Stoltz²¹ this increase in the number was found to be progressive, as the bile was examined from time to time. The conclusion to be drawn from this is that under normal conditions, if the gall bladder is free from stones and foreign bodies, it contracts and empties its secretion, which goes unhindered to the intestine; but when foreign aseptic bodies or gallstones are present the normal muscular action of the organ is interfered with, and a certain amount of bile becomes stagnant between the foreign bodies and greatly favors the growth of bacteria.

The rôle of gallstones in promoting infection of the gall bladder is purely contributory, and we know also that they may lie in the gall bladder a lifetime and no symptoms be produced until the bile becomes infected. From present knowledge we are able to state that any interference with the contractility of the gall-bladder musculature, or presence of foreign bodies in the gall bladder, or ligation of the common duct, disturbances that affect the circulation, or secretion of bile, causes a marked increase in the number of micro-organisms in the biliary passages, and, furthermore, that aside from the infective agent, a number of predisposing influences are still necessary to produce inflammation of the gall bladder.

CLASSIFICATIONS.

Clinically cholecystitis is divided into acute, sub-acute and chronic forms; anatomically into catarrhal, suppurative, phlegmonous, diphtheritic, gangrenous and fibrous (adhesive or obliterative). A further division is permissible in calculous and non-calculous by reason of the frequent association of gallstones with cholecystitis. The acute inflammation occurring in typhoid fever with the presence of a pure culture of the bacillus typhosus constitutes the classic instance of uncomplicated cholecystitis. The micro-organisms that are associated etiologically with cholecystitis aside from the typhoid bacillus, are the colon bacillus, streptococcus, staphylococcus, pneumococcus, proteus vulgaris, and tubercle bacillus.

In most instances the severity of the resulting inflammation is simply indicative of the degree of virulence of the infective agent and presence of conditions lowering the physiologic resistance of the tissues. The non-calculous form of cholecystitis rarely progresses beyond the purulent state. An obstruction of the cystic duct produces the so-called empyema. The severer forms of cholecystitis are usually attended by the presence of gallstones; these assert their influence on the inflammation by pressure on the tissues, obstruction of the bile or disturbance in the circulation, and may give rise to fulminating suppurative cholecystitis, diphtheritic, phlegmonous, ulcerative or gangrenous inflammation, which then sometimes leads to perforation and pericholecystitis, there being no doubt that gallstones promote infections often of the gravest character.

Musser states that suppurative cholecystitis is based altogether on preceding development of gallstones and parasitic invasions.

10. Chiari: Zeitschr. f. Heilkunde, vol. xv, p. 169.

11. Naumyn: Klinik der Cholcholitis, 1892.

12. Cushing: Johns Hopkins Hosp. Bull., May 1898, p. 91.

13. Sailor: Medicine, May, 1902.

14. Stockton: American Medicine, Dec. 21, 1901.

15. Miller: Johns Hopkins Hosp. Bull., vol. ix, p. 95, 1893.

16. Von Dungen: Münch. med. Woch., 1897, p. 699.

17. Groba: Wiener klin. Woch., Nov. 9, 1899.

18. Hunner: Johns Hopkins Hosp. Bull., September, 1899.

19. Charcot and Gombault: Archiv. de phys. norm. et path.,

1876.

20. Netter: Progrès Médical, 1886, p. 992.

The principal factors concerned in the production of a gangrenous cholecystitis are: (a) Thrombosis of nutrient vessels; (b) bacterial infection; (c) absence of drainage and consequent tension. The chronic fibrous (obliterative-adhesive) form of cholecystitis while indirectly due to bacterial invasions, is yet not more than the sequel of a prolonged catarrhal or suppurative inflammation or some of the more severe destructive forms.

The close association of cholecystitis and cholelithiasis is apparent to every clinician, and accordingly that which pertains to the etiology of gallstones will be contributory and in most instances causative of cholecystitis. Yet gallstones are not always present in connection with cholecystitis and gallstones may exist without inflammation. In a certain percentage of cholelithiasis cases the contents of the gall bladder are sterile and fail to reveal any definite infective agent.

In the study of the causes of gallstones it is very evident that while our knowledge is much more complete than it was a decade or two ago, it is equally certain that no common etiologic factor has been demonstrated that is applicable to all cases, and the importance of a union of several contributory conditions is not to be overlooked. Among the predisposing influences that we have come to associate with gallstones are age, sex, pregnancy, indolence, gluttony and constipation. Cholelithiasis is very rare in early adult life and occurs most frequently after the age of forty. That it is far more frequently a disease in women than in men is noted by all observers, different writers giving a proportion of from three to one and five to one when compared with its occurrence in the male. It is so common, in fact, in women that it may be said to be characteristic of the sex, and is, like the floating kidney, distinctly peculiar to women. In seeking an explanation for this greater frequency we find it in the influence of child-bearing, prevalence of tight lacing, greater tendency to sedentary habits and constipation, all influences which constrict or encroach on the area of the gall bladder and interfere with its drainage.

The two classes of men that are affected with gallstones principally are first, the obese, and second, the glutton and he who is peculiarly indiscreet in connection with dietary rules. That certain diseases are contributory to the development of gallstones is also a matter of common experience. The relation of cholecystitis has been referred to, and in this connection, of course, typhoid fever occupies a prominent rôle, and all those gastric and intestinal disorders which by extension lead to cholecystitis.

Furthermore, heart disease predisposes probably by reason of the inactive life and passive congestion of the liver which the cardiac disease engenders. The conditions of gout and diabetes also seem to dispose to their formation. Cancer of the biliary passages is so commonly associated with gallstones that it must be regarded as having a predisposing influence. Mosher found nephritis associated with gallstones in 72 per cent. of his cases, and the fatal issue in operation for gallstones can often be attributed to the complicating nephritis. Adiposity, with its sedentary mode of life, and constipation are prominent predisposing factors.

Cholelithiasis has come to be regarded as closely associated usually with some structural change in the lining of the gall bladder, so that the etiology of cholecystitis and cholelithiasis have many points in common. The relation of bacterial invasion of the gall bladder and

direct connection of bacteria with the formation of gallstones has received very prominent consideration. Among the earliest contributions on the subject were those of Charcot and Gombault¹⁹ in 1876. Netter and Martha,²¹ in 1886, finding staphylococci and streptococci in connection with gallstones; Brieger and von Leyden, in 1886, with colon bacilli. Naunyn,² in 1891, found colon bacilli in connection with stones. Welch, in 1892, isolated bacteria from the center of gallstones, principally typhoid and colon bacilli. Crude substances, silk ligatures (Homans,²² Kehr²³) have also been found to occupy the center of gallstones.

The French observers, Mignot, Fournier and Gilbert,²⁴ have developed experimental cholelithiasis in animals and found that in order to produce a calculus it is necessary to have infection of the biliary passages. (Ushing,¹² M. W. Richardson,²⁵ and Lartigau²⁶ have also successfully produced gallstones in animals by promoting a mild infection in the gall bladder by the use of attenuated cultures of typhoid and colon bacilli.

The nidus in most instances is composed of mucus, degenerated epithelium or shreds of tissue so that in a majority of cases the nucleus of a stone is composed of bacteria or the results of bacterial infection of the gall-bladder mucosa.

Chemically gallstones consist chiefly of calcium salt with bilirubin and cholesterol, and of the salts carbonates and phosphates are most common. They have a framework of organic matter which is impregnated by the other materials. A large number are pure cholesterol masses. The question naturally arises as to the source of these constituent materials and the influences that promote their increase in the gall bladder.

Cholesterol occurs normally in the blood and various organs of the body, and is present in the bile in a proportion, according to different authors, of from .045 to 1.18 per cent. There is really no proof that the liver excretes cholesterol from the blood or that it is the result of hepatic metabolism, so we are driven to the conclusion that it is formed in the bile ducts or gall bladder, yet it is found in passages where bile does not exist, hence there is no reason to believe that it is formed from any constituent of bile. According to Naunyn,² it is rather a product of the epithelium of the bile passages; in fact, it is a secretion of mucous membranes generally. C. A. Herter²⁷ finds that the normal amount of cholesterol secreted by the epithelial cells of the gall bladder is trebled under pathologic conditions, which is also true of calcium salts, both substances being increased by the same irritants. This is significant, for if calcium increases beyond a certain point it is liable to combine with bilirubin and produce a compound known as bilirubin-calcium, which forms the nucleus of a great many stones.

There seems to be no doubt that catarrh of the mucous membrane of the bile passages increases the amount of cholesterol present, and the longer the bile remains in the gall bladder the more cholesterol it will contain. So that anything which causes stagnation of bile, as the

21. Netter and Martha: Archives de physiol. norm. et path. 1886.

22. Homans: Annals of Surgery, 1897, vol. xxvi, p. 114.

23. Kehr: Münch. med. Wochf., 1902.

24. Mignot, Fournier and Gilbert: Arch. Gen. de Med., August and September, 1898.

25. Richardson, M. W.: Boston Med. and Surg. Jour., Dec. 2, 1897.

26. Lartigau: Quoted by Musser, Internat. Clinics, vol. iii, 1903, p. 34.

27. Herter, C. A.: Symposium Congr. of Am. Phys. and Surgs., May 13, 1903.

remote causes formerly mentioned, like age, sex, habits, dress, diet, diathetic conditions and disease processes, predispose to the formation of gallstones. Catarrh of the gall bladder may cause both of the above conditions in that it leads to stagnation of the bile by (1) producing a paresis of the muscular coat, and (2) by increasing the amount of cholesterol present. All of which adds emphasis to the fact that the normal gall bladder can not form stones and only a diseased gall bladder can form them or aid in their formation.

After gallstones are once present they increase in number and size, which is indicative of the formation of an increased amount of cholesterol in the gall bladder. In a recent case of my colleague, Dr. Jepson, he observed distinct layers of cholesterol crystals on the surfaces of the stones as they still lay in the gall bladder.

Some interesting observations have been reported recently regarding the constitutional origin for an increased formation of gallstone constituents. C. A. Herter²⁷ fed dogs on fat almost entirely and at the end of three months minute masses of bilirubin calcium were formed in the gall bladder, and in one instance a distinct concretion. It is important to note the possibility of increasing the quantity of cholesterol by means of chemical irritants without the presence of infection. It is likewise possible that constitutional conditions may bring about such changes in the bile that it may cause irritation to the bile passages and thus play an important part in the pathogenesis of gallstones.

The influence of diet was formerly accorded considerable significance, but it is by no means proven that the amount of cholesterol is in any way dependent on the diet. Jankan and Thomas²⁸ have shown experimentally that diet has no influence on the percentage of cholesterol in the bile.

From the accumulated experimental and clinical knowledge on the pathogenesis of gallstones we can make the deduction that while the essential cause usually is a cholecystitis, there are evidently always other factors at work beside infections, and special consideration must be given to those infectious diseases and states of altered metabolism which promote a change in the quality of the bile chemically, so as to constitute an irritant (Herter).

It is further evident that cholecystitis and cholelithiasis are at all times secondary affections, and if it were possible to eliminate such influences as age, improper wearing apparel, lethargic habits, constipation, gastric and intestinal catarrhal disorders, cholelithiasis would soon become a very rare disease.

THE RELATION OF CHOLELITHIASIS TO DISEASE OF THE PANCREAS.

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The intimate relation of pancreatic disease to lesions of the liver is forecast in the embryo at a time when that part of the pancreas which will subsequently contain the larger pancreatic duct makes its appearance as two diverticula situated beside the embryonic hepatic duct where it enters the intestine. One of these rudimentary structures disappearing, the duct of Wirsung, which will subsequently become the outlet

for almost the entire pancreatic secretion, enters the intestine in conjunction with the common bile duct. The smaller duct of the pancreas, the duct of Santorini, has its origin in an embryonic diverticulum situated nearer the stomach. The two parts of the gland subsequently unite to form the adult organ, but the two ducts are subject to considerable variation, differing in their relation to one another and to the common bile duct.

Anatomic peculiarities which have an important bearing on the relation of the liver to the pancreas may be recalled: 1. In one of ten individuals the duct of Wirsung does not join the common bile duct before it enters the duodenum, but the two ducts terminate side by side at the summit of the bile papilla. 2. In the majority of individuals the duct of Wirsung which terminates in the bile papilla is larger than the duct of Santorini, which terminates nearer the stomach, but in approximately one of ten instances the duct of Santorini equals or exceeds in size the duct of Wirsung. 3. In approximately nine-tenths of all cases the two ducts anastomose within the gland, but in a large proportion of these instances they are united by such a narrow twig that one is not capable of acting as an outlet for the secretion of the other.

The physiologic significance attributable to the close anatomic relation of the biliary and pancreatic ducts has recently been emphasized by Pawlow¹ and his students. Their experiments, confirming the observations of other physiologists, have demonstrated that the bile affords a favorable medium for the action of the pancreatic ferments, increasing their digestive efficiency two or threefold. The presence of bile has been found particularly favorable to the action of the fat-splitting ferment of the pancreatic juice. The same observers have shown that the bile and pancreatic juice are simultaneously poured into the intestine, the flow of each being increased and diminished by the same factors. Considerable importance, therefore, may be attached to the fact that the two secretions are mixed even before they enter the intestine. The increased efficiency of the pancreatic ferments in the presence of bile doubtless explains in part the severity of the lesion which results when bile finds its way into the pancreatic ducts.

The junction of the common bile duct with the larger duct of the pancreas serves to explain a variety of acute and chronic lesions of the pancreas, which occur in association with the presence of calculi in the bile passages. Such lesions may follow the impaction of a gallstone in the common part of the biliary and pancreatic ducts, or may be the result of an inflammatory process caused by the presence of gallstones in the bile passages and hence transmitted to the ducts of the pancreas.

HEMORRHAGIC PANCREATITIS.

Those who have described the lesion known as acute hemorrhagic pancreatitis have not failed to note its association with cholelithiasis. From the literature I have previously collected and tabulated² a considerable number of cases in which this lesion, often accompanied by jaundice, has been associated with gallstones present in the gall bladder or in the bile passages. In several of these cases a calculus, found at autopsy in the terminal part of the common bile duct, had doubtless exerted a deleterious influence on the pancreas. A case³

28. Jankan and Thomas: Quoted by Naunyn, *Klin. der Cholelithiasis*, 1892.

1. The Work of the Digestive Glands. (Translation.)
2. Pancreatic Disease, Its Cause and Nature. Philadelphia and London, 1903.
3. Bulletin of the Johns Hopkins Hospital, 1901, vol. xli, p. 182.

which I have described in detail has demonstrated a mechanism by which bile is diverted from its usual outlet and forced into the pancreatic duct. A very small calculus occluding the duodenal orifice of the diverticulum of Vater had converted the two ducts into a continuous channel through which bile forced by the gall bladder was injected into the pancreas. The ducts of the gland, where spared by the extensive hemorrhagic lesion which resulted, were stained by bile. A series of experiments performed on dogs demonstrated that the bile of one animal injected into the pancreatic duct of a second causes typical acute hemorrhagic pancreatitis, accompanied by disseminated fat necrosis. That bile injected into the pancreatic duct is capable of producing these lesions experimentally has been further shown by Flexner and Pearce,⁴ and very recently by Hewlett.⁵ Especially noteworthy is the fact that acute hemorrhagic pancreatitis occurs in the absence of bacterial infection, and in the case due to impaction of a calculus just cited, careful bacteriologic examination of the pancreas gave negative results.

In this connection it is of interest to note that Claude Bernard,⁶ nearly fifty years ago, injected bile mixed with oil into the pancreatic duct of a dog, causing death within eighteen hours. The autopsy, he says, showed an intense peritonitis, and the tissue of the pancreas, which had a red color, exhibited numerous ecchymoses. It is not improbable that the lesion thus produced was hemorrhagic pancreatitis.

During the past few years many cases of acute hemorrhagic pancreatitis have been described and especial attention has been directed to the condition of the bile passages. A considerable number of instances give confirmatory evidence of the frequent association of cholelithiasis and pancreatic disease. Such cases not included in my table previously mentioned have been described by Tornqvist,⁷ Flynn,⁸ Halley,⁹ and Shäcker.¹⁰

Of especial interest is the case of Tornqvist. Three weeks before death the patient passed by rectum a gallstone the size of a pea. At autopsy the pancreas was the seat of hemorrhagic and gangrenous inflammation; the gall bladder, ductus hepaticus and ductus choledochus contained calculi, two of which, the size of beans, were wedged in the diverticulum of Vater. In this instance it is difficult to decide whether the lesion was caused by these stones, or, perhaps, by the calculus which was passed several weeks before death.

No data at present available indicate with how great frequency acute hemorrhagic pancreatitis is caused by gallstones. In four of five cases which have come under my observation this association has existed. Other etiologic factors have been suggested, but direct evidence in favor of their occurrence is wanting. In many cases, doubtless, gallstones have been overlooked at autopsy. In a number of cases, however, their presence has been excluded by careful examination of the biliary tract. Such cases, for example, have been recently described by Lando¹¹ and by Pond;¹² in one case which I have examined no calculi were found. It is possible that the bile passages may have contained a single calculus which, causing the lesion, had escaped

into the intestine. Pearce¹³ has described an instance of the disease which illustrates this possibility. Two weeks before death jaundice had been present. Hemorrhagic and gangrenous pancreatitis was accompanied by fat necroses; no calculi were found in the gall bladder, gall ducts or intestine, but the orifice of the bile papilla was dilated, and in the common bile duct, one centimeter from its termination, occurred a circular dilatation one and a half centimeters in circumference, thus suggesting that a stone had previously occupied this position. This case resembles closely an instance of hemorrhagic pancreatitis described by Thayer;¹⁴ the orifice of the common bile duct was widely dilated and a calculus was found within the duodenum.

Calculi found in the gall bladder at autopsy suggest that hemorrhagic pancreatitis has been caused by their presence, even though none is found in the diverticulum of Vater, but their complete absence does not give conclusive proof that the lesion is not referable to cholelithiasis. It is not improbable that a pancreatic calculus impacted at the orifice of the diverticulum of Vater might cause the lesion, but such an instance has not been recorded.

The most characteristic feature of acute hemorrhagic pancreatitis occurring spontaneously or produced experimentally in animals is widespread necrosis affecting both parenchyma and interstitial tissue of the gland. The so-called gangrenous pancreatitis represents a later stage of the hemorrhagic lesion, when, doubtless as the result of bacterial invasion, the tissue infiltrated with blood has assumed a black color and has perhaps become softened; evidence of previous hemorrhage is frequently demonstrable. Peritonitis limited to the lesser peritoneal cavity is usually present. Among the cases in which the pancreas has been regarded as gangrenous gallstones are frequently found in the bile passages at autopsy, and the passage of a calculus is doubtless responsible for the pre-existing hemorrhagic lesion.

Cases of this character have been recently described by Deaver,¹⁵ Mayo Robson¹⁶ and Baldwin.¹⁷ The following case may be added to the list of those in which acute pancreatitis of gangrenous type has accompanied cholelithiasis:

CASE 1.—The patient, a man, aged 37, was admitted to the service of Dr. Halsted in the Johns Hopkins Hospital.

Present illness.—The present illness began seven months previously with pain in the epigastrum, accompanied by vomiting, which lasted two days. The pain disappeared and the patient was well for four months. A second attack began two weeks before admission, with epigastric pain, vomiting and constipation; chills occurred.

Examination.—There was no jaundice, but swelling in the region of the gall bladder was noted. On admission there was slight distension of the abdomen in the epigastric region, to the left of the median line; slight spasm of the muscle was present in the epigastric region and on palpation an indistinctly defined mass was felt.

Blood Count.—The red blood corpuscles numbered 1,400,000. The leucocytes 33,700.

Treatment.—An exploratory laparotomy was performed on the day following admission; death occurred four days later. The temperature varied from 101 to 104.

Postmortem.—An autopsy was performed by Dr. R. Van Wart through the wound made at operation. After cutting through the transverse mesocolon the lesser peritoneal cavity was found to contain dark red semifluid blood, together with

4. Univ. of Pennsylvania Med. Bull., 1901, vol. ix, p. 743.
 5. Jour. Med. Research, 1904, vol. xi, p. 377.
 6. Lecons de physiologie expérimentale, Paris, 1856, vol. II, p. 278.
 7. Nordiskt medicinskt Arkiv, 1903, vol. xxxvi, p. 1.
 8. Yale Med. Jour., 1904, vol. x, p. 237.
 9. Scottish Med. and Surg. Jour., 1904, vol. xiv, p. 52.
 10. Inaug. Diss., Giessen, 1902.
 11. St. Paul Med. Jour., 1903, vol. v, p. 21.
 12. Medical Herald, 1903, vol. xxii, p. 446.

13. Albany Med. Annals, 1904, vol. xxv, p. 389.
 14. Boston Med. and Surg. Jour., 1889, vol. cxxi, 506.
 15. Amer. Jour. of the Med. Sciences, 1903, vol. cxxv, p. 187.
 16. Lancet, 1904, vol. i, pp. 847-850.
 17. THE JOURNAL A. M. A., 1904, vol. xlii, p. 1354.

particles of firm, opaque, grayish-white material. A perforation with fairly smooth edges $1\frac{1}{2}$ centimeters in diameter was present in the wall of the transverse colon. Two perforations through the posterior wall of the stomach and two through the wall of the duodenum communicated with the abscess cavity. The greater part of the head of the pancreas had the appearance of the normal gland, but the remainder consisted of grayish, opaque friable material, having a fecal odor; here and there occurred areas of hemorrhage. The duct of Wirsung and the common bile duct united to form a diverticulum of Vater 1 centimeter in length. The bile ducts contained no calculi, but in the gall bladder were nine faceted gallstones of small size, the largest being only 5 millimeters in diameter.

The symptoms of acute hemorrhagic pancreatitis have been so carefully described by Fitz and by other writers that it is not desirable to review them here. Since this pancreatic lesion may become a complication of gallstone colic, the distinctive peculiarities of the former are important. The intensity of the pain, its diffuse epigastric character, with occasional localization on the left side, and the profound prolapse usually present, according to Thayer,¹⁸ give evidence that the pancreas is implicated. The following case, which has recently come under my observation through the kindness of Dr. P. H. Ingalls, may be cited as an illustration of the course of rapidly failing pancreatitis:

CASE 2.—A man, aged 47 years, who gave no history of gallstones, was suddenly seized at midday with intense pain in the upper part of the abdomen. A few hours later the features were drawn, the skin was clammy, and the pulse rapid and feeble. There was continued hiccough. During the following night vomiting began, and persisted with considerable severity. The abdomen was tender on pressure and was slightly distended immediately below the sternum. On the third day after the onset of symptoms the temperature rose to 104, and death occurred only three days after the beginning of the attack.

Postmortem.—At autopsy the pancreas was found much enlarged, and, save for scattered patches of relatively normal tissue, had a nearly uniform reddish-black color. The omentum was studded with foci of fat necrosis. The gall bladder contained a single large calculus, about 2 centimeters in diameter.

DIAGNOSIS OF HEMORRHAGIC PANCREATITIS.

The foregoing has shown, I believe, that cholelithiasis is the usual, if not the only, cause of acute hemorrhagic pancreatitis. The diagnosis of this often obscure condition may be aided by evidence which tends to establish the existence of cholelithiasis. A history of previous attacks of gallstone colic is, therefore, important. In many instances the fatal attack is accompanied by jaundice, which is doubtless due to impaction of a calculus at the duodenal orifice of the common bile duct. Since such impaction prevents the entrance into the intestine of both bile and pancreatic juice, well-marked digestive disturbances, particularly the presence of undigested fat in the stools, are to be expected, and in two of my cases the stools or the contents of the large intestine at autopsy have had a grayish-white or clay-like color. In cases of which the symptoms suggest acute hemorrhagic pancreatitis much importance might be attached to the discovery in the feces of a calculus of such small size that it could occlude the duodenal orifice of the diverticulum of Vater without filling its cavity. For this purpose the evacuations in cases which are not rapidly fatal should be carefully examined.

Recent studies offer hope that the diagnosis of acute hemorrhagic pancreatitis with fat necrosis may be facilitated by examination of the urine. Several years ago I suggested that the fat-splitting ferment of the pan-

creatic juice is with these lesions excreted by the urine and described a case¹⁹ in which a reaction indicating its presence was obtained with the urine. By a careful experimental study, Hewlett²⁰ has shown that this fat-splitting ferment appears in the urine of dogs with acute hemorrhagic pancreatitis produced experimentally. Cammidge²¹ has lately described a reaction which is, he believes, peculiar to the urine of those suffering with pancreatic disease.

The etiologic relation of gallstones to acute hemorrhagic pancreatitis makes obvious the importance of their removal when, at operation, the presence of fat necrosis directs attention to the existence of pancreatic disease. For even though that calculus which has caused the lesion has finally escaped into the intestine, anatomic conditions being such as favor the occurrence of the disease, the passage of another stone may cause a recurrence of the hemorrhagic lesion. Should a calculus be found within the diverticulum of Vater, its removal is imperative.

In a case operated on by Dr. Howard A. Kelly recovery followed the removal of a large number of small calculi from the gall bladder. In a case described by Wiener²² fat necrosis found at operation, two days after the onset of symptoms, gave evidence of acute pancreatic disease; a calculus was removed from the cystic duct, cholecystectomy was performed, and recovery followed.

SUPPURATIVE PANCREATITIS.

Several recorded cases demonstrate that acute suppurative pancreatitis may be a consequence of cholelithiasis. There can be little doubt that the lesion, like suppurative inflammation elsewhere, is caused by the invasion of micro-organisms, and in several ways the presence of calculi may favor such invasion. Partial occlusion of the pancreatic duct by a calculus lodged in the diverticulum of Vater may favor the entrance of bacteria into the duct from which pancreatic secretion can not readily escape. The probability of infection is much increased when the presence of biliary calculi have previously caused a suppurative inflammation of the bile passages. Mayo Robson¹⁶ has recently described two cases in which abscess of the pancreas accompanied cholelithiasis with suppurative cholangitis. In certain instances pancreatic abscess is, perhaps, the result of infection secondary to localized hemorrhagic pancreatitis caused by a gallstone lodged in the diverticulum of Vater. Especially interesting is a case recorded by Fuchs.²³ A man aged 32 years had suffered with recurrent attacks of abdominal pain, accompanied by vomiting, and on one occasion by jaundice. At operation a calculus said to have been the size of a bean was found within the diverticulum of Vater, while in the head of the pancreas was a small abscess. Removal of the calculus was followed by recovery. In an example of suppurative pancreatitis recorded several years ago by Deickhoff,²⁴ biliary calculi had actually found their way into the duct of Wirsung.

CHRONIC INTERSTITIAL PANCREATITIS.

Chronic inflammation of the pancreas is a more common complication of cholelithiasis than the acute lesions previously mentioned. Reidel²⁵ first directed attention

19. Bulletin of Johns Hopkins Hospital, 1902, vol. xiii, p. 117.

20. Jour. of Med. Research, 1904, vol. xi, p. 337.

21. Lancet, 1904, vol. i, p. 782.

22. New York Med. Jour., 1903, vol. lxxvii, p. 889.

23. Deutsche med. Woch., 1902, vol. xxviii, p. 829.

24. Festschrift f. Thierfelder, Leipzig, 1895.

25. Berliner klin. Woch., 1896, vol. xxxiii, pp. 1, 32.

to the indurated condition of the head of the pancreas not infrequently encountered at operation undertaken for the removal of gallstones, and pointed out its resemblance to carcinoma, for which it has been repeatedly mistaken. In three of 122 operations the head of the pancreas exhibited such dense induration that malignant growth was suspected; in two patients recovery followed, while in the third chronic interstitial pancreatitis was demonstrated by autopsy. Mayo Robson²⁶ has given especial attention to the occurrence of chronic pancreatitis recognizable at operation by well-marked induration of the gland, and Robson and Moynihan²⁷ have described seven instances in which jaundice and other symptoms of biliary colic have suggested the presence of gallstones. Calculi, however, were found in only two of these cases, in one of which it was possible at autopsy to demonstrate that the induration noted at operation was the result of chronic inflammation.

A case which I have recorded²⁸ demonstrates that a large calculus impacted within the diverticulum of Vater may cause chronic interstitial pancreatitis. I have shown that a small calculus, on the one hand, lodged at the duodenal orifice of the diverticulum of Vater can cause acute hemorrhagic pancreatitis by diverting bile into the pancreatic duct. A larger calculus, on the other hand, occludes both ducts and causes an interstitial inflammation similar to that which follows ligation of the pancreatic duct in animals. In six cases described by Moynihan²⁹ induration of the pancreas has been associated with the presence of calculi lodged in the common bile duct.

Doubtless, however, chronic interstitial pancreatitis may be caused by cholelithiasis even though the pancreatic duct is not obstructed by a calculus impacted in the terminal part of the common bile duct. An acute inflammation of the bile passage due to the presence of calculi in the gall bladder or elsewhere may be transmitted to the pancreas by way of its larger duct, and may finally cause chronic changes in the gland. In two cases which I have studied at autopsy chronic pancreatitis accompanied suppurative cholangitis with cholelithiasis, though no calculi were found compressing or occluding the pancreatic duct. In one of these cases the history of the patient gave no evidence that calculi had passed from the gall bladder to the intestine. In both cases the ducts of the pancreas were the seat of acute inflammation, which probably had its origin in the acutely inflamed biliary passages.

I have previously confined my attention to cases in which changes in the pancreas have been secondary to lesions of the biliary passages. Mayo Robson has described a group of cases in which chronic interstitial pancreatitis has caused, he believes, such compression of the common bile duct that jaundice has resulted. In these cases the pancreas has been found at operation unusually hard, and though jaundice has been present, no calculi have been demonstrable within the bile ducts. The common bile duct, it is well known, lies in contact with the head of the pancreas, and in 62.5 per cent. of individuals, according to Helly,³⁰ it is completely surrounded by pancreatic tissue. Pourtoy³¹ has described a case in which a sharply localized focus of chronic pancreatitis, obscure in origin, had caused constriction of the common bile duct with jaundice. In none of the

cases collected by this writer has dissection demonstrated that a diffuse chronic inflammation of the head of the pancreas is capable of causing jaundice by constricting the bile duct.

Chronic pancreatitis caused by cholelithiasis produces no symptoms which, with our present knowledge, make its presence recognizable. Mayo Robson finds that tenderness in the epigastrium, together with some fullness above the umbilicus, are usually present; loss of weight, he says, becomes marked, and pain may be present to the left of the median line, perhaps in the region of the kidney, or even below the scapula. For recognition of the condition, Robson attaches much importance to a reaction which Cammidge has recently described. What influence the occurrence of chronic pancreatitis exerts on the course of cholelithiasis is as yet obscure. Its importance lies in the fact that induration of the head of the pancreas observed at operations undertaken for the removal of gallstones may be mistaken for malignant growth. After removal of calculi the pancreatic lesion does not, in some cases at least, cause further serious harm.

CONCLUSION.

The following conclusion is, I believe, justified by the facts which have been cited: Whenever a biliary calculus passes through the diverticulum of Vater into the duodenum the pancreas is subjected to the danger of injury, the character and extent of which are dependent on the size of the calculus and the duration of its impaction.

DISEASES OF THE GALL BLADDER AND BILE DUCTS IN RELATION TO DISEASES OF THE GASTROINTESTINAL TRACT.*

BERTRAM W. SIPPY, M.D.

CHICAGO.

Owing to the close anatomic proximity of the gall bladder and bile ducts to certain portions of the gastrointestinal tract, disease of one of these structures may be readily transmitted to the other. The symptoms arising from disease of these parts are often hopelessly confused, as illustrated by the difficulty at times in differentiating cholelithiasis and gastric ulcer. No wonder, for, as Fleiner states in effect, one may well say gallstone disease may not only simulate all of the diseases of the gastrointestinal tract, but it may produce them, namely, stomach cramp, intestinal colic, vomiting, diarrhea, bloody vomit, bloody stools, symptoms of ulcer, actual ulceration, tumor, stenosis of the pylorus, duodenum and colon, gastric hypersecretion and tetany.

The disorders of the stomach and intestine arising from disease of the gall bladder and bile ducts may be conveniently divided into those nervous or reflex in origin, and those due to a direct extension of the anatomic disease.

NERVOUS OR REFLEX DISORDERS.

These may be sensory, motor and secretory.

Sensory and Motor Disturbances.—I will simply refer to the nausea, eructation and vomiting that accompany nearly every attack of biliary colic. The nausea and vomiting may be purely reflex, brought about by the irritation of the nerves involved in the gall-bladder and bile-tract disease. In many cases, however, a di-

26. *Lancet*, 1900, vol. II, p. 225.

27. *Disease of the Pancreas*, Philadelphia and London, 1903.

28. *Amer. Jour. of the Med. Sciences*, 1902, vol. cxxiii, p. 845.

29. *Lancet*, 1902, vol. II.

30. *Arch. f. mik. Anat.*, 1898, vol. III, p. 773.

31. *Thesis*, Lyon, 1903.

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

rect effect is produced on the gastric muscle reflexly. A temporary relaxation of muscular tone arises, as evidenced by distended epigastric region, a high tympanitic percussion note over the self-inflated stomach. A temporary gastric myasthenia or reflex relaxation may persist for several days. This accounts for the feeling of epigastric distension, pressure and weight, so frequently complained of after the acute colic has subsided. In many cases direct extension of inflammation to the pylorus or duodenum is the cause of similar clinical manifestations. A parietic condition of the muscle of the intestinal tract is frequently evidenced by diffuse abdominal distension, during and subsequent to an attack of cholecystitis. Siredey has reported a case of paralytic ileus arising reflexly from the irritation of a gallstone in the common duct. Rarely a reflex diarrhea is said to occur. It might be difficult in a given case to determine that the diarrhea was due entirely to the colic.

Reichmann claims that gallstones may give rise to gastralgia, and that they may reflexly cause cramps of the pyloric and cardiac muscles. While this can not be denied, it is more than probable that such pains are for the most part due directly to local anatomic conditions, such as adhesions, obstruction, etc.

Secretory Disturbances.—It is stated by most authors that cholelithiasis is accompanied by excessive gastric acidity or hyperchlorhydria. This statement does not seem to be based on the results of a systematic stomach analysis of any large series of cases. It is worthy of note that of the relatively limited number of cases of pyloric obstruction due to cholelithiasis that have been accurately reported, lactic acid was present in the stomach contents of several cases. This is interesting when we remember that non-malignant stenosis in general is rarely associated with the presence of the lactic acid.

Finally, it may be said of the nervous disorders, that the functional activity of the stomach and intestine is influenced in a reflex way by disease of the biliary tracts, but no serious permanent effect is likely to result. On the other hand, the direct extension of anatomic disease from the bile tracts to the stomach and intestine may be fraught with most serious consequences.

ANATOMIC DISEASE.

The readiness with which disease is liable to extend from one of these parts to the other is appreciated when one bears in mind the anatomic relations. About two inches from the pylorus the duodenum lies directly behind the neck of the gall bladder; above and behind it are the cystic and common bile ducts. The common duct passes directly behind and to the inner side of the descending portion of the duodenum, into which it empties. The gall bladder and bile tracts are thus in very close contact to the first five inches of the duodenum. Both structures are more or less firmly fixed, so that this relation is constant. The hepatic flexure of the colon is so near the right side of the gall bladder that after death it is frequently found stained with bile. The remaining portion of the intestine is more or less removed from the biliary tracts, and hence it is that the pyloric end of the stomach, the first and second portions of the duodenum, and the hepatic flexure of the colon are the parts most frequently involved by direct extension of disease from the gall bladder and bile ducts. As to the frequency of such complications, the statistics of Hildenstab show that of 320 cases operated on for cholelithiasis, 30 had pronounced stomach symptoms. This paper will discuss the pathologic conditions of

the stomach and intestine that result from cholelithiasis, cholecystitis and cholangitis. The effect of malignant and other disease will not be considered.

The rôle played by cholangitis is so slight that it deserves merely mention. Langenbuch claims that adhesions may arise from a simple cholangitis due to bacterial invasion from the blood and from the duodenum.

Cholelithiasis and cholecystitis may produce gastrointestinal disorders by causing, first, simple adhesions; second, obstruction to the lumen of the digestive tract due to inflammation and its results; third, fistulous communications; fourth, ileus due to gallstones.

As to the frequency of adhesions due to cholecystitis, exact statistics are wanting. According to Riedel, adhesions occur in 75 per cent. of all cases. In 128 gallstone operations, collected by Merck, adhesions were present in 38 per cent. of cases. According to Riedel, in 55 subjects showing an abnormal gall bladder at postmortem, adhesions were present in 25 per cent. of cases. The same author concludes as a result of an extended study of adhesions that, so long as the gallstones are in the gall bladder, the adhesions are usually confined to the omentum and transverse colon; if a stone wanders into the cystic or common duct, adhesions to the stomach in the region of the pars pylorica are likely to take place; the duodenum is usually the last to be drawn in by the plastic exudate.

Simple adhesions, when not producing obstruction, rarely cause serious symptoms. A few cases have been reported in which gastralgic pains, apparently due to adhesions, were relieved by operation. If the colon is extensively involved, constipation may result. This, however, seems to be a rare effect.

Clinically, duodenal and pyloric obstruction are by far the most common and serious pathologic conditions that arise.

As to frequency, in 1896 Alex found only 12 cases in the literature of pyloric and duodenal stenosis due to bile-tract disease. In 1897 Tuffier and Marchaise collected 19 cases. In 1899 Petersen reported from the Heidelberg clinic 55 cases of benign duodenal and pyloric stenosis, of which 8 were due to gall-bladder disease. In this series cholelithiasis, next to ulcer, was the most common cause of stenosis. Since attention has been directed to the condition, a great many other cases have been reported. During the last year I have had 3 cases under observation, so that pyloric and duodenal obstruction from cholecystitis is common enough to be taken into account seriously when evidence of pyloric stenosis exists.

The obstruction may arise in various ways. An acute pericholecystic exudate may surround the duodenum and pylorus, making compression. Simple extension of inflammation to the muscular coats of these structures may paralyze their contracting power, and give rise to clinical dilatation of the stomach. A mass of pericholecystic adhesions may contract and obliterate the lumen of the pylorus or duodenum. Adhesions may cause kinking and obstruction. A gall bladder distended with stones or exudate may compress the duodenum. A large stone in the cystic or common duct may have the same effect. Perforation of a stone into the duodenum may result in cicatricial stenosis.

Relative to the clinical picture produced, when the obstruction is due to an acute inflammatory exudate, symptoms of acute clinical dilatation of the stomach arise, usually following the onset of cholecystitis by a few days or two or three weeks. Tenderness in the pyloric region, and perhaps temperature, may be present.

Peristaltic waves are likely to be absent, because of the insufficient time for the development of pronounced hypertrophy of the gastric muscle.

When the obstruction is due to an old process, such as cicatricial bands, etc., a history of an attack of cholecystitis several months or even years before is usually obtained. Peristaltic waves are pronounced, and other symptoms of a chronic clinical dilatation of the stomach are present. Cramp-like pains and vomiting may take place at the time the stomach is emptying, and thus the symptoms of gastric ulcer may be simulated. A palpable tumor is sometimes present, which is frequently mistaken for carcinoma. In all cases of pyloric obstruction, with or without tumor, the possibility of an original cholecystitis should be considered.

Relative to palpable pyloric tumors, experience leaves no doubt in my mind that even among those better qualified to diagnose conditions, lives are constantly sacrificed by assuming on insufficient evidence that a palpable tumor at or near the pylorus is malignant.

Stenosis of the intestinal tract below the duodenum due to cholelithiasis is relatively rare. In 1903 Ranke could find only 10 cases of stenosis of the colon, 4 in the transverse colon and 6 at the hepatic flexure. In only 4 of these had the diagnosis of cholelithiasis been made. The caliber of the colon and the long mesentery of the transverse colon apparently protects it from stenosis. The hepatic flexure is more frequently stenosed, probably because it is more fixed and in closer proximity to the gall bladder. Obstruction in the ileum from the extension of inflammation attending gall-bladder disease is exceedingly rare. Ranke could find but one case reported.

The subject of biliary fistulæ communicating with the stomach and intestine may be disposed of in a few words. As to frequency, the statistics of Snively of recent date, taken largely from Courvoisier, gives:

Fistulæ between the gall bladder and stomach.....	8
Fistulæ between the bile ducts and stomach.....	12
Fistulæ between the bile ducts and duodenum.....	108
Fistulæ between the gall bladder and duodenum.....	93
Fistulæ between the gall bladder and jejunum.....	1
Fistulæ between the gall bladder and ileum.....	1
Fistulæ between the bile ducts and colon.....	1
Fistulæ between the gall bladder and colon.....	49
Fistulæ between the common duct and colon.....	1
Total	323

There are no characteristic symptoms of biliary fistula communicating with the gastrointestinal tract.

According to Mayo Robson, "Many of the biliary fistulæ are mere pathologic curiosities, quite undiagnosable, and only capable of being discovered postmortem. Many must form and heal, leaving the patient cured, and thus are they not only not discovered, but probably not even suspected. Fistulæ between the bile passages and hollow viscera, in the majority of cases, heal spontaneously, leaving only visceral adhesions, so that the fistulæ are comparatively rarely found postmortem."

Relative to the management of stenosis of the colon and fistulous communications, I shall say nothing. Old cicatricial bands at the duodenum or pylorus causing obstructive dilatation of the stomach may require gastroenterostomy in addition to treatment directed to the cholecyctic disease.

I wish to refer especially to the management of duodenal and pyloric obstruction arising during or immediately following an attack of cholecystitis. The inclination to do an immediate gastroenterostomy to re-

lieve the obstruction will usually be great. I believe I am stating it fairly when I say it is generally conceded among surgeons that if the condition of the patient will permit, it is good surgery to advise gastroenterostomy or some plastic operation on the pylorus as soon as the diagnosis of a high-grade pyloric obstruction from any cause is made.

Within the last year I have successfully managed two typical cases of high-grade pyloric obstruction due to cholecystitis by absolute rest and rectal feeding for four or five days, followed by gradually increasing quantity of milk and cream by mouth, testing the motor power of the stomach each morning by aspirating its contents. In these cases vomiting had been copious and persistent. Food taken on previous days had been vomited. Sarcina were abundant. Great thirst and reduction in quantity of urine, loss in weight and other signs of high-grade obstruction at the pylorus were present. In both cases, when first seen, the temperature had practically subsided, the local tenderness was diminishing, a moderate leucocytosis was present. The local condition did not demand immediate operative interference, and hence it was thought best to defer operation. The obstruction disappeared entirely after rest and rectal feeding, and both cases were thereby spared a gastroenterostomy that on first sight seemed strongly indicated.

If, in a given case, the local inflammation has reached its height, absolute rest to body, pylorus and duodenum favor rapid absorption of the plastic exudate. After it is demonstrated that food can pass the pylorus and duodenum, operation to remove stones, drain the gall bladder and relieve the local disease should be performed. On the other hand, if symptoms, such as high temperature, increasing pain and local tenderness, high leucocyte count, etc., indicate that the local inflammatory condition should be relieved without delay, operation directed to that alone should be performed. Very rarely, indeed, should a gastroenterostomy be done at the same time, unless there is evidence that the obstruction is due to old cicatricial tissue. Absorption of the plastic exudate causing obstruction takes place rapidly when the local cause is removed.

To recapitulate: In duodenal and pyloric obstruction due to recent cholecystitis, the advice is not to operate until the patency of the pylorus is tested by rest and rectal feeding, except in those cases in which immediate operation is necessary, on account of the seriousness of the local inflammation. In such cases operation should be directed to the relief of the local inflammation alone. Gastroenterostomy should rarely be performed at the same time, except when there is evidence of old pyloric or duodenal obstruction. If it is demonstrated that the obstruction does not grow less under the influence of rest and rectal feeding, then operation for the cholecystitis may be combined with gastroenterostomy if the condition of the patient will permit.

GALLSTONE ILEUS.

After a gallstone has reached the gastrointestinal tract, it usually passes with the feces without further trouble. Now and then a stone occludes the lumen of the bowel, and statistics show about 50 per cent. of such cases die as the result. In 1891 Schüller was able to collect 150 cases of gallstone ileus. Since then the number has greatly multiplied. A study of the literature shows that gallstone ileus is not in all cases due to simple occlusion. The size of the stone alone is not responsible. While it is true that large stones more

readily cause obstruction, deadly ileus may arise from small stones. On the other hand, Holz has reported a case in which a stone, 13 by 9 centimeters, was passed to the anal sphincter before causing trouble. Gallstones have occluded the bowel at practically all points between the pylorus and the rectum. The most common seat of obstruction, however, is at or near the ileocecal valve, where the lumen of the intestine is smallest. Obstruction from stone is rare in the duodenum and jejunum, and relatively rare in the colon. The following causative factors enter into gallstone ileus:

1. Large stones may actually occlude
2. Stones of moderate size may cause irritation and reflex contraction of the bowel about the stone.
3. A paralytic condition of the bowel may be the final result of continued irritation from the stone.
4. A stone may cause ulceration of the bowel, and the resulting peritonitis, with or without perforation, may result in occlusion.
5. Pathologic narrowing of the bowel may lead to obstruction by stone.

It is noteworthy that at the time of operation and at postmortem, gallstones causing intestinal obstruction are frequently found quite movable. The diagnosis of ileus due to gallstones can rarely be more than a probable diagnosis. A majority of the large stones causing occlusion have reached the intestine, usually the duodenum, by ulcerating through the gall bladder or cystic duct. Relatively rarely do large stones pass the common duct. Hence icterus does not commonly precede the occlusion. Peritoneal adhesions frequently unite the gall bladder to the intestinal tract, and by a slow process of ulceration a large stone may gain access to the bowel without causing serious symptoms. Thus, in many cases, history pointing to previous cholecystitis may be entirely absent. In most cases occlusion takes place after the stone has been in the bowel for a long time.

Owing to the many factors entering into the occlusion, the symptoms are exceedingly variable. Contraction of the bowel about a small stone may cease for a time and then recur, giving an interval of freedom from symptoms. Obstruction from gallstones seldom occurs until after the sixtieth year. As a rule, the obstruction is in the small intestine. In general, there is nothing absolutely characteristic about the symptoms of gallstone ileus. However, in addition to what has been said, the following special features may be borne in mind: In no other form of obstruction is fecal vomiting so likely to occur at the same time that abundant gas and feces are passed by the bowel. Obstruction being high, early and profuse vomiting takes place, yet often with relatively less shock and prostration than in other forms. As a rule, the pain is not so severe, the pulse not so rapid, the meteorism is not so great, the general symptoms are less severe than in obstruction due to strangulation of the gut, volvulus, and other conditions associated with grave circulatory disturbances in the bowel.

The treatment should be operative, after a reasonable effort has been made to overcome the occlusion by medicinal and physical means.

An extended study of the relation of typhoid fever to cholecystitis and cholelithiasis will not be attempted here. The work of Richardson, Cushing, Gilbert, Fournier and others has abundantly demonstrated the causal relation between typhoid fever and cholelithiasis.

DIAGNOSIS.

I have already alluded to the difficulty in differentiating gall-bladder disease and its results from primary disease of the stomach and intestine. The difficulties in diagnosis at times are insurmountable. Time will permit me to consider only the differential diagnosis between ulcer of the stomach and duodenum and cholelithiasis. I shall dwell on certain points only. It is of great value in diagnosis to simply remember that there is not a single symptom in gastric or duodenal ulcer that may not be present in cholelithiasis, and *vice versa*. Thus temperature may be present in ulcer as a result of perigastritis. A tumor from secondary glandular enlargement and perigastritis may develop in ulcer. Icterus, as a result of duodenal ulcer, is easily explained. It may develop from adhesions and inflammatory swellings complicating gastric ulcer. After all, icterus is relatively rare in gallstones. Riedel says that if one were to diagnose gallstones only when icterus is present, the diagnosis would be made in no more than 10 per cent. of the cases. Even the symptom, hemorrhage, so valuable in the diagnosis of ulcer, is not altogether reliable. It is present in less than half of the cases of ulcer, and vomiting of blood occurs in less than one-fourth of the cases that are diagnosed. Vomiting of blood may take place in gallstones, first, from excessive vomiting alone; second, gallstones may perforate the duodenum or stomach and cause hemorrhage; third, thrombosis of the venous radicles of the portal vein attending the spread of inflammation about gallstones may give rise to hematemesis or melena.

Hyperchlorhydria is an important symptom in ulcer. It is by no means constant. Gallstones may give rise to a reflex hyperchlorhydria. When pyloric obstruction develops as a result of cholelithiasis, the retention of the ingesta induces hyperchlorhydria and even continued secretion may arise, as in one case recently under observation.

In gastric ulcer the complexus of symptoms characterized by discomfort coming on from one to two hours after eating caused by the hydrochloric acid irritating the ulcer, pain gradually increasing until about three hours after eating may become severe, cramp-like, and finally result in vomiting with relief, is well-nigh diagnostic of the condition. It is well to remember that these symptoms, almost characteristic of ulcer, may be found in cholecystitis that has resulted in adhesions about the duodenum and pylorus. The pain is produced from two to four hours after eating, when the food is being forced through the narrow pylorus and duodenum. Tenderness on pressure in the pyloric region may be present in both. The ordinary symptoms of so-called dyspepsia, feeling of weight, fullness after eating, associated with eructation of gas, may be identical in ulcer and cholelithiasis. The examination of a test-meal is important, because, other things being equal, normal secretion and normal motor power speak against a stomach disorder.

As disheartening as the attempt at differential diagnosis may appear from an analysis of the individual symptoms of the two conditions, in typical cases there is no difficulty whatever in differentiating gall-bladder disease from gastric ulcer. One may say that in the majority of cases a fairly accurate differential diagnosis can be made between the two conditions if the whole clinical picture is carefully studied. Mistakes are likely to occur when evidence is faulty or incompletely elicited, or when too much stress is laid on some individual symptom.

DIAGNOSIS OF CHOLECYSTITIS AND CHOLELITHIASIS.*

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According to generally accepted statistics, one adult in every ten is the subject of gallstone. Of these about 5 per cent. suffer from symptoms of the disease. A proportion of these cases show such marked symptoms that the diagnosis is easily made, and the condition is readily recognized. A larger proportion of cases, however, present such vague symptoms, or symptoms so little understood by the general practitioner, that diagnosis is not made, and many patients who are much in need of relief which surgery might give, continue as chronic invalids for years until some severe crisis brings them to an untimely end. Owing to the efforts of many able scientists, prominent among whom are Mayo Robson, Kehr, Brewer, the Mayos, Murphy and Richardson, much has been done toward throwing the searchlight of knowledge into that region which has been called the mysterious realm of surgical romance, namely, the right upper quadrant of the abdomen. And to-day we are quite safe in eliminating from our list such conditions as gastralgia, gastric colic, neuralgia of the gall bladder, neuralgia of the stomach, etc., and we have learned that every case of chronic indigestion which can not be relieved by the internist should be handed over to the surgeon, for by his skill a solution of the difficulty may be found. To-day diseases of the gall bladder and gall ducts do not belong to the domain of internal medicine, but to the domain of surgery, just as much as is true of appendicitis. To-day the internist must recognize the fact that the diagnosis of gall passage disease does not depend entirely on jaundice. He must know that certain forms of this disease may only be recognized by a careful study of the patient's history and by a most discriminating investigation of the symptoms which he presents.

The important diseases of the gall passages are embraced under the following heads:

1. Inflammatory disease of the gall bladder and gall ducts with or without stone.
2. Gallstones in the gall bladder and gall ducts with or without inflammation.
3. Inflammatory condition of the region surrounding the gall passages causing obstruction by pressure or distortion.
4. Neoplasm of the gall passages, benign and malignant, with or without gallstones, and with or without inflammatory disease.

SYMPTOMS.

The prominent symptoms produced by gall-passage disease are: Pain, tenderness, fever and chills, vomiting, change of pulse rate, collapse, tumor, jaundice, urinary changes, blood changes, changes in the stools.

Pain.—In this disease the pain is to be distinguished by its character, which is usually colicky, more often occurring when the stomach is empty, hence the attacks usually come on at night. It is situated in the region of the gall bladder, extending toward the right shoulder and the back. It is frequently relieved by eating, and is generally relieved by the escape of gas from the bowel. Pain is claimed by Kehr and many authorities to be almost entirely dependent on inflamma-

tory changes, though Murphy, Ferguson and many others claim that it is due to the effects of stone or to distention of the gall bladder or ducts independent of infection. The characteristic features of the pain are its acute onset, its colicky nature, and, as described by Lambert, the patient experiences a sense of something boring through the abdomen to the vertebra.

Tenderness.—As in appendicitis, tenderness localized to the region involved is, perhaps, one of the most characteristic symptoms. In the main its maximum point of intensity is just below the free border of the ribs, opposite the juncture of the ninth rib with its costal cartilage. The Mayo Robson point, comparable to the McBurney point in appendicitis, is above and to the right of the umbilicus at the junction of the upper two-thirds, with the lower third of a line drawn from the ninth rib to the umbilicus. This is the point of maximum tenderness in the majority of cases. Mayo Robson says that this is true, even in cases where the liver and gall bladder are considerably displaced, as it is really the site of reflected pain passing along the splanchnic to the eighth and ninth dorsal nerves, and thence reflected to the surface of the termination of these nerves.

Fever and Chills.—With a characteristic attack of gallstone colic the fever is of the acute type. There is very frequently with the pain a sudden and severe rigor, the temperature rising rapidly, and as rapidly subsiding with the subsidence of the pain. As pointed out by Murphy, the temperature chart in this disease is characterized by a series of angles instead of curves. In cases of infection of the gall bladder going on to suppuration, of course the fever may continue as a septic fever, having the characteristic phases.

In cases of acute inflammation of the gall bladder in which gangrene results, the onset and progress of the disease may be very sudden and rapid, but, as in analogous cases of appendicitis, a period is reached, when gangrene first takes place and before general sepsis has occurred, in which there may be an almost complete subsidence of symptoms. It should be very alarming if the condition is recognized, for the pain ceases, the tenderness decreases, the nervous phenomena are reduced to the minimum so that the temperature and pulse may recede toward the normal, and one may be led into the mistake of believing that the disease has subsided. Of course, when perforation has taken place or when peritoneal sepsis begins, all the characteristic symptoms will be again exaggerated.

Vomiting.—Vomiting is a very frequent symptom in acute attacks, coming on suddenly with the pain. It is of reflex character, and is independent of nausea. In some cases a severe paroxysm of vomiting may result in dislodgement of the stone from the common duct it either passing into the intestine or by relaxation receding into the dilated portion of the common duct, when a temporary subsidence of the attack will take place.

Pulse.—During an acute attack of biliary colic the pulse is accelerated and its tension is increased. During inflammatory disease of the ducts or gall bladder, of course, the pulse will be in keeping with the febrile disturbance.

Collapse.—Collapse is a frequent occurrence in severe attacks of gallstone colic. It may be so severe as to mask all other symptoms and to render diagnosis obscure. According to Mayo Robson, the acute agonizing pain may of itself cause death. Of course, collapse will be a marked and final symptom of phleg-

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

monous cholecystitis, perforation of the gall passages, or of any condition resulting in fatal peritoneal sepsis.

Tumor.—In cases of inflammation of the gall bladder or of obstruction to the common duct or cystic duct, the distended gall bladder may be felt. Projecting below the free border of the ribs it may be of almost any size, sometimes reaching far below the umbilicus. It is usually a pyriform, fluctuant mass, which is continuous with the free border of the liver, and which moves with the liver on respiration. It may be exquisitely tender or not. On several occasions I have been able to palpate a gall bladder distended with gallstones; in some cases the crepitation of the stones rubbing on each other could be distinctly made out. In one case there was a single stone measuring $7\frac{1}{2}$ inches in circumference, the patient's abdominal wall was thin, and the hard mass could be very distinctly felt.

Jaundice.—Jaundice may be either present or absent; it may be persistent or it may be intermittent; it may be pronounced or slight, depending on the amount of obstruction to the flow of bile into the intestine. Thus, with obstruction of the cystic duct, we may have no jaundice; with obstruction of the hepatic duct we may have partial jaundice; with obstruction of the common duct we may have pronounced jaundice. A stone impacted in the common duct may leave a valve-like opening which permits of the escape of bile into the intestines. Then jaundice will not be present or will be but partial. When a distended common duct has become sufficiently open to allow the stone to float from its position of impaction, the jaundice may be relieved by the flow of bile into the intestine, the stone becoming again impacted; then the jaundice will be intermittent. Jaundice may be caused by inflammatory swelling in the common and hepatic duct, or it may be caused by inflammatory constriction or torsion of the common duct, or it may be caused by malignant disease of the duct or of tissues in the neighborhood of the duct.

To sum up, jaundice may be caused by stone in the hepatic duct; in the common duct; by inflammation of the hepatic duct or common duct; by carcinoma of the gall bladder (late); by tumors of the hepatic duct; the common duct or the neighboring viscera; and by localized peritonitis constricting or distorting the common or hepatic duct by adhesions.

Prolonged persistent jaundice with progressive loss of weight is very indicative and suspicious of carcinoma in this region.

A careful consideration of the above will show that jaundice is by no means a constant symptom of gall-passage disease. According to Brewer, it is absent in from 80 to 90 per cent. of all operative cases, and the clinician should never hesitate to make a diagnosis of disease of the bile passages because of the absence of jaundice.

Urinary Changes.—Examination of the urine is principally of interest in determining the presence and degree of jaundice.

Blood Changes.—Examination of the blood will aid in determining the presence and degree of jaundice, and the amount of leucocytosis will also aid in determining the presence of suppuration.

Stools.—By examination of the stools one may determine the presence or absence of bile, the stools being light in color to clay color, depending on the amount of jaundice, and the consequent absence of bile from the intestines. One may also determine the presence of gallstones after a characteristic attack during which gallstones have passed from the ducts

X-RAY EXAMINATION.

So far diagnosis of gallstones by the x-ray has been rather unsatisfactory. Very thorough and painstaking work has been done in this field, and skiagraphs of gallstones have been made. Of course, when a positive finding is obtained, it is of the greatest use, but, on the other hand, the many failures and the uncertainty of the process leave us in the position that a negative finding does not necessarily mean that gallstones are not present.

DIFFERENTIAL DIAGNOSIS.

Bile-passage disease is to be distinguished particularly from the following conditions: Gastric ulcer, appendicitis, renal colic, pancreatitis, phlebitis portalis, angina pectoris, empyema, subphrenic abscess, malignant disease of the pylorus, duodenum, pancreas, liver, kidney, etc.

Gastric Ulcer.—An acute attack of indigestion dependent on a gastric ulcer may simulate biliary colic. In gastric ulcer the pain is of a different character, less severe and not so paroxysmal; tenderness, when present, is higher and nearer the median line; the vomiting is preceded by nausea; chill and fever are usually absent; the attack comes on after eating while the stomach is full, while in biliary colic the attack usually comes on at night, and is rather dependent on an empty stomach.

Diagnosis is to be made by the above facts and by a hematemesis, the examination of the stomach contents, the absence of jaundice, the absence of tenderness at the Mayo Robson point, and a careful consideration of the preceding history.

Appendicitis.—In typical attacks no difficulty would be found; in certain cases where the appendix is displaced upward and the disease is toward its tip, or where former adhesions have possibly connected it with the upper quadrant of the abdomen, difficulty in diagnosis may be experienced. The characteristic signs of appendicitis are the extreme rigidity of the right rectus muscle, the nature of the onset of the attack, the difference in character of the temperature, the difference in character of the pain, of its site and of its direction of radiation; the vomiting is often reflex, and preceded by nausea and indigestion; there is absence of jaundice. In severe cases where the signs are very confusing, Hotchkiss has pointed out the fact that for the same period of the disease—say the end of twenty-four or forty-eight hours—a patient with gall-passage disease will be in much better condition than will be a patient suffering from a comparable attack of appendicitis.

Renal Colic.—In renal colic the onset of the attack, the paroxysmal nature of the pain, and the rigor may lead to confusion, but there is absence of the tenderness at the Mayo Robson point, of jaundice, of palpable tumor at the site of the gall bladder, and the pain radiates in entirely different directions.

Angina Pectoris.—Biliary colic may be mistaken for angina pectoris in certain irregular cases, because the pain may be precordial. It is to be distinguished by the presence of its characteristic signs and by the absence of the signs which will be found on auscultation of the heart.

Pancreatitis.—Acute pancreatitis may be differentiated from acute cholecystitis and from phlegmonous cholecystitis with great difficulty. Aside from the history of the attack and the patient's previous history,

the only distinguishing point may be the presence of fat in the stools.

Phlebitis Portalis.—I have seen two cases of phlebitis portalis as a remote sequel of appendicitis. They were both fatal. They showed the characteristic temperature of septicemia, and there was tenderness in the region of the liver and a mild form of jaundice. These cases were to be distinguished from bile-passage disease by their precedent history, by the characteristic temperature range, and by the lack of the prominent characteristic symptoms of disease of the gall passages.

Empyema and Subphrenic Abscess.—Certain cases of encysted empyema and cases of subphrenic abscess on the right side, owing to their situation, may be confused with disease of the biliary passages. They are to be distinguished by the lack of symptoms of biliary colic, by their preceding history, and by the physical signs which may be found on careful examination by percussion, palpation and auscultation. Of course, occasionally diagnosis in these conditions can only be arrived at by an exploratory incision.

Just here let us say that in any case where there exist symptoms indicative of grave disease which the internist can not cure by hygiene or drugs, and where the symptoms are sufficiently vague or masked to make an accurate diagnosis impossible, we should turn without hesitation to the employment of exploratory incision, for these symptoms must mean some disease intractable to any except operative treatment, and by properly applied surgery many lives may be saved which otherwise would be lost during a period of prolonged doubt and hesitation.

Malignant Disease of the Pylorus, Duodenum, Pancreas, Liver, etc.—In my experience a certain proportion of cases of cancer of one of the organs in this region can not be definitely differentially diagnosed except by exploratory incision. Of course, much light may be thrown on the subject by an examination of the stomach contents, by a careful consideration of the entire history of the case, taking into account the presence or absence of important characteristic symptoms.

SPECIAL DIAGNOSIS.

In this brief paper I have only attempted to elucidate certain points which may enable one to make a diagnosis of disease of the gall passages, and space will not permit me to go elaborately into the finer questions which would aid one in making an accurate diagnosis and estimate of the special conditions present, but for this purpose the physician is referred to Brewer's¹ diagnosis chart of diseases of the gall bladder and ducts, for I feel it to be the most concise and accurate epitome of this subject in literature.

To-day surgery of the bile passages is on a very sound footing, and thousands of lives are being saved by the work of skilled operators; but many more thousands of lives are being sacrificed on account of the difficulty of diagnosis, and of the fact that a large proportion of cases urgently needing surgical relief are unrecognized or continue to be treated or neglected as cases of gastralgia, of indigestion, of neuralgia of the stomach, neuralgia of the gall bladder, etc., and if the foregoing remarks may in any way aid in the recognition of these diseases, I shall feel well repaid for my humble efforts.

THE TREATMENT OF CHOLECYSTITIS AND CHOLELITHIASIS.*

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That the Chairman of the Section on Practice of Medicine has called on two of his surgical colleagues to prepare papers on the diagnosis and the treatment of gallstone disease which, but a very few years ago, was considered entirely within the domain of internal medicine, is suggestive of the change which has taken place in medical thought and practice and of the better understanding which has risen between the internists and the surgeon. The growing tendency to place these diseases of the gall bladder and bile ducts within the category of surgical affections is due largely, perhaps, to the very effective work of surgeons in extending the knowledge of the pathology of these diseases, by recording the conditions directly observed on the living, and by comparing these with the symptoms manifested in each case. In this way not only has the pathology to an extent been rewritten, but also the diagnosis has been established on a firmer basis.

The foundation of rational treatment has in this way been definitely established, and we are prepared now to go ahead and endeavor by continued observation to render the diagnosis more certain, for on these two points—definite pathology and exact diagnosis—all progress in treatment must rest.

The treatment of cholelithiasis and its complicating cholecystitis forms a most important chapter in the consideration of this subject. Obviously, the whole question is too broad a one to be considered at length within the limits of this brief paper, and attention will be chiefly directed to the modern interpretation of the various forms of treatment as based on physiologic and pathologic research, and conditions observed under the scalpel of the surgeon.

Treatment in cholelithiasis may be divided into two classes: First, the medical or palliative; second, the surgical or radical and curative. While our knowledge of the diagnosis of surgical conditions of the gall bladder is receiving constant additions, it is still too inexact in many cases, and many of our operative attacks are still largely exploratory. Bearing this in mind, we must admit that our medical brother may still often be justified in applying palliative measures and waiting for developments in many of his cases. Although the treatment of gall-bladder infection is undoubtedly surgical, there are so many factors to be considered in various cases that the radical or curative treatment is by no means unfortunately always available or even allowable. Hubert Richardson,¹ in an admirable paper, "Physiology and Pathology of Biliary Secretion," makes a plea for medical treatment in gallstone disease, which is based on some very interesting physiologic experiments on the action of the bile salts. As it has been shown by Herter that the bile salts act to hold the cholesterol in solution in the bile, their administration ought logically to prevent its precipitation and consequently gallstone formation. Since inflammation of the gall bladder invariably increases the amount of cholesterol and diminishes the amount of bile salts in all cases of cholecystitis, the administration of sodium glycocholate should theoretically be indicated. The

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

1. N. Y. Med. Jour., April 9, 1904.

1. Boston Medical and Surgical Journal, vol. cxlviii, p. 532. May 14, 1903.

possibility of the solution of gallstones *in situ* is of the greatest clinical importance, and the search for such a solvent is as eager as that for the philosopher's stone, but thus far, unfortunately, quite as evasive. Recently Wakelin Barret² experimented by inserting large gallstones aseptically into the healthy gall bladder of dogs, and found that in from six months to one year they were dissolved, proving that healthy bile had the power to dissolve gallstones. He found, however, if stones were similarly inserted and an infective cholecystitis produced, they were not dissolved, showing that the bile under such conditions had no solvent power.

Austin³ has shown by analysis of the bile obtained from operative fistulas that the cholalic acid is from 1/3 to 1/8 of the cholesterol, while, according to Hammerstein, the normal ratio is as 12 to 1. It is evident, then, Richardson thinks, by administering sodium glycocholate, that it may be possible not only to prevent the formation of gallstones, but also to dissolve those already formed.

Heppel found that 5 per cent. olein, 10 per cent. bile salts, and 50 per cent. soap, will hold in solution their own weight of cholesterol; hence by administering alkalies and bile salts with a diet rich in fat the solution of gallstones ought to take place and their formation be prevented. This treatment proposed by Richardson comes, as he says, under the head of organotherapy, in that it is an administration of a secretion of the liver which is reabsorbed from the intestine, and so acts on the bile secretion through the blood.

The treatment by olive oil, adopted so enthusiastically by the profession a few years ago, has not fulfilled the hopes of its advocates as a specific, and is believed to have no direct action, but by relieving congestion of the intestine to aid indirectly in draining the biliary ducts. As there is no doubt that catarrh of the mucosa lining the biliary passages tends to increase the amount of cholesterol, and the longer the bile remains in the gall bladder the more cholesterol it will contain, it follows that whatever leads to the regular emptying of the gall bladder and the ducts tends to clear out any detritus, cholesterol crystals, mucus, etc.

Hence the rationale of the treatment which aims to clean out the intestinal tract, relieve congestion and increase the flow of bile is perfectly sound. The system of treatment adopted at some of the famous "Cures" abroad, notably Carlsbad, combining diet, exercise and the free consumption of certain mineral waters, seems often to be followed by very marked benefit, especially in the milder cases of catarrhal cholecystitis and cholangitis. When a patient has suffered from one or more attacks of biliary colic a course at Carlsbad may be of lasting benefit or entirely without effect. In a patient who can afford it, and in whom the disease has not progressed to such an extent as to menace his safety, such a course may be perfectly well prescribed.

A recent monograph by Fink⁴ of Carlsbad gives the results in a large series of cases observed by him, and an analysis of the results obtained by the water cure alone and the "cure" plus a surgical operation. As he very properly states, the great point to be determined is the borderline between balneologic and surgical treatment, i. e., when the former should cease and the latter be commenced. In his series of cases he presents abun-

dant material, affording a glimpse at the results of the Carlsbad "cure," and out of this material he presents a string of references which stands in intimate relation to this question. A perusal of the whole article is to be recommended.

What cases, then, shall be treated expectantly and what surgically? As the indications for operative interference in cholecystitis are further extended and better understood, there will come a full agreement between surgeon and internist as to the limitations of medical and the indications for surgical treatment. In the meantime, until such an understanding is reached, and in order that the medical man and the surgeon may understand each other's point of view, it may be proper to discuss the general effectiveness of surgical treatment, its advantages and its dangers, and, so far as possible, some of the reasons why its results fall short of the ideal. Inasmuch as the necessity for radical treatment is now pretty plainly recognized by all progressive practitioners, the number of cases "treated by procrastination and the direct encouragement of the opium habit" is each year growing less. Still, too many cases are encouraged to drift along and only counseled to submit to operation when the general condition is bad and the local ones such as to render necessary some of the more elaborate, difficult and dangerous operations. It should be remembered that the surgeon must take the case generally as it is brought to him, and the practitioners ought not, in justice to the good work which has been done in gall-bladder surgery in this country and abroad, to frame his opinions and judgment merely on the results of operations in desperate cases.

The promise of the future in gallstone surgery lies not so much in further elaborations of technic as in the prompt diagnosis by the internist, and his co-operation with the surgeon in advising one of the simpler prophylactic operations which may be done before serious infection, adhesions, duct invasion and blood changes have made any undertaking more severe, more hazardous and less effectual. As greater certainty in diagnosis is reached, there will be less call for the more difficult and dangerous operations on the common duct and a decreasing number of cases requiring cholecystenterostomy. Wherein, then, lies the danger in operation? Principally in delay. The statistics from our hospitals and private sources show a mortality so low in cholecystostomy and primary cholecystectomy that the internist may feel entirely justified in offering a surgical operation as a prompt, efficient and safe measure in any proper case, and as the only radical and curative means of which we have any knowledge. The danger of delay has been pointed out by the readers of every paper, and should be well understood both by the patient and the physician. With the diagnosis of obscure biliary affections discovered by means of exploratory laparotomy, Lawson Tait's name will always be associated, and following his example, many surgeons have not hesitated to make the diagnostic cut which, though undoubtedly capable of great abuse, can not to-day be questioned as not only frequently justifiable, but also necessary in obscure diseases of the gall bladder and ducts.

When we consider that the first deliberately planned cholecystostomy was done by Marion Sims in 1878, and the first cholecystectomy by C. Langenbuch in 1882, it will be seen what great progress has been made in this department of work in the last twenty years. In 1892, Murphy published his account of the applica-

2. Jour. of Physiology, 1903.

3. Jour. of Med. Research, 1902.

4. Erfolge der Karlsbader Kur und der chirurgischen Behandlung des gallensteinleidens, 1903.

tion of his button for the purpose of effecting an anastomosis between the gall bladder and the intestine. A number of operations have been proposed for stones impacted in the cystic and common ducts. Tait's cystico-lithotripsy or crushing *in situ* in 1854. Lithotomy,⁵ or extraction of stone in the cystic duct through an incision in another part of the biliary passages by Courvoisier in 1858. Cystotomy, or incision of the cystic duct, by Lindner in 1891. Cystectomy, or resection of a portion of the duct proposed by Zielewicz in 1887, and cystico-enterostomy by Roth in 1888. Operations on the common duct are numerous, though many are obsolete or often impracticable. Hansfield Jones, in 1878, proposed choledochic massage, which has not had much success, either having been followed by complete failure or by choledolithotripsy (Langenbuch, 1886, Sprengel, 1890, Mayo Robson, 1891). Choledochotomy, proposed by Langenbuch in 1884, was developed by Parkes in 1885, and is to-day one of the most important operations for stone in the common duct. Five years later Kocher gave it his support. The first typical operation of this sort was done by Knowlesley Thornton in May, 1889, and at about the same time by Marcy, Ferguson and Fenger. It is now established on a sound basis. A few years ago before the Association, Mayo of Rochester proposed an important and ingenious device for drainage after this operation. The question of omitting sutures in choledochotomy was broached by Parkes in 1885, and they were left out by Hoehenegg in 1890, and since that time the proposition has grown constantly in favor as the benefits and necessity of drainage in cholemic cases are better understood. Removal of impacted common duct stone by incision through the duodenum was first done in this country by McBurney in 1891, and retroduodenal choledochotomy was proposed by Berg of New York last year, 1903. Choledochostomy, choledochectomy and choledoch-enterostomy are only possible in rare conditions.

Operations on the hepatic ducts are still in their infancy, owing to the infrequency of operative work in this region. Hepatico-lithotripsy was done by Kocher in 1890. Hepatico-colic massage was unsuccessfully used by Elliot in 1894. Hepatico-lithotomy was attempted by Courvoisier in 1890, by Abbe in 1891, and others. Hepaticotomy was done by Kocher in 1899, removing a stone by the transhepatic route. Finally, hepatico-enterostomy has been experimentally studied, but not done clinically. Looking over this list, it will be seen that American surgery has played no unimportant part in the pioneer work of the operative treatment of gallstone disease, and in the later developments of important modifications in technic.

With this brief reference to the great progress of surgery in cholelithiasis, we must pass on directly to the consideration of the treatment of cases as they present themselves to us. Although there is not as yet a full agreement as to the limitations of medical and the indications for surgical treatment, it can no longer be held that the surgeon is rash in advising operation in any case wherein any considerable degree of infective cholecystitis has been diagnosed. Although an infected gall bladder may be entirely restored to the normal, as Naunyn has shown, the proportion of cases of recurring severe attacks is large enough to give the surgeon full justification in urging earlier operation in many cases. Hence we must consider two classes of cases

in cholelithiasis—one in which expectant treatment may still be advised, and another in which surgery is the only resort, recognizing, of course, that ultimately the only real treatment for all well-marked cases is surgical.

As has been shown, the period of "latency" may be reached at any period in the course of the case, provided the stone does not obstruct the passages or additional infection occur to disturb it by setting up inflammation, or traumatism to suddenly alter the position of the stone. The variability of this "quiet" period is very great, and is the chief factor relied on by those who favor palliative measures, since it may be very long and the attacks of colic comparatively mild.

What shall be our advice to patients suffering from cholecystitis and cholelithiasis? Shall we operate early or shall we wait? What is the present state of opinion and practice?

Cases seen in the first and mild attack, such cases, by the way, as are seldom seen by the surgeon, where the symptoms are slight and there is no peritonitis, where the inflammation in the gall bladder quickly subsides under medical treatment, are properly cases for observation.

In a certain proportion of these cases there is only one stone or small stones or mucus which are passed out into intestine and the cholecystitis disappears, about 10 per cent. (Elsberg⁶). In about 70 per cent., however, the stone remains in the cystic duct or drops back into the gall bladder, remains latent for a variable time, and the swollen gall bladder disappears.

Cases may be seen in subsequent mild attacks, where the patient may have had several mild seizures and has perhaps passed a stone or stones. Under these conditions at present, I think, most surgeons are inclined to wait, especially if the periods of "quiet" are long and the patient can be under proper medical surveillance. This is done in the hope that it may be the last attack and that the last stone has passed. These cases, however, are in some respects ideal ones for cholecystectomy, and the operation is here often very simple and the treatment perfectly rational, especially if the attacks are severe and frequent. The work of Lilienthal of New York in primary cholecystectomy, with practically no mortality, is certainly suggestive and worthy of our careful consideration.

In a personal communication he reports 47 cases with one death from pre-existing streptococcal infection. In cases with repeated severe attacks, when the patient is practically incapacitated for business and the general health begins to be affected, and resort to morphia gives rise to the fear of establishing the opium habit, nothing is to be gained by delay, and a golden opportunity is lost for radical cure if the cases are allowed to drift on. In these cases cholecystostomy is always justifiable, and the operation of choice, perhaps, by many surgeons, in that it is easy, safe and with modern technic not liable to be followed by fistula. These cases also offer a fair field for the primary cholecystectomy, which here, again, is often an easy operation, and in practiced hands a safe and certainly radical one. Park, Riedel, Winiwarter, Lilienthal and others are its strong advocates.

There is another set of cases which for a few days show evidence only of mild local infection, which suddenly change and develop signs of local peritonitis with heightened fever, rapid pulse and signs of general sep-

5. Fowler: Historical and Critical Observations on the Surgery of the Liver and Biliary Passages, Brooklyn Med. Jour., December, 1900.

6. N. Y. Med. Jour., March 26, 1904.

sus. These cases require early operation, lest perforation or rupture into the peritoneal cavity occur or abscess outside the gall bladder be formed with its attendant evils, primary and remote. In these cases the gall bladder and more or less of the cystic duct is involved, and the contents are either thick septic bile or mucopurulent fluid, or stones with thin purulent fluid, and there is local peritonitis with recent adhesions between gall bladder and neighboring organs. Here the treatment is prompt cholecystectomy with drainage of the cystic duct, or cholecystostomy. These cases frequently do very well.

In cases of common duct obstruction by calculus, where the obstruction is acute and recent, it is generally advisable to treat expectantly for a week or two, unless septic symptoms or peritonitis supervene, in order to determine if possible whether the obstruction may not be due to swelling, which will subside and allow the stone to pass. Or if the stone has passed, the signs will rapidly subside. In most cases the clinical picture of calculus obstruction is sufficiently distinctive for the diagnosis to be made from neoplasm. The indications for treatment are the removal of the stone by incision through the common duct, choledochotomy, or if it be too low or impacted in the ampulla of Vater, by transduodenal or retroduodenal choledochotomy. The practice of careful suture of the incision in the common duct has been pretty generally abandoned, unless the duct be drained through an opening in the gall bladder, as the necessity for drainage has been shown by Mayo Robson, Kehr, Mayo and many others. It is advisable practically in all these cases to drain the common and hepatic duct, as small stones otherwise may be overlooked or the patient die cholemic, which is of much more importance.

Cholelithotripsy is no longer done and cholecystenterostomy is of far less frequent occurrence as the cases are sent earlier to the surgeon.

As is well known, the common duct cases are the most dangerous, because more often neglected or overlooked, or in a condition of exhaustion and cholemia when they come to the surgeon for operation.

It is surprising how well many of them react after operations and go on to complete recovery of health. Modern surgery has made even this possible and has many lives to its credit, but too much should not be expected of it; chronic jaundice often defeats the best planned operation or the most perfect technic, and the hemorrhagic oozing generally persists to a fatal termination in spite of any treatment thus far devised.

The senseless delay which makes this possible is one of the great causes which militate against ideal results in the surgery of gallstones, and this delay, while often due to the patient's fear of operation or to causes which would render any operation inadvisable, is still too often traceable to the lack of knowledge or confidence on the part of the family physician in the great resources of modern surgery.

CONCLUSION.

In conclusion, then, after this most careful review by the readers of the various papers on the pathology, the diagnosis and the complications of cholelithiasis, it will be seen that the treatment in these cases must ultimately be surgical, for when all has been said, it must be admitted that medical science has thus far discovered no sure solvent for gallstones *in situ*, nor devised any means, other than surgical, for the certain drainage of the gall bladder and the biliary ducts.

DISCUSSION

ON PAPERS OF DRs. BIERRING, OPPE, SIPPY, SYMS AND HOTCHKISS.

DR. J. M. ANDERS, Philadelphia.—It is doubtless true that cholecystitis and cholelithiasis are of microbial origin and also that the particular micro-organisms are either the colon bacilli or streptococci. Dr. Bierring has emphasized a point of importance, namely, that the mere presence of these micro-organisms in the gall bladder and ducts is not sufficient to give rise to these conditions. In all cases, therefore, something has occurred before these conditions arise as a result of microbial infection. The predisposing factors should be more emphasized than they have been by recent writers, and these are, so far as my observations go, some forms of local irritation or congestion, including inspissation of the bile. The contributory factors are very numerous and many refer to the various products of abnormal metabolic processes. Nobody questions the relation of cholecystitis to cholelithiasis; these conditions most probably stand to one another in the relation of cause and effect. Of course, there are many cases of cholecystitis which subside without giving rise to cholelithiasis; but the conditions remain which favor the development of gallstones and subsequent infection of the gall bladder may lead to active biliary colic. Dr. Sippy's paper treated of the relation of the gall bladder and bile ducts to diseases of the stomach and intestines. I am not ready to admit, since it is contrary to my previous experience, that ulcer of the stomach and intestines arises secondary to disease of the biliary passages and gall bladder. But I have seen rather grave forms of gastrointestinal disturbances from this cause, and quite recently two cases of pyloric obstruction. I believe with Dr. Sippy that the motor functions are more decidedly disturbed than the secretory functions of the stomach. One of the most important points from a diagnostic standpoint is to obtain a clear history whenever possible; this will very often throw light on the case diagnostically. I mention this because it seems to me that scarcely sufficient emphasis has been laid on it in the paper. Dr. Sippy pointed out two very important practical lessons. One was that medical measures may suffice, together with rest and proper diet, to overcome pyloric obstruction due to disease of the gall bladder and ducts. The other fact was that surgical operation, when undertaken to overcome pyloric obstruction, should be in part directed to the relief of the causes of the gastric condition. To remove the pathologic conditions presented by the gall bladder, the adhesions and the like, must go far toward effecting a cure of this stenosis. With regard to the diagnosis of cholelithiasis, my observation is that, immediately preceding the attack of gallstone colic, pain is referred to the back, to the right of the tenth dorsal vertebra; this pain may last but a few minutes. So far as I have been able to observe, this is not present in cholecystitis of pure and simple form. This is followed, as a rule, by the rapid development of hepatic colic. I agree with Dr. Hotchkiss that it is highly important to make an exact diagnosis before instituting treatment. It is important to differentiate whenever possible between cholecystitis and cholelithiasis. Simple cholecystitis is still looked on by the majority of authorities as being largely a medical affection. On the other hand, cholelithiasis is a surgical disease. I do not mean to say that the diagnosis of cholelithiasis should always be followed by operation, but I do mean that the medical man should have the conservative surgeon's advice in such a case. Dr. Hotchkiss has emphasized the fact that the cause of failure was not so much due to bungling operations or operations poorly done as to the fact that operation is, as a rule, too long delayed; he is right.

DR. WILLIAM J. MAYO, Rochester, Minn.—I think it is well for us to consider that gallstones are essentially foreign bodies, and as foreign bodies a diagnosis can only be made when they are giving trouble, and, other things being equal, they should be removed. Gallstones may "slumber" for years, but when they awaken the probabilities are that they will not permanently regain an innocent quiet, but rather tend to bring about those complications which give rise to serious and often incurable disease. Of these, one has but to mention chronic liver changes from jaundice and duct obstruction, inflammation of the pan-

creas, fistula, abscess and perforation. That cancer possibility is also a legitimate risk was pointed out by Musser and Kely-nack years ago. In looking up evidence, we must bear in mind the statistics from simple gallstone cases and keep these sharply separated from those cases in which complications have occurred. The oration which Dr. Dock presented the other evening was exactly to the point. When a medical man is called to see a patient he must say that the prognosis in cases of simple gallstone disease surgically treated is remarkably good and depends more on the condition of the patient than on the operation itself. So the remarks that I shall make are based on gallstone disease in patients who are otherwise in good condition. The mortality of simple gallstone operation, while the stones are still in the gall bladder and that viscus is not seriously infected, does not exceed 3 per cent. This mortality is largely accidental, and is not above that of simple appendectomy in the interval in patients of the same age and general condition. In contrast, I wish to call attention to the statistics given by the greatest of German gallstone operators. He has taken a rather conservative position, which American surgeons are not inclined to follow. In his last 450 cases, taken as they come, there were 72 deaths, a mortality of 16 per cent. This high mortality was in the cases that had been carried too far. Therefore, I think the physician, in making a statement to these sufferers, should properly place the situation before the victim, because they have the right to a choice in the matter; in equity, it must not be entirely settled by the physician. The patient should be told that if in good health the removal of uncomplicated gallstones is accompanied by a mortality not above 3 per cent., but if the condition be left to run on and become complicated, then the mortality may jump to 16 per cent., as it did in the hands of the operator referred to. The complications cause the mortality. Few patients will deliberately elect the conservative course, if the facts are fairly laid before them, and the physician who fails to acquaint his patient with the whole truth does less than his duty and takes on himself a serious responsibility, for which he will ultimately be held accountable. After the removal of gallstones many secondary conditions of the gastrointestinal tract, and especially of the pancreas, may subside. Chronic inflammation and enlargement of the pancreas may be expected to disappear after drainage of the biliary passages. On a number of occasions I have found that a blocking of the duct of the pancreas by a common duct stone has led to an enlargement of the head of the pancreas, behind which the common duct stone became hidden; at a second operation, some months later, it was found that drainage had reduced the size of the head of the pancreas and revealed a stone which had been *in situ* during previous operations, giving rise to the trouble, but was undetected by duct palpation. In chronic pancreatitis with jaundice, the common duct should be opened and explored to the very papille for fear that a stone may be overlooked.

DR. WILLIAM S. THAYER, Baltimore.—In the beginning of Dr. Opie's paper he refers to the recent work of Pavlov of St. Petersburg, showing that the admixture of bile and pancreatic juice increased the activity of the latter from three- to four-fold, and especially increased the activity of the fat-splitting ferment. It has been shown, both clinically and experimentally, that the entrance of bile into the pancreatic duct produced an acute pancreatitis in a large number of instances. Therefore, is it not probable that this action of the bile in increasing the activity of the fat-splitting ferment would cause an acute pancreatitis and the fat necrosis that goes with it?

With regard to Dr. Sippy's paper, these cases of gallstones impacted in the cystic duct are very interesting. I saw such a case, and it was a clear case; but the interesting feature was that some months before pain was complained of in the region of the gall bladder on taking food; she became much emaciated because of the pain, which was supposed to be due to adhesions of the pylorus. An operation revealed the cause. She had a very large dilatation of the stomach, due to adhesions at the pyloric end of the stomach and duodenum. This was not recognized until operation. The largest stomach dilatation I have ever seen was due to this cause. Another diffi-

culty is sometimes encountered in attempting to distinguish between attacks of gastric ulcer and gallstone colic. I recently saw an interesting case. The patient was believed to be suffering from biliary colic. She never had any jaundice and had pain in the median line. She finally thought she would like to be operated on. She had not seen a physician for six months before coming to me. I found a large dilated stomach. The operation revealed two duodenal ulcers and a tight stricture of the duodenum. One of the greatest dangers encountered in these cases is through delay, especially in cases accompanied by jaundice. The development of hemorrhagic jaundice is an exceedingly grave thing.

DR. J. C. HEMMETER, Baltimore.—In June, 1903, I had an interesting experience with a case of cholelithiasis, which may serve as a type of three others of a similar nature seen by me. The wife of a physician was operated on for gallstones, and the surgeon resected the entire gall bladder. He took out twelve stones. The pains continued, and a second operation was deemed necessary. In the intrahepatic bile ducts were found three small gallstones, which had not been seen at the time of the first operation. I am by no means prepared to concede to the surgeon the entire control of all cases of gallstone diseases. When operation is necessary, the surgeon is indispensable. But we should remember that the diseases which lead up to gallstones are the most important thing for our consideration, also the abnormal conditions of metabolism that favor deposition of solid matter from bile. I think that the deductions of Dr. Biering are very important, especially regarding those cases of infection of the gall bladder with germs, causing stagnation and catarrhal swelling, etc., but there is another very important class of cases of gallstone disease, the causes of which are to be sought in abnormal hepatic metabolism. We may have changes in the composition of the bile followed by precipitation of solid constituents in the intrahepatic and intercellular canaliculi. We need the surgeon, and we must have him, but I am not in a position to say to-day that the surgeon should have entire charge of these cases. Before the surgeon gets them, would it not be best for us to attempt to recognize the changes that lead up to cholelithiasis? In a rough but practical way we may speak: first, ascending causes of cholelithiasis; second, descending causes of cholelithiasis. The ascending extend upward from the duodenum. They include the upward progression of duodenal catarrh, stenosing the gall duct and producing catarrh of the gall bladder, also the infections of the ducts and bladder with the micro-organisms of the intestine. The second group of causes may roughly be called descending, because they originate in the hepatic cells and lead to deposition of minute concretions in the intrahepatic bile canaliculi; these eventually may reach the lower and larger ducts and the gall bladder. It is these metabolic and intrahepatic concretions that cause the recurrence of the symptoms of gallstones, even after stones have been removed and gall bladder resected by the surgeon. The operation in these cases may, of course, be a life-saving step, but it can no more cure the metabolic cholelithiasis than cutting out a concretion of sodium bicurate from a gouty knee joint can cure gout. While I admit the expediency of operation, I uphold the absolute necessity of preceding and succeeding medical treatment. It is these cases of recurring gallstone attacks after very radical operations that led Hans Kebr to send numerous cases to Carlsbad. There is no doubt in my mind that persistent and judicious drinking of alkaline waters (2 to 3 liters daily), together with the diet advocated at Carlsbad, may prevent the metabolic hepatic disturbances that lead to the second form of cholelithiasis mentioned above. The bile salts act in a similar manner. The alternating Scotch douche applied daily over the hepatic region is an available aid to this treatment. Many a case of cholelithiasis is a neglected or unrecognized case of chronic acid gastritis or duodenitis. In a number of cases proven to be cholelithiasis by operation I was able to watch the development of duodenitis from a gastric hyperchlorhydria or a chronic gastritis acid. Such cases have been studied for from ten to twelve years, when eventually cholelithiasis supervened, and it is plausible to assume that

the gastritis set up a duodenitis, and this in turn stenosed the common gall duct. Dr. Sippy has spoken of the relation of disease of the gall bladder and bile ducts to disorders of the stomach and intestines. We should study more the effect of diet and alkaline waters on the composition of the bile and the effect of gastric and duodenal diseases, leading to stenosis of the common duct. It has been asserted that there is great difficulty experienced in differentiating between the pain of gastric ulcer and gallstone attacks. I have in mind one or two practical points which I think are of value. In gastric ulcer we may find pepsin in the urine, and it is found there because the epithelium is denuded in the stomach, and the pepsin is absorbed as such and is excreted by the urine and will digest a certain amount of fibrin or boiled egg. There is another point of value in making a differential diagnosis. It has always been considered desirable to possess a substance which would relieve gastric pain if applied locally in patients afflicted with gastric ulcer. For this purpose I have administered orthoform. If orthoform is given in cholelithiasis the pain will not cease, but if given in a case of gastric ulcer it will cease promptly, especially if an alkali be combined with it.

DR. FRANK BILLINGS, Chicago.—On the subject of cholelithiasis I have positive views. These are based on my experience with patients suffering from the disease. We know that the chief source of cholesterol is an excretion or a secretion of the cells of the gall bladder. In all probability, little if any cholesterol is precipitated from the bile, consequently any treatment directed to lessen the precipitation of cholesterol is futile. I think our present knowledge does not admit of the use of the so-called solvents for gallstones. As we have no medication which will probably dissolve gallstones *in situ*, nor do we know of a drug which we can say will be excreted by the epithelium of the gall bladder, so our medical treatment is, I think, limited to the use of drugs which will diminish the infection of the gall tracts. This may probably be done by the so-called internal drainage by the use of cathartics like the salines, of which sprudel salts has the greatest reputation. So patients visit Carlsbad and other springs and are relieved of the infection which is associated with gallstones. The same relief may be afforded in many instances by a corresponding treatment carried on at home. In that event, with infection removed, the gallstones as foreign bodies may remain in the biliary tracts. As foreign bodies, we may not recognize the harm they may produce. We do not know that an intoxication may not be present with these latent symptoms and produce deleterious effects which are for the time unrecognized. We do not know, for instance, but that this condition of the gall tracts may have something to do in the production of arteriosclerosis, of which we have heard so much at this meeting. And then, the patient who carries his gallstones even in this latent condition is subject at all times to more acute attacks, which may, like an acute appendicitis, place his life in danger and make the operation an emergency one. I, therefore, look on gallstones, when the diagnosis is surely made, as a surgical disease and look to the surgeon as the proper individual to treat the patient. In my estimation, an operation done at the proper time in uncomplicated cases is of less risk to the patient than the continued presence of the gallstones. Dr. Hemmeter has raised the question of preceding stomach or duodenal disease as etiologically related to gallstones. This is undoubtedly true, but we must not hesitate, in my opinion, to operate even if there be a recognized stomach or intestinal disease as a cause of the gallstones. I desire to emphasize that, if an operation is done for gallstones, it should be performed by the most skillful surgeon whose services may be obtained, and thus so lessen the risk to the patient that, in consenting to the operation, he takes a less risk than in keeping the gallstones.

DR. JAMES TYSON, Philadelphia—Two cases which occurred in my own practice illustrate the difficulty in diagnosis of some of the conditions which present themselves in the upper right quadrant of the abdomen. One patient, a man, had frequent recurring attacks of pain in the neighborhood of the gall bladder without jaundice, and the condition extended over a considerable period of time. The attacks were especially prone to come

on very early in the morning, when the stomach was empty, and would often awake him from sleep. Examination otherwise was negative. It is true that a tumor was thought to be palpable by one or two physicians, but I could not realize this myself. The case came to operation, Dr. Edward Martin operating. The gall bladder was exposed, and it was entirely normal in size and contents, but in its vicinity were found adhesions between the pyloric end of the stomach and the adjacent bowel. I do not recall whether there were any adhesions between the pylorus and gall bladder itself or not. A rapid recovery followed the operation, and there was no recurrence of symptoms. What relation an original cholecystitis may have had to this condition I do not know. It was suggested there had been a gallstone which was the original source of irritation and cause of the symptoms, which had existed for years. The symptoms were relieved by the operation. Another case bearing on the diagnosis of these conditions was that of a woman who had had many attacks of biliary colic and had been treated at Carlsbad and at home. The physician in Germany said he could feel the bladder, and that there was no stone present. Dr. John B. Beaver operated and removed one hundred stones from the gall bladder, doing at the same time an operation for appendicitis. The patient is now perfectly well.

DR. ALLEN A. JONES, Buffalo—Symptoms which are presented to us are very often misleading and not sufficient to enable us, in many cases, to diagnose the number of stones nor the condition of the gall bladder itself. There are cases in which there are repeated attacks of biliary colic and in which the lives of the patients are rendered extremely uncomfortable, and here sometimes there is presented a single round stone, about the size of a pea, the stone being found floating in the gall bladder, containing a large amount of fluid, or impacted in the beginning of the cystic duct, or somewhere in the cystic duct. These cases are relieved by a cholecystotomy. There have been instances in which a single stone has been found impacted in the cystic duct, and yet no stones were found in the gall bladder. It has been my lot to find such a condition in a young girl. Symptoms of severe gallstone disease occurred at about the age of 14 years. In such cases there is brought up the question of a differential diagnosis between a floating kidney and a dilated gall bladder. While such a diagnosis may seem easy to the tyro, it is not a simple matter by any means. In such a case a surgeon of experience went in for a floating kidney, and, unable to find it, finally concluded, after considerable search, that he had to do with a dilated gall bladder, which was found and operated on. Occasionally we meet with cases in which there are impacted two or three large stones in the common duct, with the gall bladder empty. With regard to the symptomatology, we have found an intolerance of the stomach, which manifests itself after eating and not on an empty stomach. In fact, the patients constantly aver that the stomach is at fault because they can not eat anything. In a large number of cases I have found the stomach practically normal in secretion and in motion after the gall bladder was emptied. In such cases it has not occurred to us that the patient had gastric disease. There are other cases in which gastric disease is due to gall bladder disease, as, for instance, dilation, preceded by or accompanied by biliary disease.

DR. J. C. WILSON, Philadelphia—There are two classes of practitioners who hesitate to accept the fact that in the present state of knowledge gall bladder disease is a surgical rather than a medical affection. First, those who demand too many of the classical morbid phenomena for the diagnosis, and, second, those who accept periods of latency for cures. The modern literature, representing the experiences of the most advanced investigators, makes it clear that recurrent paroxysmal pain with interparoxysmal tenderness in the right hypochondrium points to cholecystitis, and that jaundice and recognizable gall bladder tumor are not at all necessary to the diagnosis. The every-day experience of the observant practitioner renders it equally clear that both in cholecystitis and cholelithiasis, especially in the latter, there are periods of latency simulating recoveries which are attributed by the unwary to treatment that may have been employed. It is true

that such periods may be prolonged, and in some instances constitute true recoveries. But such an event is exceptional and not to be foreseen in any given case.

DR. PARKER SYMS, New York—In the chronic cases of gall bladder disease with stones, where the stones remain latent, the diagnosis is often impossible. But in the great minority, if not the majority, of the cases where the symptoms are present, the failure to make a diagnosis is absolutely due to failure to make a careful examination. Nothing more important can be set forth to-day than the importance of making a careful and exact diagnosis of the cases and of advising an early operation.

POISONING BY WOOD ALCOHOL.

CASES OF DEATH AND BLINDNESS FROM COLUMBIAN SPIRITS AND OTHER METHYLATED PREPARATIONS.

FRANK BULLER, M.D.

MONTREAL.

AND

CASEY A. WOOD, M.D.

CHICAGO.

(Continued from page 1062.)

CASE 81.—(From Dr. John E. Weeks, New York City.)

E. V., aged 38, came to the New York Eye and Ear Infirmary, Dr. Weeks' service, Nov. 21, 1903. In the early part of August the patient suffered from intermittent fever, and on August 7 he drank a cupful of wood alcohol for the purpose of breaking up the fever. On the following day the vision of the left eye failed almost entirely, and the vision of the right eye became impaired. The maximum failure of vision was reached at the end of 48 hours. Since then, according to the patient's statement, there has been some improvement.

At the present time the vision of the right eye equals 30/40; the vision of the left eye equals fingers at eight feet. There is (see Fig. 1) concentric limitation of the field of vision, most marked in the left eye, an absolute central scotoma in the left eye and a relative central scotoma in the right eye.

The patient has been seen from time to time, and since November 21 the vision has remained approximately the same.

CASE 82.—(From Dr. D. Emmett Welsh, Grand Rapids, Mich.)

J. D., aged 15, living in the country, was in the habit of visiting quite frequently a neighboring village, where he acquired the drink habit. It was his custom to become intoxicated on wood alcohol, in the company of farm laborers, and sleep off his fits of indulgence in the barn. When at home he procured and drank Jamaica ginger. One morning after such a spree he awoke to find himself completely blind. Dr. Welsh was consulted some time afterward and found him very shaky and nervous, speech difficult, general muscular tremor, marked anemia and complete loss of vision in all parts of the field. The fundi exhibited white atrophy of both nerves. In spite of treatment, vision was not improved, and he was finally sent to one of the state institutions for the blind.

CASE 83.—(From Dr. D. Emmett Welsh, Grand Rapids, Mich.)

J. M., aged 14, acquired the drink habit and, "as it was so cheap," bought wood alcohol ostensibly for burning in a lamp, but really for use as a beverage. Previous to consulting Dr. Welsh he had never had any ocular defect. When seen he was totally blind in both eyes, but treatment improved his sight somewhat, until he now has about 3/200 in either eye. This boy exhibited the same degree of nervousness and anemia as the other boy, whose history is given elsewhere, and like him presented the fundus picture of optic atrophy.

CASE 84.—(From Dr. Joseph White, Richmond, Va.)

A young man, S. N., was brought to Dr. White June 22, 1897. On May 1 he drank quite a quantity of Jamaica ginger; it is not known exactly how much. The next morning, May 2, he woke up vomiting. He walked home, six miles, over the mountains and arrived there exhausted, with cold feet and legs. He went to bed sick and continued nauseated for three days, during which time his sight gradually left him. When he came to Dr. White his vision was so bad that he could hardly make out the 20/200 type at four inches. His fields, taken with a light, seemed to be very much contracted. The fundus was normal, except some pallor about the outer third of the disc. The diagnosis was retro-ocular neuritis, with atrophy of the papillo-

macular bundle. He remained under treatment for ten days and went home. The only information received from him subsequently was that he made no improvement whatsoever.

CASE 85.—(From Dr. Joseph White, Richmond, Va., and Dr. W. R. Williams, Richlands, Va.)

In March, 1898, Dr. White saw a young man, S. W., clerk, 21 years of age, who had been on a spree February 12, when he drank four bottles of essence of lemon, each bottle containing between two and three ounces. On Sunday morning at 10 o'clock he began to lose his vision. He also suffered great difficulty in breathing, the respirations reaching 40 to the minute, with no radial pulse, widely dilated pupils, general collapse and stupor. In spite of all treatment, he continued in a sort of stupor for two days. When he recovered from this mental condition he had no light perception. Five days later light perception began to return, and when Dr. White first examined him, three weeks afterward, his vision was 3/300. The pupils were widely dilated and not responsive to light, the retina was normal, the outer and central parts of the disc were bluish-white and slightly excavated. Dr. White made a diagnosis of optic atrophy from methyl alcohol. He heard from the physician who brought him, some time afterward, that the patient had made no improvement under treatment. In a report to Dr. White, dated May 8, 1904, Dr. Williams, who originally saw this case, says that the patient's vision improved for three or four months, so that he could resume his duties as clerk. However, he again took to drinking and smoking, his sight again deteriorated, fell to 3/20, and has so remained ever since.

CASE 86.—(From Dr. Jay Philon Whitney of Vinton, Iowa, and Dr. Lee Wallace Dean, Iowa City, Iowa.)

W. H., aged 37, married, printer, of regular habits up to 1900. At that time he began to drink whisky heavily and con-

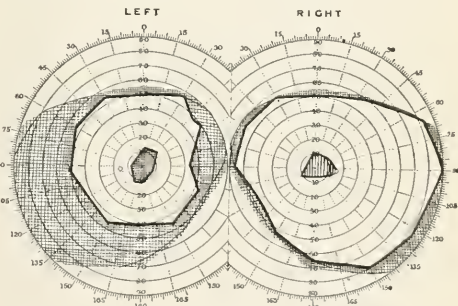


Figure 1.

tinued for about a year, when, on being refused liquor at various places, he began to take Jamaica ginger. He was soon refused this at the drug stores, but was in the habit of handing boys small sums of money and inducing them to obtain it for him. In the early months of 1901 he began to notice failing eyesight and consulted various opticians and oculists for relief, but obtained none. He complained that if he stood so as to look down at his type case that he could see fairly well, but on raising the eyes he noted a very distinct blurring. About April, 1902, after taking on Sunday a considerable quantity of peruna and Jamaica ginger, on attempting to go to his work on Monday morning he became entirely blind and had to be led back home. "I saw him one hour later; the vision was totally lost, the pupils did not respond to light and shade, dyspnea was urgent, pulse rapid, feeble and irregular; cyanosis was present, the extremities cool. From this precarious condition he rapidly recovered his vision and usual health, and returned to work in about ten days. In June of the same year, after drinking freely of Jamaica ginger on Thursday evening, he awoke the next morning to find himself entirely blind. I saw him about one hour later; the same symptoms were present as in the first attack, but coma supervened about 1 p. m., and he died quietly about 5 p. m."

CASE 87.—(From Dr. Jay Philon Whitney, Vinton, Iowa, and Dr. Lee Wallace Dean, Iowa City, Iowa.)

C. F., aged 36, married, printer, of regular habits, except an occasional prolonged spree; no eye defect. About Jan. 15, 1903, began to drink whisky heavily and continued for two weeks, when he was unable to obtain any more liquor. He sobered up at that time and remained sober until Feb. 4, 1903. About 7 o'clock that evening he called on his former employer,

arranged to take up his work again and remained with him until 9 o'clock. At 11 o'clock, according to the testimony of his landlady, he returned to his hotel somewhat the worse for liquor and went to bed unassisted. On the following morning he awoke to find that he was totally blind. He managed to get into his clothing and reach the hotel office unassisted. His employer was telephoned for and saw him 30 minutes later. The patient told him that on the night previous, after leaving his office, he fell in with some kindred spirits and drank one dozen small bottles of essence of lemon. At that time he had an essence of lemon bottle with a small quantity in it on his person. He was then entirely blind, dyspneic and cyanotic; the extremities were cool. He felt a sense of impending dissolution and desired that his people be communicated with. An attempt was made to get him back to his room, but on the first landing he had a convulsive seizure and they were obliged to carry him the rest of the way. The dyspnea and cyanosis increased, the extremities became quite cold, and he died quietly at 11 a. m. Dr. C. C. Griffin, Jr., and Dr. A. R. Fellows also saw this man.

CASE 88.—(From Dr. James P. Widmeyer, Rolla, N. D.)

One of at least ten Indians of the Turtle Mountain Reservation, who went on a spree with lemon extract and Florida water, drank half a teaspoonful of the latter. He had intestinal pains, burning in his stomach and nausea. After walking a couple of miles from the scene of the spree he vomited freely and did not suffer as did his nine companions, who all died. Along with the blindness (exact details of which could not be obtained) he had a marked dysuria. One other survivor also complained of difficulty in passing his urine. The poison was drunk Aug. 31, 1904, and the amblyopia was noticed a few days afterward.

CASE 89.—(From Dr. Hiram Woods, Baltimore, Md.)

"The wife of a laboring man, to improve her digestion, has been in the habit, at intervals for several years, of taking three or four tablespoonfuls of Jamaica ginger daily. She is about 40 years of age and her husband now reports that her sight has recently failed and that attempts to obtain glasses to improve it have met with no success. He also said that she sees better to one side than straight ahead. So far he has not brought the patient to my office, as I urged him to do, and I can not speak more definitely, but the case certainly looks like one of methyl alcohol amblyopia."

CASE 90.—(From Dr. Emil Bories, Seattle, Wash. Reported by Dr. Hamilton Stillson, Seattle, Wash.)

On May 23, 1903, Dr. Bories was called to attend S. M., German, aged 32, painter by trade, who had drunk about three ounces of Columbian spirits (wood alcohol), the same being used in the shop for dissolving shellac. Had frequently drunk alcohol in large quantities, and not being able to read the English labels, and supposing from the smell that the stuff was alcohol, he drank it, not knowing it was poisonous. Dr. Bories found him at his residence, where his fellow workmen had taken him. They noticed that he acted very strangely and, becoming alarmed, carried him to his home. One of the workmen stated that he had seen him drink alcohol before, but had never seen him so affected by it. General symptoms, pulse very weak and became countless, temperature subnormal for nearly three days; total blindness, could not discern light; had a ghastly, vacant expression; sighed often and deeply; lips bloodless. In dread of dying; was getting weaker; could not extend his hand; respiration stertorous; movements of limbs convulsive, constantly jerking; speech finally inaudible. Gave him at once 1.60 strychnia and pilocarpin, had him wrapped in blankets which had been wrung out of hot water, syphon to stomach; followed the same by pouring down about 6 ounces of hot, strong, unsweetened coffee, which was retained. Gave him a large enema of salt water. Also gave hypodermic injections of glonoin and had ice-bags placed on top of head and spine. Instructed wife and friends to rub the body well and constantly. Pupils dilated, conjunctiva very much inflamed. After two hours of hard work he showed signs of returning sensibility. One pupil contracted, but the other remained dilated. Lips showed better circulation, body became warmer and he was able to answer questions coherently, but was not able to discern light, although a bright electric light was burning. The following morning he was much better and retained nourishment. Blindness continued for three weeks, when sight was gradually restored. Dr. Kibbe saw the patient three days after he was taken home and advised a continuation of treatment. About ten days after, at the suggestion of Dr. Kibbe, performed venesection, without beneficial results.

(C) CASES HITHERTO UNPUBLISHED OF BLINDNESS FROM METHYL ALCOHOL ABSORBED BY THE LUNGS OR SKIN, OR BOTH.

CASE 1.—(From Dr. W. McL. Ayres, Cincinnati, O.)

W. E. C., aged 44, painter. Six or eight years ago had symptoms of lead poisoning, but his eyes were unaffected by this intoxication and were, so far as he knew, perfectly healthy. Shortly before he was seen by Dr. Ayres (October, 1901), he had been varnishing and shellacking the inside of the closets in one of the large Cincinnati hotels. The shellac had been cut by, or dissolved in, wood alcohol instead of grain alcohol. While in one of the closets he became dizzy, had an intense headache and was forced to stop for a time and get some fresh air. After this he returned to work, but was again attacked by nausea, vomiting and headache, that forced him to discontinue his work entirely for several days. On the third or fourth day his eyesight began to fail, and at the end of a week central vision was 5/100 in each eye.

Examination with the ophthalmoscope disclosed a double optic neuritis, which in a few months was followed by partial atrophy, with a large central scotoma in both eyes. At present he is practically helpless and unable to do any work requiring the use of his eyes.

CASE 2.—(From Dr. Daniel Conboy, Bad Axe, Mich.)

On Nov. 3, 1903, a call was received to visit Mrs. H., aged 58, bright and intelligent, and withal good looking, the latter partly due to the good (though on this occasion, unfortunately, excessive) care she took of her complexion. She was found with sight very much diminished, "almost blind," as she described her condition, central acuity being especially impaired. A large parlor coal-burner about 10 feet distant was recognized by its outline only. The eyes of a person four feet distant appeared like dark spots on a white background, no color or form being distinguishable. This fact, after the exclusion of nephritic and diabetic retinitis by urinalysis, led to a provisional diagnosis of an ocular affection of toxic origin. The trouble had been coming on gradually for two weeks. She also had had vertigo occasionally, particularly at church, and would have fallen the Sunday morning previous had it not been for her husband's help. Antointoxication was suspected, but nothing abnormal was discovered about the digestive tract. Inquiry was then made with regard to the use of Jamaica ginger, with the explanation that the essence of Jamaica ginger, of lemon and similar flavoring and culinary mixtures sometimes contained methyl alcohol, which might cause the condition from which she was suffering. The patient immediately raised her hands in surprise, and stated that she had been using wood alcohol for weeks, both for heating her rheumatic bath and as a cleansing application to her head and face daily, especially on Sunday mornings before church. The alcohol was at once discontinued and sodium salicylate administered *ter in die* after meals. The usual diminution of sight was arrested immediately, but the impaired vision remained *in statu quo* for four or five days, when it began to improve. Both on account of her blindness and the continuous stormy weather, she was unable for over a week to come to the office for ophthalmologic examination. The fundi even then presented an interesting picture. The temporal half of each optic disc showed a pallor very much emphasized by the hyperemia and neuritis of the remaining part. At the first office examination, nearly two weeks after patient was seen, the vision for distance was, R. 7/40 and L. 7/50. On November 18, R. = 7/30, and L. = 7/30. On the 24th, R. was 7/20 and L. 7/30. December 3, one month after first visit, R. = 7/20 and L. = 7/30. December 7, R. = 7/20 — and L. = 7/30 +. December 9, R. = 7/20 and L. = 7/30 +. The last examination was on December 18, when both R. and L. were 8/20, which the patient thought was about the same vision that had existed before she used the "nasty stuff." When the papillitis had vanished from both fundi, strychnin in increasing doses was administered in the hope of preventing optic atrophy.

CASE 3.—(From Dr. W. E. Driver, Norfolk, Va.)

E. L., male, white, aged 54, consulted Dr. Driver on June 15, 1901. He gave the following history: In August, 1894, after shellacking the benches and interiors of several school houses he awakened in the morning of the second night to find that he was totally blind. Prior to that time he had not had trouble with his vision. He remained totally blind for about two weeks, when the sight began to improve, especially in the left eye. He thinks the vision in the left eye has improved somewhat during the past two years. The shellac used had been dissolved in wood alcohol.

The general appearance of the eye was that of ordinary nerve atrophy. The pupils were widely dilated and the cornea appeared unusually bright. Right eye, V.—light perception. Iris slightly active to light. Optic nerve bluish-white, showing marked atrophic condition. Tension normal. Left eye, V.—20/100; with +50 D. Sph.—20/70. Cornea very bright and clear. Pupil widely dilated, as in the right eye. Iris slightly active to light. Optic nerve white, showing marked atrophic condition. No other visible disease of fundus.

The diagnosis was optic nerve atrophy from inhalation of wood alcohol.

CASE 4.—(From Dr. Harold Gifford, Omaha, Neb.)

A woman of about 35 came in the spring of 1902, complaining of gradual loss of sight for the past two weeks. Dr. Gifford found the fundus of each eye normal, except for a slight pallor of the outer quadrant of each disc, which might easily be physiologic. Vision, 20/200, each eye, not improved by glasses. Outer limits of the fields normal, but the center of each field showed a large relative scotoma about 30 degrees in diameter, in the center of which the color sense was practically abolished. On being questioned about the possibility of methyl alcohol poisoning, she positively denied ever having drunk methyl or any other alcohol, or any of the various commercial products which are apt to be adulterated with it; but she had been burning methyl alcohol in an alcohol lamp with a large, flat wick for heating water in her room. Her custom for two or three months had been to light the lamp nearly every evening and allow it to burn out. This was during the winter season, in a small bedroom, without any other fire, so that it can easily be imagined that the ventilation must have been somewhat defective. She had nothing else wrong with her that could be discovered. Her vision began to improve almost immediately after Dr. Gifford advised her to stop burning the methyl alcohol, when it gradually rose to 20/20 in the right eye and 20/70 in the left (the left eye had had convergent squint since childhood.) It seems probable, therefore, that the amblyopia was due to the fumes of the methyl alcohol or to the formaldehyd generated in burning it. Considering the relative quantities of the substances which must have been present in the air of the room; it seems more likely to have been the formaldehyd; but whatever the fact in this respect, the case suggests an additional way in which the eyesight can be injured by this villainous stuff.

CASE 5.—(From Dr. J. A. Lippincott, Pittsburg, Pa.)

S. E. S., aged 44, April 12, 1902, worked a whole day varnishing tanks in a brewery, using a varnish which had been mixed with wood alcohol. In the evening when he left his work—according to the statement of his physician, Dr. Brock of Waynesburg—he acted like an intoxicated man, and two hours later went into a comatose condition, which lasted 24 hours. When aroused the sight of the right eye was somewhat impaired and that of the left eye was entirely gone. His vision since then has improved considerably. The pupils on both sides small (2 mm.) and sluggish. T. normal. R. E., V.—15/lxxx. No glass helps. Field of right eye shows moderate concentric limitation. That of left a more decided contraction, and also a small complete central scotoma. The ophthalmoscope showed right disc hazy, left swollen and blurred at margins and vessels tortuous. Advised jodid of potassium, salicylate of soda and nux vomica. June 24, 1904—Did not see the man subsequently, but Dr. Brock, in reply to a recent note, states that the vision of the left eye in time failed entirely. He also states that soon after the poisoning he was taken with left-sided pneumonia, from which recovery was never complete. About six months ago tubercular trouble developed and ended in death June 8, 1904.

CASE 6.—(From Dr. Nelson L. North, Jr., Brooklyn, N. Y.)

H. E. W., German, aged 48; not robust, light weight and poorly nourished. He was employed, with a companion (to whose history this one bears a close resemblance), as a varnisher of closed beer vats. These vats were badly (if at all) provided with ventilation, and wood alcohol was employed to dissolve the shellac used in the varnish. While engaged in this work he experienced the usual constitutional symptoms of methyl alcohol intoxication, and he began to have foggy vision. When seen in hospital by Dr. North, central acuity had fallen to 20/70 in each eye. Optic papillæ pale. Fortunately, in this case prompt treatment was followed by improvement to almost normal in either eye.

CASE 7.—(From Dr. Nelson L. North, Jr., Brooklyn, N. Y.)

A. H. S., German, aged 35, strong and healthy, weighed 190 pounds. He was employed as a beer vat shellacer. During the winter of 1900-1901 he was engaged in his employment of var-

nishing the interior of ill-ventilated vats with shellac dissolved in wood alcohol. He began to suffer from loss of eyesight, and when seen by Dr. North his vision was 10/200 and there was every indication of optic atrophy, the discs being very white. Abstinence from work and long-continued treatment brought about some amelioration of vision, but improvement of central sight did not extend beyond 20/50.

CASE 8.—(From Dr. W. T. Salmon, Oklahoma City, Okla.)

A. J., infant, 6 months old, December, 1903. Parents noticed something wrong with the eyes and thought she could not see. Pupils contracted. After dilatation optic discs were found to be pale, more so on the temporal sides, and the arteries narrow. Parents said they had been burning a wood alcohol lamp by the crib in which the infant slept. Discontinued lamp, and child improved slowly. Total recovery.

CASE 9.—(From Dr. Norton L. Wilson, Elizabeth, N. J.)

O. E. H., aged 42, workman in the cabinet department of a large factory where Columbian spirits were used in mixing shellac and other polishing mixtures. His vision was reduced to 10/200. His discs were pale and the vessels were small. He was also a whisky drinker, but said he never drank wood alcohol to his knowledge. He probably absorbed it through his hands, as he frequently bathed his hands in Columbian spirits to "cut" the shellac.

It has been claimed by some observers that serious intoxication from inhalation or from "alcohol rubs" is not only highly improbable, but that its occurrence has not as yet been experimentally proven. They assert that sufferers from methyl alcohol blindness who have been working with the poison in closely confined chambers have drunk some of the methylated liquor and have suppressed the fact. Moreover, the amount actually absorbed must have been too small to produce serious effects. It is further claimed that amblyopia among workers in hat factories, where the air is highly charged with the fumes of methylated spirits used in dissolving the resins required for "stiffening" the straw, rarely or never occurs.

On the other hand, many of the alleged cases are so well authenticated; a few of them have occurred in children; it is well known that in those people who are not immune to the poison a very small quantity of methyl alcohol is sufficient to produce blindness, and, finally, the absorption of rebreathed air with wood spirit fumes certainly adds to the toxicity of the latter; in hat factories, also, the fumes are constantly diluted by fresh air. If this be true of wood alcohol inhalation, it is probably also true, albeit to a less degree, of the poison absorbed by the skin. On the whole, we must conclude that it is safer to avoid absorption of the poison in any of its forms.

(D) CASES (HITHERTO UNPUBLISHED) OF DEATH FROM METHYL ALCOHOL POISONING, WITHOUT HISTORY OF PREVIOUS BLINDNESS.

CASE 1.—(From Dr. Emil Bories, Seattle, Wash. Reported by Dr. Hamilton Stillson, Seattle, Wash.)

J. F., Irish, tramp by occupation, was, Feb. 8, 1902, picked up in an alley in a state of collapse after drinking a large quantity of "union spirits" (wood alcohol). When found he had a bottle in his pocket which originally contained about four ounces, from which at least one-half had been taken. He was taken to the city jail. No method of treatment sufficed to revive him, and he died about 45 minutes after reaching the jail. Pupils widely dilated, bloody mucus running from mouth, involuntary defecations from bowels. Patient was a well-built and apparently robust man.

CASE 2.—(From Dr. Randolph Brunson, Chicago.)

B. M., a negro woman, aged about 40, was in good health and apparently had no organic lesions of any kind. She was in the habit occasionally of getting on a "spre" of two or three days' duration, drinking whisky. After having been on one of these debauches two days, she was found on her bed uncon-

4 As taking a drink from the supply of alcohol kept for dissolving the gums used in making varnishes is a very common habit among varnishers, it is probable that this patient drank wood alcohol, thinking it was ethyl spirits, or not knowing that the dissolvent was poisonous.—C. A. W.

scious, and died about an hour afterward. A pint bottle labeled Columbian spirits was found on the table, and more than one-half of the contents had evidently been drunk. It is a not uncommon custom for negroes and "poor" whites to mix equal quantities of whisky and alcohol and drink it, as the alcohol is cheaper, and the results the same as if whisky alone is used. The subsequent investigation disclosed the fact that this woman had purchased the bottle of alcohol at a drug store, the druggist supposing that she wanted to use it as a burning fluid. There seemed every evidence that she had been drinking the Columbian spirits. No ophthalmic examination was made, as she was dying when found.

CASE 3.—(From Dr. George A. Fagan, North Adams, Mass.)

Dr. Fagan saw Mrs. X., aged 29, at 10 a. m., Feb. 15, 1904. The patient was the mother of five children. Nationality, French-Canadian. He found her in bed, unconscious; eyes partly opened, dull and lusterless. The pupils were somewhat contracted and the reflexes abolished. The face was drawn; mouth opened a little. The muscles of the trunk seemed rigid rather than lifeless. The pulse was not felt at the wrist; heart rapid and feeble; respiration shallow and accompanied by a moan. Body was moist and cold. The temperature was not taken. The woman was a chronic drunkard and had been drinking during the week. Sunday at breakfast she seemed to be pretty well, but suddenly complained of dizziness and weakness, was put to bed and became unconscious. A bottle of Columbian spirits for use in a lamp was found empty, as was a bottle of Jamaica ginger. She was known to indulge in the latter.

Odor of breath aromatic and smelled of alcohol. Dr. Fagan gave intravenous injections of adrenalin and strychnin, also salines by rectum. Body warmed and pulse returned to wrist, but in an hour she died in convulsions.

CASES 4, 5, 6.—(From Dr. Homer Collins, Duluth, Minn.)

Six or eight Indians on one of the Minnesota reservations procured a supply of essence of peppermint and drank freely of it. All suffered severely from gastrointestinal symptoms, and three died from the effects of the poison; one of them blind. Two escaped without, so far as is known, any serious damage, while the sixth (one of the survivors) became totally and permanently blind. The cases of blindness are elsewhere described in this report.

CASE 7.—(From Dr. W. G. Craig, Hartford, Conn.)

J. P., Polish, aged 45, drank, April 30, 1902, a mixture of sugar, water and Columbian spirits as a beverage. This was followed first by nausea and vomiting and later by repeated convulsions, coma and death in 24 hours.

CASES 8, 9, 10, 11.—(From Dr. Joseph Springer, Coroner's Physician, Cook County, Ill.)

About April 10, 1904, five negroes, laborers, between 25 and 40 years of age, bought a large amount, probably a gallon, of wood spirits and drank an unknown quantity of it. Four of them, Thomas Smith, James E. McCarthy, Edward Williams and Silas Robinson died from the effects of the poison. Two, the first mentioned, were found dead, while the others were discovered in their boarding house unconscious. On removal to the hospital (Samaritan and Cook County), one of the three recovered. Dr. Springer found, in each of the fatal cases, the stomach and intestines very much congested and soft. The blood was dark and very fluid. Liver congested and friable. Spleen engorged with dark blood; very friable; tore on removing it. Patches of extravasation in the lungs; hemorrhages into the kidney structure, which showed a passive congestion. The odor and other indications supplied by the stomach contents clearly pointed to poisoning from wood alcohol.

CASE 12.—(From Dr. G. G. Davis, Philadelphia, Pa.)

"The only case of poisoning by wood alcohol coming under my notice occurred late last June or early in July, 1903, at Lily Bay, Me. A lumberman (from New Brunswick, Canada) died from drinking wood alcohol used in painting. He was wildly delirious and died in a few hours."

CASE 13.—(From Dr. J. F. Dickson, Portland, Ore.)

Two men, teamsters, strong, healthy and under 30, who had been working very hard all night, arrived at a friend's cabin in the early morning, much fatigued. The friend told them he would give them something that "would make them feel better." He prepared a drink containing wood alcohol, sweetened with syrup. One man took several drinks, and shortly afterward fell to the floor, unconscious. They picked him up and put him to bed, supposing he was simply drunk. He was found dead that same evening, but the exact hour of his death is not known.

CASE 14.—(From Dr. J. A. Dingman, Spring Valley, N. Y.)

In June, 1903, the doctor was called to see A. McK., aged 47, domestic servant, addicted to chronic alcoholism, who had drunk about 3 p. m. an unknown quantity of fluid from a bottle labeled "alcohol." She was unconscious on his arrival and died in deep coma the next day, about 20 hours after taking the poison. The bottle contained wood alcohol.

CASES 15, 16, 17.—(From Dr. John A. Donovan, Butte, Mont.)

Over two years ago a man in this locality was tried, convicted and sent to the penitentiary for selling intoxicating liquor to the Indians. It was proved that the alcohol in the liquor was methyl alcohol. Three Indians died from the poisonous effects of the drug.

CASES 18, 19, 20, 21, 22, 23, 24.—(From Dr. W. E. Driver, Norfolk, Va.)

R. N., male, white, aged 29, patient of Dr. Hargroves of Deans, Va. With two friends, patient visited Portsmouth, Va., on Sunday, Sept. 27, 1903. Not being able to procure intoxicating drink, they all imbibed freely of essence of lemon. He was made drunk and otherwise ill. Sight not affected. He did not recover from the effects of the intoxication and gastritis, and died on the sixth day. The two associates of this man died after a week's illness, never having recovered from the debauch. During Dr. Driver's investigations of three cases of methyl alcohol amaurosis (reported under class B), he learned that four other people—boon companions of the patients who survived and subsequently became blind—had died with the usual symptoms of acute wood alcohol poisoning. As these cases occurred in a part of the country not covered by any report included in this investigation, we may safely publish them as four additional examples of death from drinking methylated preparations, in spite of the lack of more definite information.

CASE 25.—(From Dr. Calvin R. Elwood, Menominee, Mich.)

C. H., cook in lumber camp, while in woods went on a spree with lemon extract in November, 1903. On Tuesday he received 12 bottles of the extract, and by Friday had drunk seven of them. He spat some blood on Thursday, and his fellow workman warned him that the lemon extract was killing him. He replied that it was, but he couldn't leave it alone. He continued the debauch the following day and evening, when he suddenly fell over dead, taking his last drink only a few minutes before death. This man was a habitually heavy drinker, and had been on a rather protracted spree just before he received the consignment of lemon extract.

CASE 26.—(From Dr. Charles Enfield, Jefferson, Iowa.)

In 1901 an adult, being unaware of the poisonous character of wood spirits, and only knowing it to be a cheap form of alcohol, purchased a pint in Jefferson for use as a beverage. He drank it all while on his way to a neighboring town and died in a few hours. These facts were fully established at the coroner's inquest.

CASE 27.—(From Dr. H. P. Engle, Newton, Iowa.)

Mrs. N., Mingo, Iowa, aged 20, drank, as evidenced by sworn testimony, a "few ounces" of diluted Columbian spirits. This was followed by gastrointestinal irritation and sudden death in 20 hours.

CASE 28.—(From Dr. H. P. Engle, Newton, Iowa, and the Des Moines, Iowa, Register-Leader of May 31, 1904.)

Mt. Ayr, May 30, 1904 (Special).—"Abe Baker is dead, Glenn McLeish is so ill as to require the attendance of two physicians, and others of their party are suffering as a result of drinking wood alcohol at the close of a protracted spree. The scene of the tragic occurrence is in Worth County, Mo., near the town of Allendale, and about three miles south of the line of Middle Fork Township, this county. The men had been on a spree for several days, and late Friday evening Baker and McLeish were found not far from the latter's home, about 13 miles southwest of Mt. Ayr. They begged bed clothing from the tenant on Joseph Dehart's place and slept in an unoccupied house, declining an invitation to spend the night in the dwelling. The next morning Baker was discovered dead and McLeish in a critical condition, while reports came that others of the crowd were suffering. The coroner's jury decided that Baker's death was due to drinking wood alcohol. Baker was single, about 30 years of age, and a good deal of a wanderer, having lately returned from the west. McLeish is about 17 years of age and the only son of a widowed mother."

CASE 29.—(From Dr. W. H. Ford, Sulphur, Ind. Ter.)

About Oct. 1, 1903, four men, from 30 to 40 years of age, went on a spree with bay rum made from methyl alcohol. Two were barbers and two Territory sportsmen. One of the barbers, W. A., aged 39, was found dead after drinking probably a

quart. Autopsy showed the mucous membrane of the stomach extremely congested; it "resembled a piece of black rubber." The odor of wood alcohol was very strong.

CASES 30, 31.—(From Dr. Allen A. Greene, Anniston, Ala.)

Two employes, McK. and C., of the Interstate Roofing Company in Anniston were sent, June, 1898, to Montgomery, Ala., to assist in building a roof over the passenger station there. Wishing to get a drink, and finding the saloons closed, they sent, in the afternoon, to a drug store and purchased eight ounces of alcohol, not specifying the kind they desired. The druggist sent wood alcohol. They invited an employe of the L. & N. Railroad Company to join them and proceeded to drink the poisonous fluid. When toxic symptoms set in a physician was summoned, who used a stomach pump. In spite of his efforts, two of the men died within a few hours after drinking the mixture. The railroad employe, who survived, stated that he had taken only a small quantity of the wood spirits and on a full stomach.

CASES 32, 33.—(From Dr. Allen Greenwood, Boston, Mass.)

Several years ago three painters, living in the adjoining town of Newton, were in the habit of drinking alcohol mixed with water, taking the alcohol (used as a solvent) from the barrel in which it was kept. Wood alcohol was substituted in this barrel for ethyl alcohol, with the result that two were poisoned and died.

CASE 34.—(From Dr. G. E. Hartshorn, South McAlister, I. T.)

G. G., white, barber, of Haileysville, I. T., drank a pint of bay rum, March 23, 1904. Death occurred in 12 hours.

CASE 35.—(From Dr. G. E. Hartshorn, South McAlister, I. T.)

Ed. W., aged 16, on Dec. 23, 1902, drank nearly a pint of wood spirits, thinking it was grain alcohol. Died in six hours.

CASES 36, 37, 38.—(From Dr. Reid Hunt and Dr. H. A. Stansfield of the Public Health and Marine-Hospital Service, Washington, D. C.)

In California, about 1894, when Dr. Stansfield was connected with a drug store, he sold four Italian woodchoppers a quantity of wood alcohol. They went on a "speer" with it, and three of them died. None of these cases have been included in other reports furnished for this investigation.

CASES 39 and 40.—(From Dr. Reid Hunt, Public Health Service, Washington, D. C., being two autopsy reports of Dr. L. W. Glazebrook, Coroner for the District of Columbia, 2022 P St., N. W., Washington, D. C.)

Autopsy Cases, vol. xii, p. 4, No. 566. Dated Dec. 21, 1903. Arthur P. Baer, died, Washington Barracks; color, white; occupation, soldier. Previous history: "Man has been drinking, so the authorities say, for some time, and used every means to get intoxicants." Odor of wood alcohol about mouth. Stomach markedly distended, and acutely irritated; marked odor of wood alcohol. Remarks: Man had had access to the place in which wood alcohol was kept.

Autopsy Cases, No. 150, Jan. 24, 1899. Name, Joseph Washburn, negro, cook, aged 48. Drank a gill of wood alcohol early one morning. He groaned and had intense cramps and vomiting. The alcohol was for use in a coffee urn burner. He was sent to the Emergency Hospital and died at 9:45 a. m. Stomach had marked odor of wood alcohol. At the base of the brain two ounces of water infusion. Marked odor of wood alcohol.

CASE 41.—(From Dr. Reid Hunt, Public Health Service, Washington, D. C., and the Baltimore News, Feb. 27, 1904.)

E. E., a woodsman, said to be from St. Louis, died at Horton, W. Va., yesterday, from drinking "hot drops" as a substitute for whisky. Analyses of these same hot drops, sold in Virginia two or three years ago, showed the presence of about 95 per cent. wood alcohol.

CASE 42.—(From Dr. J. H. Jamar, Elkton, Md.)

While acting as surgeon to the jail in Elkton, Dr. Jamar had under his care three cases of wood alcohol poisoning in habitual drunkards. The first case was that of a woman, who, with a male companion, tramping about the country, begged money and bought six ounces of methylated spirits. They went on their way and when three miles from town proceeded to drink the mixture. The woman was soon unconscious and was removed to a neighboring farmhouse. She shortly afterward died comatose, in spite of Dr. Jamar's efforts to revive her.

CASES 43, 44, 45.—(From Dr. G. L. Knowles, Maquon, Ill.)

About December, 1902, the newspapers reported that in a suit Mrs. D. of Maquon obtained damages for the death of her

husband, poisoned by lemon extract, and that two others also died from the same debauch. Dr. Knowles has kindly furnished the following comments on these three cases: "No. 1 was that of a farmer, aged about 35. He had been an intemperate man all his life, or from early manhood. I have no knowledge of his last symptoms. An eight ounce bottle, one-fourth full, labeled lemon extract, was found in his possession. So far as I know, no analysis was made of any of the cases. No. 2 was that of a blacksmith, aged 65, an inebriate from boyhood. He was found dead in his bed, and lying beside him was a bottle similar to that used by No. 1, about a quarter full of lemon extract. No. 3, a farmer, was a victim of the same poisoning and was very ill for two or three days prior to death. The two prominent features of these cases is that they were all backsliding graduates of the "Keeley Cure," and that it required about six ounces of the decoction to kill each individual.

CASE 46.—(From Dr. R. H. Main, Barry, Ill.)

Dr. Main reports a recent death (June 30, 1904) of a man, aged 40, from drinking Jamaica ginger. The victim was a pedler, apparently in good health, who sold this essence about the country. It was manufactured by a patent medicine "concern" in Peoria, Ill. Dr. Main's analysis of the liquid showed it to be made from methyl alcohol. The patient, unaware of its poisonous qualities, drank the compound for its intoxicating effects.

CASE 47.—(From Dr. J. G. McKinney, Barry, Ill.)

April 18, 1904, G. K., a painter, aged 25, was greatly addicted to drink. He was employed to do a job of painting, and drank the methyl alcohol that was intended for filling the knots in the wood before painting. Death followed in a few hours as a result of the drink.

CASE 48.—(From Dr. H. S. Miles, Bridgeport, Conn., and the Bridgeport Telegram-Union, July 23, 1904.)

Sheridan Knowles of this city, aged 45, a private in the United States Coast Artillery, stationed at Fort Terry, Plum Island, N. Y., died yesterday afternoon after drinking a quantity of wood alcohol. Knowles had been drinking heavily of late and made visits to New London, Conn., at every opportunity during the week. Each time he imbibed freely, and finally returned to the island for the first time Thursday. He was finishing his spree, and could not stop entirely from drinking liquor, so that the temptation to drink the wood alcohol was more than he could resist, although he knew well the deadly effects of the poison. He was the barber of the fort, and so had no difficulty in getting what he wished from the barber shop. He drank the wood alcohol, and inside of an hour was dead. This is the seventh case of wood alcohol poisoning at Fort Terry within a few months.

CASES 49, 50.—(From Dr. J. E. Minney, Topeka, Kan.)

In the year 1889 nine Poles, living in this vicinity, together indulged in a spree, toward the end of which they bought and consumed nearly two gallons of wood alcohol. Two promptly died from the acute intoxication; the other seven recovered. As related elsewhere, one of the latter became blind.

CASE 51.—(Newspaper report, Feb. 1, 1903.)

P. O., engineer in the Straube Piano Company, Downer's Grove, Ill., was found dead in his room in East Grove. Near his body was a bottle of wood alcohol, from which he had evidently been drinking. It is not known, however, whether he drank the fluid by mistake or intent.

CASES 52, 53, 54.—(Newspaper report, Philadelphia, October, 1903.)

Frank Helms, aged 43; Thomas Helms, 24, and William Conn died to-day from drinking wood alcohol. The first two, who were brothers, died while on their way to the hospital; the third, after reaching it.

CASE 55.—(Newspaper report, April, 1903.)

The death is announced, in Rockland, Mass., of Mrs. Frank Progin from drinking wood alcohol.

CASE 56.—(From Dr. J. A. Patton, Stillwell, Ind. Ter.)

L. G., aged 63, carpenter. Had drunk lemon extract for three or four days in company of friends, whose cases are also described in this report. He lived alone, and some friends, hearing of the death of one and the sickness of his other companion, went to his room about 10 p. m., Feb. 28, 1904. He answered and seemed all right. At daylight, the morning of the 29th, other parties, getting no answer to their questions, broke into the house and found him dead. Dr. Patton saw him soon after death; his limbs were flexed, head drawn back, and he presented every appearance of having died in a convulsion.

The lemon extract was analyzed and shown to contain wood alcohol.

CASE 57.—(From Dr. George H. Powers, San Francisco, Cal.)

5. Charlotte, N. C., Medical Journal, 1903, p. 164. This and the next case, although previously published, are recorded here as they are not referred to in other recent articles on this subject. —C. A. W.

A. C. G., aged 26, took during the night a single dose of wood alcohol with suicidal intent. He was found dead in bed next morning, the interval of the ingestion of the poison and the fatal issue being less than eight hours. Dr. Powers was present at the autopsy, which revealed great congestion of the vessels of the stomach and intestines, and a very strong and characteristic odor of wood alcohol.

CASE 58.—(From Dr. E. H. Robb, Newton, Iowa. Reported by Dr. H. P. Engle.)

G. C., a barber, aged 60, after a debauch, drank three or four ounces of bay rum made with wood alcohol. Shortly afterward gastrointestinal irritation, dilated pupils, irregular heart action and death in 36 hours.

CASE 59.—(From Dr. O. J. Short and the Coroner of Garland County., and Dr. A. D. Shaw, Hot Springs, Ark.)

W. T. was one of three young men who went on a spree and drank an unknown quantity of wood alcohol. All three suffered from severe abdominal distress and lost consciousness. One of them survived and testified that on awakening from his stupor he found himself alone. Search was made, and the bodies of his companions (see next report) were discovered.

CASE 60.—(From Dr. O. J. Short and Dr. A. D. Shaw, Hot Springs, Ark.)

J. A., the companion of the man mentioned in the foregoing report, was found dead after a wood alcohol debauch. A third party to the spree vomited almost immediately after drinking the alcohol, and, although he had cramps in his stomach and became unconscious for a time, finally recovered, apparently without permanent damage, and was able to give an account of what had happened previous to the death of his fellow sufferers. A postmortem examination revealed all the appearances of wood alcohol poisoning.

CASE 61.—(From Dr. C. Storz, Toledo, Ohio.)

W., man, aged 42, painter and paperhanger by occupation, died April 16, 1904, at the Marine Hotel, East Toledo. He drank a few ounces of wood alcohol and succumbed within two and one-half hours. This alcohol he had used as a liniment on a limb which he had broken about five months before. He woke his roommates and complained of terrible pains in his stomach and abdomen and said that he had drank some of the alcohol. He asked them to open the windows, as he was in want of fresh air, and suffered a great deal. When the physician arrived he was unconscious, and died within a few minutes.

CASE 62.—(From Dr. W. T. Salmon, Oklahoma City, Okla.)

R., aged 36, October, 1900, Indian Territory. A protracted spree on bitters. He died on the third day, with symptoms of wood alcohol poisoning.

CASE 63.—(From Dr. C. Storz, Toledo, Ohio.)

I. B., a well-educated Hebrew, aged about 40, died at the infirmary hospital of wood alcohol poisoning, April 9, 1902. The man was addicted to the habitual use of alcohol and, consequently, was very much demoralized. In tramping from one town to another he reached Toledo a few days previous to his death. Being too poor to obtain liquor in the usual form, he bought four ounces of wood alcohol in a drug store and drank most of it. He soon became very ill, complained of pains in his abdomen, and in a couple of hours became unconscious. He was sent to the infirmary hospital and died soon after his arrival, possibly within three or four hours, without regaining consciousness.

CASES 64 and 65.—(From Dr. J. W. Seales, Pine Bluff, Ark.)

J., male, aged 45, and S., male, aged 42, both of Ogama, Ark., drank, each, three bottles of Jamaica ginger and two of bay rum in December, 1900. Both died during the following night, with all the symptoms of wood alcohol poisoning.

CASES 66, 67, 68.—(Courtesy of the Surgeon General of the Army and of the surgeon in charge of the post at Fort Terry, N. Y.)

Private J. W. R., aged 36, Company C, A. Had been habitual drunkard. Returned to post after protracted spree, Feb. 26, 1904. About noon, February 29, went to hospital complaining of abdominal pain and showing evidences of spree; was not seen by surgeon at the time. At 8 p. m., same day, he returned to hospital; condition of profound collapse; intense pain in abdomen and lumbar region; temperature, 96; pulse thready, 50; respiration, 12, sighing; cyanosed; extremities, cold; surface of body, clammy; said he had "drank a little Florida water" and wanted something for the pain in abdomen. Assistant Surgeon R. was called immediately, but when he reached the patient he was unconscious, with above symptoms intensified. Temperature, 92; pulse, 42, scarcely perceptible; breath cold, but reeking of alcoholic fumes, which even at the time smelled peculiarly of the acid property of the methylated alco-

hol, or the pyrolicuous acid in it. Heroic stimulation was of no avail, and the man died, 8:49 p. m.

"Investigation showed that this man and four others had been drinking the day previous from a large bottle of Columbian spirits, not knowing that it was wood alcohol, or not caring what it was, just so it was "splits" (alcohol). This Columbian spirits had been used by the company barber to mix his toilet articles, and he told us he had bought it as, and for, such. The odor and burning properties confirmed his assertion."

Corporal T. O'B., 23 years, Company C, A., was found in quarters, at time of investigation, drunk (this was about 9 p. m., February 29). When shown the bottle and told of death of Private R., he became nauseated, through fear it is believed, but declared he had not taken any of the contents of the bottle, nor had he ever seen bottle before. Corporal O'B. was sent to hospital; temperature at 9:30 was 95.5; pulse 82, soft; mind clear, conversation rational. Temperature taken every half-hour during the night ranged from 95.5 to 96 at 7 a. m., when the collapse came, the temperature dropping to 92. Pulse during night from 80 to 94, soft. Became unconscious at 7:16, a moment after he had "cusseed out" the attendant for his trouble. Same profound collapse as in the previous case. In addition to the treatment used previously, a varying strength of galvanic electricity was used, the heart only responding for a minute or so to each stimulation. About five minutes before death clonic spasms beginning with the orbicularis palpebrarum and extending thence downward over the entire body and limbs, to the number of about ten, ensued at about ten seconds' interval. Death.

Private M. O'C., 36 years, Company C, A., was found in his bunk at the same time others were found, but was too drunk to take to hospital, and his condition was only what one would expect in such a case, the bottle of whisky being found in his locker. Denied hoisterously that he had taken any wood alcohol. Next morning he was apparently no worse than was expected; temperature, 99; pulse, 86, fair. Protested strenuously against being put in hospital, again declaring that he had not touched the wood alcohol. He was watched all that day and temperature taken every half-hour, ranging from 99 at time of admission to 97 at 2 a. m., March 2, when it dropped to 92 at 2:15 (this collapse coming just after he had finished a tirade against all the medical corps for not believing what he told us). His symptoms from that on were identical in every way with those of previous case, even to the spasmodic contractions. Death at 3:05 a. m.

CASE 69.—(Reported to the Surgeon General of the Army by the acting assistant surgeon at Fort Banks, Mass.)

"I have the honor to make the following report of an autopsy made on the body of Private A., who died at this hospital on June 21, 1900 (Case No. 709, sick and wounded report for June). The man had been drinking heavily of late, and the day before his death had been asking one of the mechanics at the post for some wood alcohol, which request was refused. This information relative to his asking for wood alcohol was not obtained until after I had made the autopsy. The man was moribund when admitted to the hospital at 4:35 a. m., June 21, 1900, and died the same morning at 5 o'clock. The autopsy was made six hours after death. The body was that of a well nourished man. Rigor mortis and lividity of the dependent parts were noted. No external marks were visible. Brain slightly edematous and presented strong odor of wood alcohol; lungs normal except for strong odor of wood alcohol; heart normal in size, slight thickening of endocardium, blood in right and left auricles liquid and black, and had a strong odor of wood alcohol; liver normal except for a strong odor of wood alcohol; spleen small, dark in color and of good consistency; stomach contained about six ounces of dark greenish fluid, which had strong odor of wood alcohol; lining membrane of stomach covered with mucus, with areas of reddened patches and points due to submucosal hemorrhages; kidneys normal in size, capsules not adherent, cortex appeared perfectly normal, pelvis and calices filled with pus; intestines normal with the exception of the sigmoid flexure which had two distinct strictures; bladder normal and contained about two ounces of urine, highly perfumed with wood alcohol. Cause of death, acute poisoning from methyl alcohol; source unknown."

CASES 70 and 71.—(Reported to the Surgeon General of the Army by the surgeon at Fort Terry, N. Y.)

Record Case No. 809. Private B. was admitted to hospital at about 9:15 p. m., Oct. 30, 1902, with acute alcoholism. He was put in bed, heat applied and aromatic spirits of ammonia given, and later 1 60 of a grain of strychnin hypodermically.

At about 9:15 he had a convulsion followed by collapse. Stimulation with strychnin, whisky and ether had little effect, and he died from cardiac paralysis at 10:07 p. m.

At this time Private C. was found on the floor of his quarters (tailor shop) in a state of profound collapse, and was brought to the hospital. Heat was applied and stimulants given, but without avail, and he died without regaining consciousness shortly after admission.

On investigation it was found that these men had been drinking heavily for several days, and being unable to procure more liquor, they concocted a punch from 13 bottles of bay rum, one of witch hazel, one of vanilla extract and one of hair oil, with sugar, lemons and water, of which mixture they drank deeply.

CASE 72.—(Report to the Surgeon General, U. S. Army, through the chief surgeon, Department of Dakota, by the surgeon at Fort Snelling, Minn.)

"I have the honor to submit the following report of two cases of methylic alcohol poisoning caused by drinking for purpose of intoxication an inferior quality of bay rum made from bay oil dissolved in wood spirit. A. was admitted to the hospital March 16, 1904, complaining of severe pains in the stomach and persistent vomiting with headache. His mental condition was not clear. His temperature was 98.4. He denied having been drinking. His urine contained albumin in large quantities. The patient became gradually unconscious, his respiration became labored and he died about 6 p. m. on the day of admission from paralysis of respiration. The heart continued to beat for some time after the cessation of respiration. Postmortem examination showed the following conditions: Brain much congested, blood dark and fluid, mucous membrane of stomach showing evidences of irritation with numerous small ecchymoses; no odor of bay rum or wood alcohol; kidneys markedly congested; liver and spleen somewhat congested; heart filled with dark fluid blood. Organs otherwise normal.

The other man, Private B., did not report at the hospital, but in investigating the cause of Corporal T. O'B.'s illness it was found that he had been drinking bay rum in company with Private B., who was the company barber, and that B. had been lying on his bunk in the barracks sick all day, but had not reported at the hospital. He was sent for at once and brought to the hospital on a litter. He complained of pain in stomach and persistent vomiting. His temperature was 97.6. His urine contained albumin and epithelial tube casts. The albumin in the urine continued present in lessening amounts until March 23, when it disappeared, and he made a satisfactory recovery and was returned to duty March 27.

CASES 73 to 81 inclusive.—(From Dr. James P. Widmeyer, Rolla, North Dakota.)

On the evening of Wednesday, Aug. 31, 1904, an unknown number of Indians of the Turtle Mountain Reservation went on a spree, and being unable to obtain the ordinary alcoholic beverages, secured a large number of bottles of "Florida water" and, it is reported in the papers, lemon extract, and drank freely of them. Nine Indians died, most of them Friday morning, September 2, and a survivor is known to have become blind. Empty "Florida water" bottles were found in the Indian encampment after the debauch. All who partook of the spirits complained of burning in the stomach and bowels, pain in the head, slow pulse (as low as 43); finger nails and lips were blue and they finally died comatose. Investigation showed the fluids to be largely methyl alcohol.

CASE 82.—(From Dr. G. H. Woodward, New York City.)

"A man of my acquaintance (from Longdale, N. Y.), died from drinking essence of lemon and witch hazel. He got on pretty well with the lemon, but died very soon after taking the witch hazel."

(To be continued.)

A SIMPLE METHOD OF CYSTOSCOPY.

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Specialists, and a gradually increasing number of the profession, regard cystoscopy as a diagnostic measure of merit. A multiplicity of instruments and variety of technic have contributed not a little to a feeling of distrust and reluctance to accept it by the profession at large.

Of the many kinds of cystoscopes most of them have been devised or modified by the pioneers in genito-urinary diagnosis. In the hands of its originator probably each instrument is a success, but in the hands of a stranger many are more or less of a failure.

Water dilatation of the bladder seems the rational method. The difficulty or impossibility of examining an occasional bladder, from blood or pus clouding the inflating fluid, led to the devising of instruments to be used with air dilatation. Air in the bladder is a foreign body and by the conscious patient is treated as such. Frequent sponging to remove urine or blood is provocative of further hemorrhage and increases the difficulties. Nevertheless, it may be possible to make a fairly satisfactory inspection of a bleeding bladder by means of an air inflation where many of the water instruments would fail.

A clear fluid readily transmits light, therefore a column of clear water filling the shaft of a cystoscope will do the same. The avenue of ingress and egress for air will just as readily admit water. The air-dilating cystoscope is a large open cylinder made to admit of ready sponging. This very fact makes irrigation through it very thorough and rapid. By attaching a fountain syringe filled with sterile saline solution to an instrument of this character one secures the advantages of water inflation, together with the possibility of quickly evacuating the fluid, in case it becomes clouded, and replacing it with clear. The only interruption to the inspection is the few seconds required to empty the bladder. As soon as the clear fluid is again allowed to flow in, the examination can be resumed, the inflowing fluid transmitting the light as readily as if it were stationary. The stream is entirely under control; by means of the stopcock with which all air instruments are supplied, it is stopped or started; by raising or lowering the irrigator, its force is increased or decreased. Under the guidance of the eye the stream can be directed toward the suspected areas; blood clots and clinging mucus or pus may be dislodged and the margins of ulcers thus clearly exposed. Tumors which appear as flat elevations on the bladder walls may be demonstrated to be villous by directing the stream against them or around their edges. Cloudy urine discharging from a ureter may obscure the field in that part of the bladder, but a single jet of clear fluid will clear that neighborhood and the ureteral opening may be located before the next discharge of urine occurs. The area surrounding the ureteral openings can be mechanically cleansed by directing the force of the stream to that neighborhood.

The above specific instances may serve to illustrate the applicability of this method to almost any bladder condition. Practically, it means transforming an air inflating cystoscope into an irrigating instrument; an instrument, too, which admits of rapid and thorough irrigation and permits the guiding of the inflowing stream where one wills, and of greater efficiency than many which have been specially constructed for irrigation. Discomfort from distension or clouding of the fluid is the signal for

Report of Antimalaria Expedition to East Africa.—The *Zeitschrift f. Hygiene*, xlv, No. 3, 1903, publishes Ollwig's report of the application of Koch's method of malaria prophylaxis to the Dar-es-Salaam region in eastern Africa. The conditions were peculiarly unfavorable for its success, owing to the shifting population, the dampness of the surroundings, etc., and consequently the result was not a complete success. It proved possible, however, to materially reduce the morbidity from malaria and prevent its spread.

removing the window and allowing the bladder to empty. Turn on the water, replace the window and resume the examination. This may be repeated many times in an ulcerated, contracted bladder, or in one which is freely bleeding, and makes possible a satisfactory examination of any bladder.

Three years' use of the above technic, with air inflating cystoscopes, justifies its recommendation as a safe, simple and practical method.

BONE CYSTS.

A CONSIDERATION OF THE BENIGN AND ADAMANTINE DENTIGEROUS CYSTS OF THE JAW AND BENIGN CYSTS OF THE LONG PIPE BONES.*

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Recent accumulated experience, in the ultimate results after amputation for sarcoma of the long pipe bones, and complete resection for sarcoma of the upper and lower jaw, has demonstrated that local recurrence is unusual, but death from internal metastasis is common in a certain number of cases. When these cases are studied pathologically it is found that the patients who have remained well suffered from special types of sarcoma essentially different from the tumors removed from the patients who ultimately succumbed to internal metastasis. In other words, we were not accomplishing a cure in the latter group of cases even after amputation at the highest joint, because internal metastasis takes place early and is present at the time the patient seeks surgical treatment, and we were subjecting the first group of patients to an unnecessarily extensive operation.

In 1899¹ I discussed the literature and the experience of the surgical clinic at the Johns Hopkins Hospital in regard to the different relative malignancy in sarcoma of bone, and that in certain varieties much less extensive operations would accomplish a cure with as great a certainty as amputation at the highest joint.

Experience has demonstrated that, in some cases, curetting is sufficient; for example, the benign bone cysts of the long pipe bones, dentigerous cysts of the jaw and medullary giant-cell sarcoma. The latter was advocated many years ago by Koenig. In other cases resection, the extent of which is indicated by the local infiltration of the disease. For example, the various forms of epulides of the upper and lower jaw; the periosteal and medullary giant-cell sarcoma; the periosteal fibrosarcoma and osteosarcoma; the myxochondrosarcoma and a special tumor of the jaw—the cystic adamantin epithelioma. Such local resections as against amputations have been advocated by von Mikulicz, Weisinger, Morton, Karewski, Hinds.²

Amputation is indicated in these varieties of sarcoma only when the necessary resection would result in a useless limb. Infiltration of muscle is not a positive indication for amputation. In this group of cases amputation at the highest joint, except due to the position of the tumor, is never indicated.

In April, 1901, in a discussion before the Philadelphia Academy of Surgery,³ I advocated this more con-

servative procedure. Since then the further experience of Dr. Halsted's clinic and my own and the reading of the literature have accumulated additional facts justifying the more conservative operation in this group of sarcoma of bone, of relatively low malignancy.⁴

In December, 1902, I removed with the curette a large medullary giant-cell sarcoma filling and expanding the upper third of the tibia.⁵ This patient has no evidence of recurrence and a limb with unimpaired function.

The experience of the surgical clinic in tumors of the jaw and long pipe bones can be expressed in a few words.

In Group 1 the patients have remained well since operation, the time varying from six months to twelve years. There has been a slight operative mortality, and a few cases in which, on account of the size and position of the tumor, the disease was considered inoperable.

Benign Cysts of Long Pipe Bones.—Three cases; one died after operation (Fig. 2); 2 cases are well.

Benign Dentigerous Cysts.—Ten cases (upper jaw, 4; lower jaw, 4; ethmoid, 2 cases). Inoperable, no cases. Death after operation, 2 cases (Figs. 5 and 6). In these two instances a complete resection was performed. Well, 8 cases. In these 8 cases the operation consisted in partial removal of the bony wall, curetting and packing.

Adamantine Epithelioma.—Twelve cases; inoperable, one case (Fig. 8). Death after operation, 1 case (Fig. 9). Well, 10 cases. In one instance there was a second operation for local recurrence; this patient has remained well eight years since the second operation.

PERIOSTEAL SARCOMA.

Epulis.—Twenty-three cases; upper jaw, 13; lower jaw, 10. One patient died of pneumonia; in this case, an extensive giant-cell tumor of the lower jaw, it was necessary to do tracheotomy and perform a complete resection of the jaw. Well, 22 cases. In all of these cases the operation consisted of removal of the tumor with the alveolar border of the jaw. In only one case was there a local recurrence, and this patient has remained well since the second operation.

Spindle-cell Fibrosarcoma or Myxosarcoma.—Eight cases; antrum, 3, all well; lower jaw, 3, 2 well, 1 died of pneumonia after complete resection; orbit and antrum, 2 cases; 1, a young child, died after an extensive operation; the other, also a child, has remained well since the less extensive operation, two years.

Osteosarcoma.—(I employ the term osteosarcoma only in those periosteal tumors in which new bone formation predominates.) Eight cases. Lower jaw, 4; 2 well, 2 refused operation. Upper jaw, 2, both well. Long pipe bones (humerus and fibula), 2; both well.

Giant-cell Sarcoma.—Those situated on the jaw and called epulis have already been considered. It is a rare tumor of the long pipe bones. We have observed three cases: Ulna, 1 case, resection, well twelve years. Tibia, upper third, 2 cases, both well; in both the tumor was recurrent; in one the tumor was excised without destroying the continuity of the tibia, in the other the limb was amputated at the thigh.

MEDULLARY SARCOMA.

Giant-cell Tumors (Myeloma).—Eight cases, all well; lower jaw, 1; long pipe bones, 7.

Myxochondrosarcoma.—Three cases; one involving the sacrum, inoperable; one involving the upper third of the humerus, well; one of the femur, death two years after operation from tuberculosis of the lungs.

Seventy-eight bone tumors in this group are either benign or of relatively low malignancy. Sixty-nine cases are well, two inoperable; two refused operation; seven died after operation. In six of these cases the

* Read at the Fifty-fifth Annual Session of the American Medical Association. In the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

1. *Progressive Medicine*, December, 1899, p. 234.

2. *Progressive Medicine*, December, 1899, pp. 38-42.

3. *Annals of Surgery*, 1901, vol. xxxiv, p. 94.

4. *Progressive Medicine*, 1902, pp. 151-186.

5. *Johns Hopkins Hospital Bulletin*, May, 1903.

tumor involved the upper or lower jaw. In these six cases, I believe, a less extensive operation could have been performed which would have reduced the dangers of the operation, but not the probabilities of an ultimate cure.

Group 2 includes patients who have not been cured, either because the condition was inoperable when they presented themselves at the clinic, or because of death from internal metastasis after operation.

PERIOSTEAL TUMORS.

Spindle and Round-cell Sarcoma.—Six cases; lower jaw, 2; long bones, 4.

Perithelial Angiosarcoma.—Long bones, 2 cases.

MEDULLARY TUMORS.

Spindle and Round-cell Sarcoma.—Long bones, 4 cases.

Perithelial Angiosarcoma.—Long bones, 2 cases.

In these 14 cases a complete operation was performed. In the 12 cases of the long pipe bones a high amputation; in the 2 jaw cases, an extensive resection. In every case death has taken place, usually within a year after the first symptom of the tumor. In only 1 case was the duration of life longer than two years.

Sarcoma of the Upper Jaw Involving the Antrum.—Clinical diagnosis: Six cases, all inoperable.

Carcinoma of Upper Jaw.—Twenty-one cases; inoperable, 16; 1 death of pneumonia; remainder not cured.

We have, therefore, observed 41 cases of tumors involving bone of a relatively high malignancy, none of which has been cured as compared with 78 of a relatively low malignancy, of which 69 are well.

These facts demonstrate the hopelessness of the more malignant varieties of bone tumors.

Surgeons who take the view advocated in this paper must educate themselves to recognize clinically, or through the Roentgen negative, or at the exploratory incision, the different varieties of sarcoma of bone, and govern the extent of the operative procedure by the relative malignancy and extent of the tumor.

In this paper I shall discuss only the benign bone cysts of the long pipe bones, the dentigerous cysts of the jaw and the cystic adamantinoma epithelioma.

BENIGN BONE CYSTS.

The benign bone cysts of the long pipe bones are rare tumors. Up to the present time we have observed but 3 cases in the surgical clinic.

CASE 1.—Bone cyst of the humerus. White girl, aged 7, tumor one year, pathologic fracture. Operation, curetting and drainage, June, 1904, ten months, well.⁸ I saw this patient in August, 1903. The parents gave the following history:

History.—The apparently healthy child one year ago fractured the upper third of the humerus of the right arm after a slight fall. The fracture was treated by their family physician and united. After the dressing was removed a swelling was observed which has never disappeared. If the swelling had been present before the fracture, it had not attracted the attention of the parents or the physician who treated the fracture. For a year there were absolutely no symptoms except swelling. Three days ago, after a very slight fall, the child refused to use the arm because of pain, and for this reason was brought to the surgical clinic.

Examination.—On examination there was a fairly uniform expansion of the upper third of the humerus, easily seen, greatest toward the surgical neck. On palpation the soft parts were normal, but one could feel the normal shaft of the humerus expanding into a thin shell of bone. The surface of this shell of bone was not smooth like the normal shaft, but irregular. In a few places one could elicit definite parchment crepitation, first

described by Dupuytren, or what I have called "ping-pong ball" crepitation. The arm was very tender.

Clinically, a diagnosis of bone cyst was suggested, because so far in my experience every sarcoma of the more malignant type in children at this age had caused death by internal metastasis within a year.

The only medullary tumors of the long pipe bones which, in their growth, expand the bone and produce a definite shell, are the bone cysts, the myxochondrosarcoma and the giant-cell sarcoma. Of the latter two we had no observations in the clinic, in patients at this age, and so far I have been able to find none in the literature. The Roentgen negative is illustrated in Figure 1.

Operation.—At the exploratory operation the tissues were normal until the periosteum was separated. The bone beneath was irregular and varied in thickness from 1 to 4 mm. On removing a piece of the shell of bone a cavity was exposed filled with blood; there was no connective tissue lining, and no evidence of cartilage, but as only sufficient bone was removed to allow curetting of the cavity, one can not exclude the possibility that cartilage was present in some part of the wall. After curetting, the cavity was partially packed with gauze, the remainder allowed to fill with blood-clot. Eight weeks after operation an x-ray picture demonstrated that the cavity was almost completely filled with new bone.

The origin of these bone cysts has been demonstrated by Virchow, Zernicke, Schlang, Koenig and others to be due to liquefaction of misplaced islands of epiphyseal cartilage, and in the majority of cases cartilage has been found in some parts of the wall.⁷ In the two other cases observed in Dr. Halsted's clinic cartilage was demonstrated in the wall of the cyst.

CASE 2.—Colored woman, aged 37. Expansion of the lower end of the right femur, four years.

History.—The swelling shown in Figure 2 reached its greatest height about one year after the onset, and during the last three years there has been little or no increase in size. This patient refused amputation. Five years and eight months later she returned to the clinic.

Examination.—The tumor had increased in size, but had not changed its characteristics. The shell of bone was rough, similar to Case 1, but thicker, and one could not elicit parchment crepitation. The x-ray showed a shadow somewhat similar to Case 1. The diagnosis lay between a bone cyst and a myxochondroma. The long duration and the preservation of the shell of bone excluded a malignant bone tumor.

Operation.—The findings at the operation by Dr. Follis, the resident surgeon, were similar to the case just discussed, except that cartilage was present within the shell of bone in many parts of the wall.

CASE 3.—The age, clinical history, appearance and x-ray shadow were almost identical in this patient with Case 1, except that the first pathologic fracture had been five years instead of one year before the patient came under observation. The expansion of the upper two-thirds of the femur in this case was produced in the upper portion by cartilage, in the central portion by a cyst filled with blood, and in the lower portion by a fibromyxomatous connective tissue which extended down the medullary cavity of the femur some distance below the point of its expansion (Fig. 3).

Dr. Halsted exhibited this patient and the specimen at a recent meeting of the Johns Hopkins Hospital Medical Society. Later a detailed report, with the interesting histologic findings, will appear. The extensive formation of fibromyxomatous connective tissue histologically like otitis fibrosa, described by von Recklinghausen, is, I think, a unique finding in both cysts.

Koch⁹ gives the most complete résumé on the subject

of bone cysts, collecting from the literature, in addition to his own observation, 32 cases.

Heincke⁹ has recently published the first case of multiple bone cysts in which x-ray negatives were made. He is inclined to the conclusion that the cystic degeneration is part of a general osteomalacia. I have recently learned that Dr. Goldthwaite in Boston has under observation, confirmed by x-ray studies, a similar case of multiple bone cysts, in which there is no doubt clinically as to the presence of osteomalacia.

The etiology of these multiple cysts is apparently entirely different from the single cyst, but in every case numerous x-rays should be taken to exclude multiple cysts. Codman¹⁰ in Boston reports a very interesting tumor in the digital phalanx which undoubtedly represents the cartilage stage of the benign bone cyst.

The benign cyst of the long pipe bones can not always be recognized clinically, nor does the x-ray negative differentiate it from medullary giant-cell sarcoma or the myxochondrosarcoma. As a rule, these three tumors can be distinguished from the more malignant and rapidly growing medullary sarcoma. However, if there is any doubt, one should never proceed with an amputation without excluding these tumors of less malignancy by an exploratory incision.

BENIGN DENTIGEROUS CYSTS.

Ten cases. Upper jaw, 4 cases; lower jaw, 4 cases; ethmoid, 2 cases. The age of the patients varied from 6 to 30 years; 4 were under 15 years of age, 6 between 20 and 30. The duration of the tumor varied from three months to thirteen years. Whether the tumor is situated in the upper or lower jaw, it is of slow growth and usually painless. There is a slow expansion of the jaw, and on palpation one can feel a smooth, thin shell of bone. Usually there is parchment crepitation. At the exploratory incision the periosteum is normal. The outer shell of bone is smooth; lining the bone there is a thin, vascular connective tissue membrane. The contents of the cyst is usually a blood-stained serum.

Microscopically, one finds frequently cholesterol crystals, blood corpuscles and degenerated cells, which suggest epithelium. Histologically, however, I have never been able to demonstrate an epithelial lining.

Usually the cyst is single; now and then there are thin partitions. In a few cases the cysts are multiple. Complete resection is unnecessary. Partial resection with curetting and drainage will accomplish a cure. In three of our cases a non-erupted tooth was found in a recess of the cyst. These dentigerous cysts are apparently due to the distension of the connective tissue capsule of a non-erupted tooth.

CASE 4.—Figure 4. The patient was a white boy, aged 15.

History.—The swelling of the body of the lower jaw was of three months' duration. Because of the painless and uniform expansion, the distinct shell of bone and parchment crepitation, I made the diagnosis of a dentigerous cyst.

Operation.—The exploratory incision revealed the pathologic findings already described. The outer expansion was cut away with the chisel without destroying the continuity of the lower jaw. The connective tissue membrane and tooth were removed. The bone cavity was then curetted, allowed to fill with a blood-clot and the skin incision closed. The wound healed *per primam*.

Result.—June, 1904, six years after operation, there is a slight depression in the jaw at the site of the scar, but no other deformity.

CASE 5.—Figure 5. The patient was a white girl, 8 years of age, the tumor of some years' duration.

Operation.—Complete resection was done. The child's hemoglobin was but 52 per cent. at the time of the operation, and although there was no loss of blood the patient died of shock. The tumor was a very large one and extended from the zygoma almost to the symphysis of the jaw. I believe incision and curetting would have been sufficient in this case.

CASE 6.—Figure 6. The patient was a colored girl, 19 years of age, the tumor of thirteen years' duration. Complete resection was performed. (Fig. 7.) The patient died at the end of the third week from abscess of the lung.

In the remaining five cases of dentigerous cysts, two of the upper jaw and three of the lower, the operation was similar to that followed in Case 4. The patients recovered and have remained well for from two to eight years since operation.

The two cases of cysts of the ethmoid bone presented themselves clinically with a tumor projecting from the angle between the nose and the supraorbital ridge, producing slight exophthalmos. On palpation the tumor was smooth and presented a thin shell bone giving parchment crepitation. In both, partial excision with curetting and drainage was performed. The patients have remained well, one four years and the other eighteen months since operation.

ADAMANTINE EPITHELIOMA.

Of these there were 12 cases. In 4 the tumor projected from the alveolar border of the jaw (3 lower, 1 upper). The tumor was covered with normal mucous membrane and did not invade the bone. In 8 cases the epithelial tumor was situated within the body of the jaw (1 upper and 7 lower), and in its growth produced an irregular expansion very similar to a dentigerous cyst. The age of onset varied from 18 to 61 years. The majority of cases were 20 and 35 years of age; the duration of the tumor from seven months to twenty-nine years, the majority from six to twenty years. In one case the condition was considered inoperable. (Fig. 8.) In the remaining 11 cases a complete resection of the diseased area was made. Nine cases have remained well for from one to twelve years. In one instance there was a local recurrence, but this patient has remained well eight years since the second operation. One patient (Fig. 9) died after complete excision of a huge tumor involving both upper jaws.

This epithelial tumor is apparently of a very low grade of malignancy. In none of our cases was there metastasis to the glands of the neck. The tumor can be differentiated from the more malignant neoplasms of the jaw by its very slow growth. The adamantine epithelioma involving the alveolar border can not always be differentiated clinically from the connective tissue epulis. The epulis is more apt to be associated with ulceration of the mucous membrane.

When the adamantine epithelioma originates in the body of the jaw and produces expansion, with the formation of a thin shell of bone, it can not be differentiated from a benign dentigerous cyst until the exploratory incision is made. Then, when the shell of bone is incised, we do not find a cavity, but a white, finely granular tumor containing connective tissue trabeculae, and usually many small and large cystic cavities. The gross appearance is well illustrated in Figure 10. This patient (Fig. 11) was a colored man, 42 years of age, tumor of eight years' duration. The patient has remained well three years since operation.

The microscopic appearance is well illustrated in Figure 12.

9. *Beiträge z. klin. Chir.*, 1903, vol. xi, p. 481.

10. *Boston Med. and Surg. Journal*, vol. cl, No. 8, p. 211, Feb. 25, 1904.

CASE 6.—Figure 13. The patient was a white woman, aged 52.

History.—Four years ago, when 48 years of age, she observed a tumor like a gumboil on the outer side of the alveolar border of the left lower jaw, opposite the canine and first molar teeth. At the end of two years, when it had reached the size of a hickory nut, it was removed. A local recurrence took place within six months.

Operation.—The tumor was removed by turning back flaps of mucous membrane which were not adherent to the tumor. Then the tumor and the alveolar border of the jaw were removed in one piece. The patient has remained well since the operation, a period of ten years.

Appearance of Tumor.—The fresh appearance was quite typical: white, friable, granular alveoli of various sizes and cysts in a definite fibrous stroma.



Fig. 1.—Characteristic shadow thrown by any medullary tumor which in its growth produces a shell of bone. A pathologic fracture is also seen.



Fig. 4.—Sketch of reconstructed lower jaw in a case of dentigerous cyst. The expansion of the body, chiefly on the outer side, is well shown and the recess containing the non-erupted wisdom tooth.



Fig. 2.—Bone cyst of lower end of femur of four years' duration.



Fig. 5. Photograph of the alcohol specimen of an excised lower jaw, in which the dentigerous cysts are multiple.



Fig. 3.—Bone cyst of upper portion of femur. Dr. Halsted's case.



Fig. 6.—This illustrates the huge size which a dentigerous cyst of the upper jaw may reach.

Examination.—The recurrent tumor is the size of an egg and involves the alveolar border of the left lower jaw from symphysis to within one centimeter of the angle. The tumor is present on both sides of the alveolar border. It is distinctly circumscribed. The mucous membrane at one point has ulcerated, exposing a small cyst.

Under the microscope (see Fig. 13) one sees the normal mucous membrane of the gum, then a zone of connective tissue, beneath which is the circumscribed tumor. The tumor is composed of branching epithelial alveoli in a connective tissue stroma. Some of the alveoli are cysts lined by the typical basal adamantine epithelium. Other alveoli are solid, with cells showing the various morphologic changes of the adamantine epithelium.

DISCUSSION.

DR. F. J. HALL, Kansas City, Mo. It would be of interest to know what distinction, if any, Dr. Bloodgood makes between the cystic bone tumors of the long bones; in particular, two varieties of pathologic bone condition: one is the myeloma

central portions of the tumors were occupied by these cysts, and I should like to know if Dr. Bloodgood has had any experience with these other two varieties of conditions, and what relation they bear to the conditions which he has described.

DR. JOSEPH C. BLOODGOOD, Baltimore—I am inclined to think that what you mean by myeloma is a giant-cell tumor.

DR. HALL—Yes, sir.

DR. JOSEPH C. BLOODGOOD—Dr. Hall, in his question in regard to myeloma, undoubtedly means the medullary giant-cell sarcoma. This tumor is one of a relatively low grade of malignancy. We have observed about 10 cases; all have remained well since operation. I have reported them in the Johns Hopkins Hospital Bulletin for May, 1903. In regard to the question as to the origin of the blood cysts in the condition called

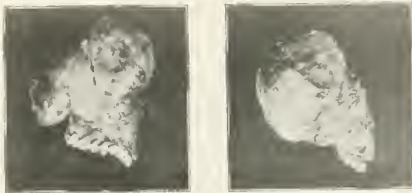


Fig. 7.—Photograph of the alcohol specimen of Figure 6 after removal.



Fig. 8.—Colored man, aged 54; tumor of twenty years' duration.



Fig. 9.—Dentigerous cyst of upper jaw. Death followed complete excision.

and the other is the traumatic myositis ossificans. Several cases of both these conditions have occurred in my own territory, and three of the cases of myeloma—so-called central sarcoma of the bone—have been operated on, and none has recurred. Three cases also of myositis ossificans have occurred wherein the



Fig. 10.—Photograph of resected lower jaw; *a*, large smooth-walled cyst; *b*, bony capsule; *c*, smaller cysts; *t*, friable, white, adamantine epithelial tissue; *t*, teeth and symphysis of jaw.



Fig. 11.—Patient from whom tumor shown in Figure 10 was removed.

myositis ossificans, they are probably due to hemorrhage. Recently there has appeared in the literature a number of interesting articles and reports of cases on this subject. These I have reviewed in *Progressive Medicine* for December, 1903. With or without a history of trauma an indurated mass associated with some pain and tenderness is observed by the patient in one of the large muscles, most frequently the thigh. The tumor rapidly becomes bony in hardness. In some cases the x-ray demonstrates a zone of normal tissue between the shaft of the bone and the osteoid tissue in the muscle. In other cases the two bony shadows are in contact. This has given rise to two views as to the etiology of the new bone

formation in the connective tissue between the muscle bundles. A number of authorities conclude that the bone is a product of detached pieces of periosteum, others that it rises from the connective tissue cells between the muscle bundles. Clinically the condition is not difficult to recognize, especially with the aid of the x-ray. However, when the new shadow rests directly on the shaft of the neighboring bone it will be difficult to differentiate the ossifying myositis from a condition called

do not think there is any relation between the hemorrhagic cysts observed in myositis ossificans and the cysts of the long pipe bones.

As to the question of the origin of the giant cells, recent investigation would indicate that the periosteal or medullary giant-cell tumor is probably an angioma or an angiosarcoma, and that the giant cells are due to budding of the endothelial cells of the vessels in these very vascular tumors. The most interesting publication on this subject is by Friedländer.* Further investigation, however, should be made of this most interesting tumor.



Fig. 12.—Microphotograph of a section of an adamantine epithelioma, involving chiefly the alveolar border of the lower jaw. In this section the basal columnar cell and its various morphologic changes toward the center of the alveolus are well shown. (Sent me by Dr. Steensland.)

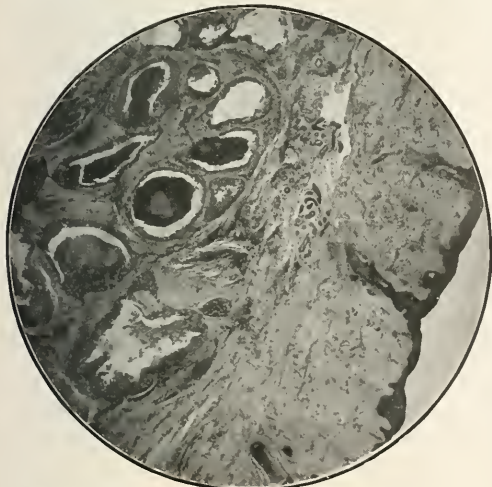


Fig. 13.—Microphotograph of a section of an adamantine epithelioma of the gum.

traumatic exostosis or ossifying periostitis. Blood cysts have been observed only in the ossifying myositis. Extensive operations are not necessary. One should remove as much of the new bone production as possible without destroying function. Slight local recurrences of the bone formation are to be expected. Fortunately the amount is never great, gives little or no discomfort, and second operations are rarely necessary. I

EXPERIMENTALLY PRODUCED GENUINE EPITHELIAL METAPLASIA IN THE STOMACH,

AND THE RELATIONS OF EPITHELIAL METAPLASIA TO CARCINOMA, AS DEMONSTRATED BY CASES REPORTED IN THE LITERATURE.

GUSTAV FÜTTERER, M.D.

CHICAGO.

As the observations on epithelial metaplasia to be reported in this paper were made in a series of experiments on the stomach of rabbits, undertaken for the purpose of studying the relations between mechanical irritation and development of carcinoma, I think it necessary to state this fact, merely to show under what circumstances the findings were made. My views concerning the rôle which mechanical irritations play in the etiology of carcinoma, and how those views have been formed, have been fully explained in former writings, and I can, therefore, refer the reader to them, in order to prevent repetitions, which would make this article too extensive.¹

Some observations of importance have been made which I do not report, because they need corroboration, but they certainly encourage further efforts along the same lines.

In a series of experiments on the stomachs of 94 rabbits, a genuine epithelial metaplasia was found in five cases, only two of which will be described in detail, as a description of the others would cause an unnecessary repetition, for while the findings differ somewhat in all the cases, they are the same in principle. It may also be mentioned that I have specimens of epithelial metaplasia from a former experiment, bringing the total of cases to six.

In each case a piece of mucous membrane of the stomach was resected and hypodermic injections of a solution of pyrogallic acid were made, to reduce the percentage of hemoglobin, and thus prevent the healing of the defect, the edges of which were then exposed to friction by solid food. At first, as in former experiments, circular resections of mucous membrane around the pylorus were made, but the feeding of the animals was not carried out according to orders given, and they all died, postmortem examination revealing very much dilated stomachs filled with solid food, while only liquid food was to be given during the first four days. Not being able to get better care of the animals at the time, I had, in order to reduce the mortality, to resect pieces of mucous membrane near or further away from the pylorus, and later, when Dr W. H. English, to whom I am very much indebted, kindly took it on himself to supervise the keeping of the animals, my results became very much better.

* Archiv f. klin. Chir., 1902, vol. lxxvii, p. 202.

J. Fütterer: Aet. d. Carc. Bergmann, Wiesbaden, 1901, and THE JOURNAL A. M. A., March 15, 1902.



Fig. 1.—Case 1. Hematoxylin-eosin stain. Bausch and Lomb, obj. 3 inches, magn. 30. V. Vegetable matter. P. 1, 2, 3. Peg of squamous epithelial cells. Rad. Root of the peg. Muc. Mucosa. Musc. m. Muscularis mucosae. Msc. Muscularis (hypertrophic). R. Rest of muscularis, not invaded by the peg. S. Serosa.

The microphotographs have been made by Dr. W. H. Knapp of Chicago, to whom I am very much indebted for the excellent work.



Fig. 2. Case 1. Hematoxylin-eosin stain. Bausch and Lomb, ocular 2, obj. 1/2 inch, magn. 250. In the middle of the field is found the part marked lead. (Fig. 1), with higher magnification. P. Peg of squamous epithelial cells. Cyl. Dilated glands, with very high cylindrical epithelium.

METHOD OF OPERATING.

1. The skin over the region of the stomach was shaved.
2. Ether narcosis.
3. The skin was cut with a knife.
4. The muscles were held with pincers, and the abdomen was cut open with scissors.
5. Sterilized gauze was packed around the wound, the stomach was pulled out almost entirely, and gauze was packed all around it.
6. The stomach was opened with scissors on the anterior walls in the pyloric portion.

7. The contents of the stomach were removed with a teaspoon.
8. A part of the posterior wall of the stomach was pushed through the wound with the fingers.
9. The mucosa of this part was cut with scissors and a grooved director was introduced into the submucosa, loosening the mucosa plus the muscularis mucosa from its bed, and then the loosened piece was cut off with scissors.
10. Two catgut sutures, one uniting the mucosa and one the rest of the wall of the stomach, closed the anterior wound of the organ.

11. The stomach was allowed to fall back into the abdominal cavity, the gauze strips were removed, and the abdomen was closed by sutures.

12. The animals operated on received regular injections of 0.14 pyrogallic acid in solution hypodermically at different intervals, as they were needed to destroy hemoglobin. Hemoglobin examinations were made once a week, and all the animals were weighed.

On the whole, I must say that the results, so far as the production of certain forms of ulcers was concerned, were not entirely satisfactory, but I believe that the experience gathered will enable me in the near future to be more successful in this direction. The work to be reported here consists of a series of experi-

globin, 85 per cent. Operation Jan. 8, 1904; died Feb. 1, 1904. January 23, hemoglobin, 60 per cent.; weight, 2½ pounds. January 30, hemoglobin, 50 per cent.; weight 2¾ pounds. One hypodermic injection of .14 pyrogallic acid in solution had been made.

In this case, as in Case 2, an infection of the right hand prevented me from performing the postmortem myself. When the stomach was handed to me, shortly after it had been removed from the animal's body, thickening and hardening of the part of the posterior wall of the stomach where the resection had been made, and where a regeneration of the mucosa had occurred, were recognized. In the mid-st of the regenerated portion could be seen a very small indentation and microscopic examination revealed here the presence of a peg of squamous epithelial cells, as is represented in Figure 1, with low power.

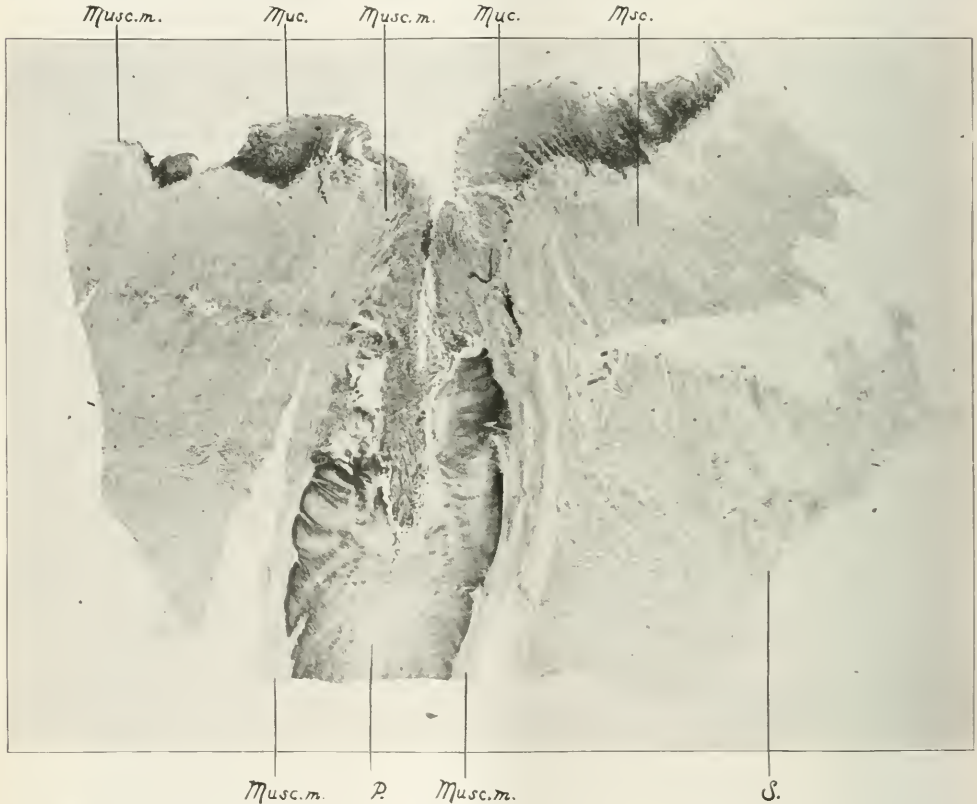


Fig. 3. Case 2. Hematoxylin-eosin stain. Bausch and Lomb, obj. 3 inches, magn. 30. Muc. Mucosa with elongated glands and round-cell infiltration. Musc. m. Muscularis mucosae. Musc. Muscularis (hypertrophic). S. Serosa. P. Peg of squamous epithelial cells.

ments conducted between Dec. 6, 1903, and April 2, 1904.

REPORT OF THE FIVE CASES OF METAPLASIA.

The five cases of metaplasia recorded in our table have their principal features in regard to origin, the formation of pegs of squamous epithelium and their growth into the wall of the stomach in common, while there are some differences in the development and differentiation of the layers constituting the pegs.

CASE 1.—(Operation No. 32.)

Rabbit of white color; female, weighing 3½ pounds; hemo-

and in Figure 2, showing its origin from the mucosa, with high power.

Microscopic Findings.—With low power an epithelial peg was seen, the upper end of which reached but slightly above the mucous membrane at both edges of the indentation, before mentioned. The epithelial peg had three branches, one in the upper layer of the muscularis propria, and the two others deep in the outer layers of the muscularis propria, through which the main part of the peg had almost penetrated and reached the serosa. The peg was isolated, on all sides surrounded by mucous membrane, and no similar formations were found anywhere. Only in one place was the peg firmly connected with

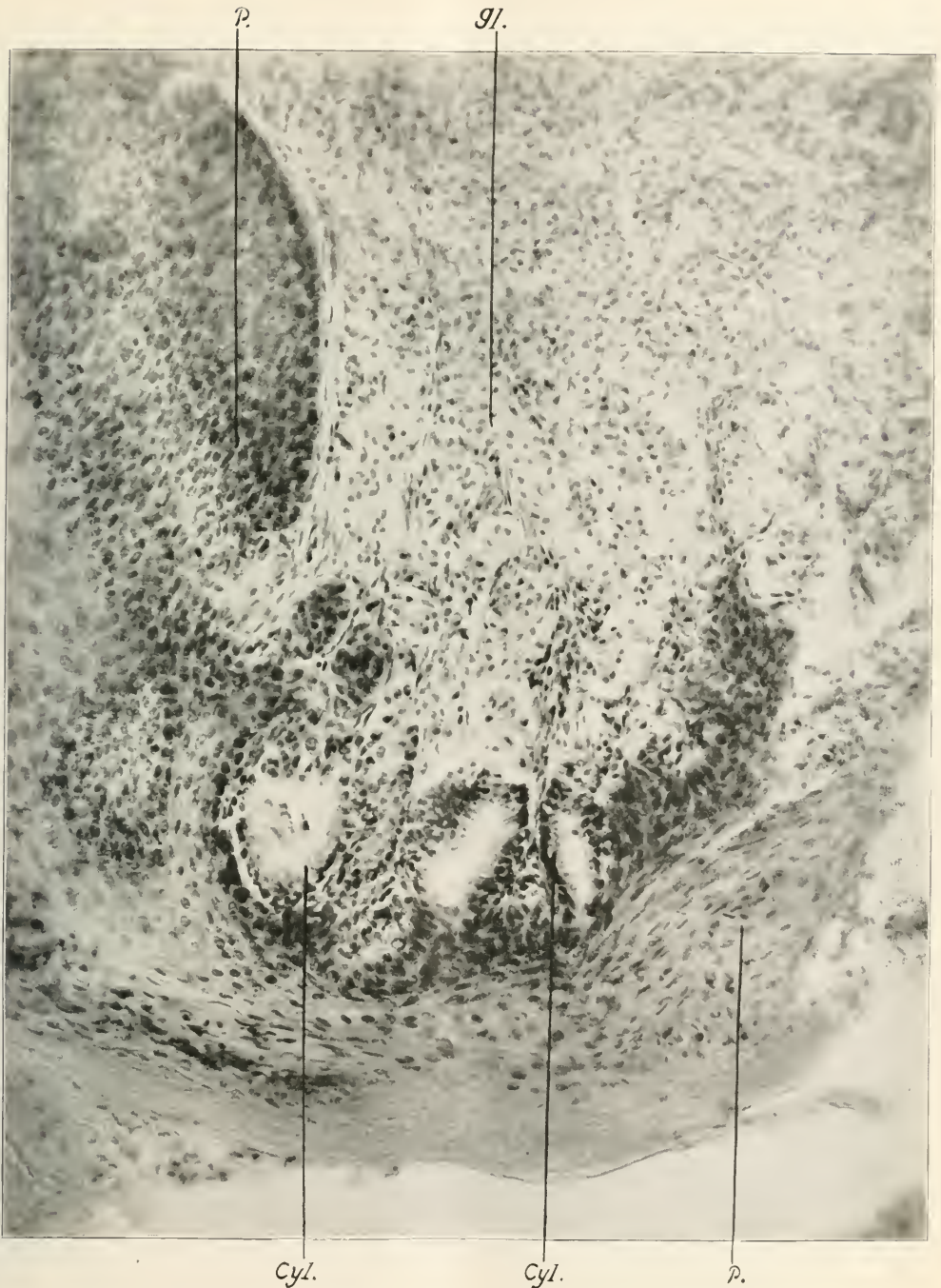


Fig. 4.—Case 2. Hematoxylin-eosin stain. Bausch and Lomb, ocular 2, obj. $\frac{1}{3}$ inch, magn. 325. (G.) Glands of the mucosa. P. Peg of squamous epithelial cells. Cyl. Metaplasia. The cylindrical epithelium of the glands of the mucosa, changing into squamous epithelium. The nuclei contain a great deal of chromatin and the body of the cells becomes much longer. The glands themselves are dilated. It is of importance to notice that the epithelium lining the glands and undergoing metamorphosis shows perfectly regular arrangement, as under normal conditions, and it can easily be recognized that these cells are the regular columnar cells of the glands and not implanted skin cells, which would fill the lumen of the glands.



Fig. 5.—Case 3. This case was only mentioned, but not described in the text, because it was so similar to Case 1 that it was thought unnecessary. A section from this case was selected for microphotography, because it was thinner and better stained than those of the other case, which, however, showed the same findings. Str. c. Stratum corneum. Str. l. Stratum lucidum (only indicated). Str. gr. Stratum granulosum. D Change of direction of the nuclei. Str. m. Stratum malpighii. Musc. m. Muscularis mucosae. Str. p. Formation of a papilla.

the mucous membrane of the stomach, and this place has been marked rad., i. e., radix, presumably the root of the peg. The indentation was filled with vegetable matter, the muscularis propria was very much hypertrophied, and the peg itself had, with its ramifications, invaginated the hypertrophic muscularis mucosae, pushing it almost clear through the muscularis propria, without breaking through it anywhere. The structure of the epithelial peg, which was not perfectly solid, resembled that of the skin in many ways, but there were some important microscopic differences to which attention will be called later.

Figure 5 shows well the resemblance of the structure of the walls of the peg to the layers of the normal skin. The specimen photographed has been taken from Case 3, not because Case 1 did not show the same structures, but because the sections happened to be thinner, and on account of this and their staining were more suited for microphotography.

Figure 5 shows: 1. A stratum malpighii with a dense layer of oval nuclei containing a great deal of chromatin, many karyokinetic figures and long cells, more or less at right angles to the longitudinal axis of the epithelial peg. Upward, the nuclei become more round and more pale, containing less chromatin, and then rather suddenly they appear more drawn out, more cylindrical, and as if drawn by a different current, they change their position, their longitudinal axis, rather suddenly, becoming parallel to the longitudinal axis of the peg itself, thus forming a well-differentiated stratum granulosum. In those three cases I have not been able to find prickle cells, which may be due to their absence or to the thickness of the celloidin sections, and to the fact that the cells of the stratum malpighii lie much more closely together than they do in the normal skin. 2. A papillary body is well developed. 3. The stratum granulosum shows a deeper hematoxylin stain than the upper parts of the stratum malpighii, and between this layer and the stratum corneum there are lighter portions, which seem to indicate a stratum lucidum, although I have not been able to convince myself that such a stratum really exists. 4. There is a sufficiently well differentiated stratum corneum, with considerable keratohyalin and with Gram's method small patches of hornification could be demonstrated in Case 1 and Case 3. In this case, as in the others, some striped muscular tissue was found in the parts of the muscularis of the stomach near to the epithelial peg.

After what has been said, it is clear that the epithelial peg described represents a formation of epidermis in the stomach, but the question arises whether this is really an epithelial metaplasia, or rather a development from an aberrant germinal deposit or an ingrowth of epidermis or an implantation.

As to a development from a germinal deposit, by looking at the question in general, it would seem as if such an origin can never be excluded, because if, for instance, a single squamous epithelial cell is found in a field that should only be lined with cylindrical cells, then this one cell may represent an embryologic deposit, and things would become more complicated, if more than one of such cells were present.

In this case the epithelial peg was found in the center of the regeneration filling the artificial defect. If there had been a germinal deposit, it would have been removed at the operation, and as the peg was absolutely isolated, no ingrowth from a possible germinal deposit at the edges of the artificial defect can have come into play. It may be said here that in Case 2, Figure 4 shows clearly the development of metaplasia from the columnar cells of the gland, and I consider those findings alone as conclusive. An ingrowth of epidermis is absolutely to be excluded, as there was no fistula in any of the cases, as the metaplasias were found in about the middle of the stomach, and as each one was perfectly isolated.

There remains the possibility of an implantation during the operation.

Against the possibility of an implantation the following reasons can be advanced:

1. The possibility of a successful transplantation of detached normal epithelial cells has never been demonstrated. I myself have made use of every occasion for many years to transplant normal epithelial cells, under most favorable conditions, in hundreds of cases, and neither I nor anyone else has ever observed a further development of the cells transplanted. If these were implantations, they would be the first successful cases of implantation of detached epithelial cells on record, and that would be a matter of great importance in view of the sudden downward growth of the transplanted cells.

2. The description of the method of operation employed in our experiments seems sufficient to show that an implantation of epidermis cells can not have taken place, and if it should have occurred it would have been under the most unfavorable circumstances. The cells would have been transferred to a bleeding surface, and been subjected to the mechanical influences of the food, the contractions of the stomach and digestive influences of the gastric juice. If cells transplanted under most favorable conditions do not thrive, how can they develop under such most unfavorable conditions? I have often tried to transplant epidermis cells into the submucosa of the stomach, but have never been successful.

3. Sixty-nine of the animals operated on died during the first week after the operation, and as no microscopic examinations of their stomachs were made, we have five metaplasias out of 25 cases, which would be a very high percentage, indeed, for implantation.

4. It has been mentioned that the development of the layers forming the pegs differed very much, and that would not be the case in implantations.

5. Figure 2 and Figure 4 show plainly the development of the pegs from the epithelium of the glands which, particularly in Figure 5, shows its normal arrangement along the walls of the gland, without any disorder in position. If an implantation had occurred, the implanted cells could never show such an arrangement, but they would fill the lumen of the glands. I have specimens of an implantation into the glands of the mucosa of the stomach from a carcinoma of the esophagus, and that gives entirely different findings.

6. Hornification is only found in very small spots. An implantation would very probably show more of it.

7. But very few prickle cells have been observed. Many specimens were examined before a few were found. An implantation would have furnished more of them.

8. In the unstained specimens no pigment was seen.

9. If an implantation of skin had occurred, the vigorous down-growth from the very start of the development of the pegs, occurring in every case, would very much need an explanation.

CASE 2.—(Operation No. 27.)

Rabbit; female, brown, weight and hemoglobin at time of operation not recorded. Operation Jan. 7, 1904; died Feb. 19, 1904.

	Per cent.	Weight.
January 23 hemoglobin.....	45	3¼ pounds.
January 30, hemoglobin.....	38	3¼ pounds.
February 6, hemoglobin.....	45	3¼ pounds.
February 13, hemoglobin.....	38	3¼ pounds.

During the last six days no weight has been recorded, and it can not, therefore, be stated whether any loss of weight occurred during this period.

When the freshly removed stomach was handed to me I saw

REPORT ON EXPERIMENTS PERFORMED BETWEEN DECEMBER 6, 1903, AND APRIL 2, 1904.

No.	Date of Operation	Animal	Color	Sex	Weight, lbs.	Hemoglobin Per cent.	Date of Death	Postmortem	Last Wgt. Recorded in lbs.	Last Hemoglobin recorded, Per cent.	Macroscopic Findings	Microscopic Findings.
1	Dec. 6, 1903	rabbit	not given.	...	34	82	Dec. 7	1	Dec. 6, 34	Dec. 6, 82	Dilated stomach filled with food	
2	Dec. 6, 1903	rabbit	not given.	...	35	88	Dec. 8	1	Dec. 6, 34	Dec. 6, 78	Dilated stomach filled with food	
3	Dec. 20, 1903	rabbit	black	...	42	82	Dec. 21	1	Dec. 20, 34	Dec. 20, 82	Dilated stomach filled with food	
4	Dec. 20, 1903	rabbit	black	...	43	89	Dec. 21	1	Dec. 20, 42	Dec. 20, 89	Dilated stomach filled with food	
5	Dec. 20, 1903	rabbit	black	...	43	86	Dec. 21	1	Dec. 21, 5	Dec. 21, 86	Dilated stomach filled with food	
6	Dec. 20, 1903	rabbit	white	...	43	84	Dec. 20	1	Dec. 20, 42	Dec. 20, 84	Dilated stomach filled with food	
7	Dec. 25, 1903	B. hare	brown	...	5	85	Dec. 25	1	Dec. 25, 5	Dec. 25, 85	Dilated stomach filled with food	
8	Dec. 25, 1903	B. hare	brown	...	4	86	Dec. 25	1	Dec. 25, 4 1/2	Dec. 25, 86	Dilated stomach filled with food	
9	Dec. 25, 1903	rabbit	brown	...	4	97	Dec. 26	...	Dec. 25, 4 1/2	Dec. 25, 97		
10	Dec. 27, 1903	rabbit	brown	...	4	86	Dec. 27	...	Dec. 27, 4	Dec. 27, 86		
11	Dec. 27, 1903	rabbit	brown	...	4	86	Dec. 28	...	Dec. 27, 4 1/2	Dec. 27, 86		
12	Dec. 27, 1903	rabbit	brown	...	6	79	Dec. 28	...	Dec. 27, 6 1/2	Dec. 27, 79		
13	Dec. 27, 1903	rabbit	brown	...	6	79	Dec. 28	...	Dec. 27, 6	Dec. 27, 79		
14	Dec. 27, 1903	rabbit	brown	...	4	82	Dec. 28	...	Dec. 27, 4 1/2	Dec. 27, 82		
15	Dec. 27, 1903	rabbit	brown	...	4	82	Jan. 1	...	Dec. 30, 4 1/2	Dec. 30, 82		
16	Dec. 27, 1903	rabbit	brown and white	...	4	86	...	...	Dec. 27, 4 1/2	Dec. 27, 86		
17	Dec. 27, 1903	rabbit	black and white	...	5	83	Feb. 10	1	Feb. 6, 5 1/2	Feb. 6, 83	Ulcer	Purul. inflit. edges of ulcer.
18	Dec. 27, 1903	rabbit	black and white	...	4	73	Mar. 29	1	Mar. 28, 4	Mar. 28, 73		
19	Dec. 27, 1903	rabbit	brown and white	...	4	85	Feb. 2	1	Jan. 30, 3 1/2	Jan. 30, 85		
20	Dec. 31, 1903	rabbit	white	...	3	70	Dec. 31	...	Dec. 31, 2 1/2	Dec. 31, 70		
21	Jan. 1, 1904	rabbit	white	...	4	85	Mar. 16	1	Mar. 12, 2 1/2	Mar. 12, 85	Healed defect.	Metaplasia
22	Jan. 1, 1904	rabbit	brown	...	3	70	Jan. 6	1	Jan. 1, 2 1/2	Jan. 1, 70	Ulcer	
23	Jan. 1, 1904	rabbit	brown	...	4	84	Feb. 8	1	Feb. 6, 2 1/2	Feb. 6, 7		
24	Jan. 1, 1904	rabbit	brown	...	3	81	Jan. 2	...	Jan. 1, 3 1/2	Jan. 1, 81		
25	Jan. 1, 1904	rabbit	brown	...	2	78	Jan. 3	...	Jan. 3, 2 1/2	Jan. 3, 78		
26	Jan. 1, 1904	rabbit	brown	...	4	87	Jan. 8	...	Jan. 7, 4 1/2	Jan. 7, 87		
27	Jan. 1, 1904	rabbit	brown	...	4	87	Feb. 19	1	Feb. 13, 3 1/2	Feb. 13, 88	Healed defect.	Metaplasia
28	Jan. 1, 1904	rabbit	brown	...	5	90	Apr. 20	1	Apr. 10, 3	Apr. 10, 55	Ulcer	
29	Jan. 1, 1904	rabbit	brown	...	5	76	Jan. 8	1	Jan. 8, 3	Jan. 8, 8	Ulcer	
30	Jan. 1, 1904	rabbit	brown and white	...	3	82	Jan. 14	1	Jan. 8, 3 1/2	Jan. 8, 83	Ulcer with perforation peritonitis	
31	Jan. 8, 1904	rabbit	white	...	4	80	Feb. 15	...	Feb. 6, 4 1/2	Feb. 6, 80		
32	Jan. 8, 1904	rabbit	white	...	3	85	Feb. 1	1	Jan. 20, 2 1/2	Jan. 20, 50		Metaplasia (*)
33	Jan. 8, 1904	rabbit	white	...	3	85	Jan. 21	1	Jan. 8, 3 1/2	Jan. 8, 85	Ulcer	
34	Jan. 8, 1904	rabbit	brown and white	...	4	85	Jan. 13	1	Jan. 8, 4 1/2	Jan. 8, 85	Two ulcers	
35	Jan. 8, 1904	rabbit	gray and white	...	4	90	Jan. 9	...	Jan. 8, 4 1/2	Jan. 8, 85		
36	Jan. 10, 1904	B. hare	brown	...	5	81	Jan. 11	...	Jan. 10, 5 1/2	Jan. 10, 81		
37	Jan. 10, 1904	B. hare	brown	...	5	80	Jan. 10	...	Jan. 10, 5 1/2	Jan. 10, 80		
38	Jan. 10, 1904	B. hare	brown	...	3	76	Jan. 10	...	Jan. 10, 3 1/2	Jan. 10, 76		
39	Jan. 10, 1904	B. hare	brown	...	4	76	Jan. 11	...	Jan. 10, 4 1/2	Jan. 10, 76		
40	Jan. 10, 1904	B. hare	brown	...	4	72	Jan. 11	...	Jan. 10, 4 1/2	Jan. 10, 72		
41	Jan. 10, 1904	rabbit	gray and white	...	3	84	Jan. 17	1	Jan. 10, 3 1/2	Jan. 10, 69	Ulcer with hemorrhage.	Purulent infiltration of edges.
42	Jan. 10, 1904	rabbit	gray and white	...	3	77	Jan. 13	1	Jan. 10, 3 1/2	Jan. 10, 77	Ulcer	
43	Jan. 10, 1904	B. hare	gray	...	4	75	Jan. 10	...	Jan. 10, 4	Jan. 10, 75	Ulcer	
44	Jan. 10, 1904	rabbit	gray	...	3	68	Jan. 11	...	Jan. 10, 3	Jan. 10, 68		
45	Jan. 10, 1904	rabbit	black	...	3	74	Jan. 25	1	Jan. 23, 2 1/2	Jan. 23, 72	Ulcer	
46	Jan. 10, 1904	rabbit	gray and white	...	3	75	Jan. 25	1	Jan. 10, 3	Jan. 10, 75		
47	Jan. 10, 1904	rabbit	white	...	3	87	Feb. 9	1	Jan. 6, 2 1/2	Jan. 6, 60		
48	Jan. 10, 1904	rabbit	white	...	3	68	Jan. 0	...	Jan. 10, 68			
49	Jan. 10, 1904	B. hare	white	...	3	86	Jan. 13	...	Jan. 12, 3 1/2	Jan. 12, 86		
50	Jan. 12, 1904	B. hare	white	...	3	82	Jan. 13	...	Jan. 12, 3 1/2	Jan. 12, 82		
51	Jan. 12, 1904	B. hare	brown	...	3	79	Jan. 13	...	Jan. 12, 3 1/2	Jan. 12, 79		
52	Jan. 12, 1904	B. hare	brown	...	3	84	Jan. 13	...	Jan. 12, 3 1/2	Jan. 12, 84		
53	Jan. 12, 1904	B. hare	black and white	...	4	68	Jan. 14	...	Jan. 12, 4	Jan. 12, 68		
54	Jan. 12, 1904	B. hare	white	...	3	85	Jan. 14	...	Jan. 12, 4	Jan. 12, 85		
55	Jan. 17, 1904	B. hare	gray	...	6	86	Jan. 18	...	Jan. 17, 6	Jan. 17, 86		
56	Jan. 17, 1904	B. hare	brown	...	5	82	Jan. 18	...	Jan. 17, 5 1/2	Jan. 17, 82		
57	Jan. 17, 1904	B. hare	brown	...	4	78	Jan. 18	...	Jan. 17, 4 1/2	Jan. 17, 78		
58	Jan. 17, 1904	B. hare	brown	...	4	85	Jan. 18	...	Jan. 17, 4 1/2	Jan. 17, 85		
59	Jan. 17, 1904	B. hare	brown	...	5	81	Feb. 10	1	Feb. 6, 3 1/2	Feb. 6, 50	Ulcer	
60	Jan. 17, 1904	B. hare	brown	...	5	82	Jan. 18	...	Jan. 17, 5	Jan. 17, 82		
61	Jan. 17, 1904	B. hare	brown	...	6	62	Jan. 18	...	Jan. 17, 6	Jan. 17, 62		
62	Jan. 17, 1904	B. hare	brown	...	4	76	Jan. 18	...	Jan. 17, 4 1/2	Jan. 17, 76		
63	Jan. 17, 1904	B. hare	brown	...	5	84	Jan. 18	...	Jan. 17, 5 1/2	Jan. 17, 84		
64	Jan. 17, 1904	B. hare	brown	...	4	88	Jan. 18	...	Jan. 17, 4 1/2	Jan. 17, 88	Ulcer	
65	Jan. 17, 1904	B. hare	brown	...	3	76	Jan. 18	...	Jan. 17, 3 1/2	Jan. 17, 76		
66	Jan. 17, 1904	B. hare	brown	...	3	80	Jan. 18	...	Jan. 17, 3 1/2	Jan. 17, 80		
67	Jan. 17, 1904	B. hare	brown	...	5	83	Mar. 12	1	Apr. 10, 3 1/2	Apr. 10, 55		
68	Feb. 21, 1904	rabbit	brown	...	4	80	Feb. 29	1	Feb. 28, 3 1/2	Feb. 28, 25	Ulcer with perforation	Metaplasia
69	Feb. 21, 1904	rabbit	gray	...	4	75	Feb. 21	...	Feb. 21, 4 1/2	Feb. 21, 75		
70	Feb. 21, 1904	rabbit	brown	...	4	88	Mar. 21	1	Mar. 19, 2 1/2	Mar. 19, 44		
71	Feb. 21, 1904	rabbit	brown	...	4	85	Mar. 30	1	Mar. 28, 4 1/2	Mar. 28, 73		
72	Feb. 21, 1904	rabbit	white	...	4	80	Feb. 22	...	Feb. 21, 4 1/2	Feb. 21, 80		
73	Feb. 21, 1904	rabbit	black	...	3	70	Mar. 16	1	Mar. 12, 2 1/2	Mar. 12, 45		
74	Feb. 21, 1904	rabbit	gray and white	...	4	70	Feb. 22	...	Feb. 22, 4 1/2	Feb. 22, 70		
75	Feb. 21, 1904	rabbit	gray and white	...	4	65	Feb. 22	...	Feb. 22, 4 1/2	Feb. 22, 65		
76	Feb. 21, 1904	rabbit	black and white	...	3	65	Feb. 22	...	Feb. 22, 3 1/2	Feb. 22, 65		
77	Feb. 21, 1904	rabbit	white and yellow	...	4	65	Feb. 21	...	Feb. 22, 4 1/2	Feb. 22, 65		
78	Feb. 21, 1904	rabbit	white and yellow	...	4	70	Feb. 21	...	Feb. 22, 4 1/2	Feb. 22, 70		
79	Feb. 27, 1904	rabbit	white and gray	...	4	85	Mar. 13	...	Mar. 6, 4 1/2	Mar. 6, 81		
80	Feb. 27, 1904	rabbit	gray and brown	...	4	90	May 9	1	Apr. 10, 3 1/2	Apr. 10, 73	One	Metaplasia
81	Feb. 27, 1904	rabbit	brown	...	3	80	Feb. 27	...	Feb. 27, 3 1/2	Feb. 27, 72		
82	Feb. 27, 1904	rabbit	brown	...	3	80	Mar. 5	1	Feb. 27, 3 1/2	Feb. 27, 80	Ulcer with perforation	
83	Feb. 27, 1904	rabbit	brown	...	4	93	Mar. 23	1	Mar. 19, 3 1/2	Mar. 19, 50	Ulcer	
84	Feb. 27, 1904	rabbit	white	...	3	92	Apr. 9	1	Apr. 2, 2 1/2	Apr. 2, 46	Ulcer	
85	Feb. 27, 1904	rabbit	brown and white	...	5	70	Mar. 8	...	Mar. 6, 5 1/2	Mar. 6, 70		
86	Mar. 6, 1904	rabbit	brown	...	3	95	Mar. 9	...	Mar. 6, 3 1/2	Mar. 6, 65		
87	Mar. 6, 1904	rabbit	gray-brown	...	3	78	Mar. 8	...	Mar. 6, 3 1/2	Mar. 6, 78		
88	Mar. 6, 1904	rabbit	gray and white	...	3	85	Mar. 12	...	Mar. 6, 3 1/2	Mar. 6, 85		
89	Mar. 6, 1904	rabbit	brown	...	3	70	Mar. 20	1	Mar. 12, 3 1/2	Mar. 12, 40	Ulcer	
90	Mar. 6, 1904	rabbit	brown	...	3	80	Mar. 6	...	Mar. 6, 3 1/2	Mar. 6, 60		
91	Mar. 6, 1904	rabbit	black and white	...	4	75	Apr. 4	...	Apr. 2, 4 1/2	Apr. 2, 65		
92	Apr. 2, 1904	rabbit	black and white	...	3	84	Apr. 4	...	Apr. 2, 3 1/2	Apr. 2, 80		
93	Apr. 2, 1904	rabbit	?	?	3	65	May 18	...	Apr. 10, 3 1/2	Apr. 10, 65		

* Healed defect; but in its place a thickened and hardened mucosa. † Death from ether.

Number of cases, 94; deaths, 94; death during the first week after operation, 69; postmortems, 35; ulcers, 20; healed defects, 3; hemorrhages, 1; perforations, 3; peritonitis, 1; microscopic examinations, 8; metaplasias, 5; purulent infiltration of the edges of ulcers, 3; purulent infiltration of the edges of the ulcers with liver abscess, 2; death from ether, 6; deducting 69 cases that died during the first week, and in which no examination of the stomach was made, we have 5 metaplasias out of 25 cases.

examined the whole primary growth, and he, therefore, can not exclude a metaplasia having occurred there, as we have seen it in other cases reported.

Cullen⁹⁷ reports a number of cases of squamous cell carcinoma of the uterus and cervix.

We have already mentioned a number of cases of combination of cylinder cell carcinoma with squamous epithelioma reported in literature, and there is no reason to suppose that such a combination could not occur in the stomach as well as in other organs, particularly since Borst has reported his squamous epithelioma of the stomach. To the reports, which I have mentioned above briefly, I only wish to add the conclusions to which Eichholz⁹⁸ has come in his experimental work. They are: "1. Stratified squamous epithelium can become so similar to epidermis that the two can not be differentiated. 2. In epidermoidal changes of transitional epithelium a metaplasia can not always be excluded with certainty, although in most cases, as in my experiments, it is to be supposed that an ingrowth has taken place. 3. Cylindrical epithelium can never form epidermis. This is proven by my experiments and by my examinations of human material. If an epithelial metamorphosis occurs in an organ, with cylindrical epithelium, then both, the cases reported in literature and the results of my own experiments, ingrowth of squamous epithelium or a development from an aberrant germinal deposit, furnish the explanation."

If Eichholz had given the cases reported in literature a more unbiased consideration, he would not have come to such radical conclusions. He would find it hard, indeed, to mention only one instance, to explain the occurrence of squamous epithelioma in the gall bladder, in cases where no fistula exists, without admitting a genuine metaplasia to be at least highly probable.

As regards the cases reported in literature, many of them must no doubt be classed as genuine forms of metaplasia, while others may have to be eliminated, but the process of sifting, in order to be of real value, must be done with great care.

If we review the cases recorded, adding our own, we can probably differentiate between three different forms of metaplasia, namely:

1. A more superficial form in the nose and its accessory cavities, and in the ear, where the massing of the desquamated cells often leads to the formation of cholesteatoma.

2. Metaplasias with considerable thickening and hornification, such as occur in the urinary tract and in the uterus, often in the course of time, followed by the formation of a squamous epithelioma.

3. Metaplasia which leads to squamous epithelioma so early that it is hard or impossible to find metaplastic changes in the mucous membrane surrounding the metaplastic tumor.

4. My own cases of metaplasia show strong downward growth at once, and it looks as if they belonged to the former class, but I should like to have it distinctly understood that they do not represent carcinoma yet, and that only further experiments can show what eventually becomes of them.

As to the causes of epithelial metaplasia, we have seen that hydroptic conditions of the mucosa of the antrum of Highmore may lead to metaplastic changes. Catarrhal conditions, rhinitis and influenza rhinitis are pointed out as causes by Suchanek and others. Gonorrhoea may lead to metaplasia in the urethra; tuberculous ulcers in the air passages, stones in the gall bladder and concretions and stones in the urinary tract play

an important part, but the importance of mechanical factors is very clearly indicated by the fact that some animals who have to break up hard food in the stomach have a physiologic metaplasia with hornification reaching down to the pylorus.

In my own cases I think it very probable that friction has been the cause of the metaplasia.

In closing this paper, I wish to state that the frequent allusions to the close relation between metaplasia and carcinoma found in the literature here reported, and also in the report of my own work, are intended only to point out the actual relations as they exist, that the reader may receive a fair idea of them. The cases which have been reported make it very clear that epithelial metaplasia is very often followed by the development of a carcinoma, but what the real relations are between my metaplasias and carcinoma is a matter that can only be made clear by further experimental work.

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LITHEMIC NASOPHARYNGITIS DUE TO SYSTEMIC DISTURBANCE.*

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Inasmuch as closer and more accurate observation has been made, new facts brought out, old theories exploded, and better results obtained, since the reading and discussion of this topic at the Western Section of the American Rhinological, Otological and Laryngological Society held in St. Louis two years ago, I do not feel that it is necessary to offer any apology for bringing the subject again before you. I desire to emphasize in the very beginning that it is full and free discussion that we are after.

In the treatment of all disease, whether due to pathologic condition or functional disturbance, the fact as to the cause of the existing condition is what concerns us most. What is the matter and why does it exist, and what will relieve or palliate most effectually the condition that confronts us, are the perplexing questions that we must face.

By the term lithemic nasopharyngitis is meant that type of disease having a close etiologic relationship to rheumatism, or the so-called lithemic diathesis, and has its origin in autointoxication caused by the absorption of by-products from the intestinal tract, or in the faulty metabolism occurring in the liver.

It may be defined as an acute congestive rather than an inflammatory process.

In the former paper, I believed the cause to be acid urates which had not been eliminated by the proper channels, or the absorption of products from the alimentary tract, the exact nature of which was unknown. In a record of one hundred cases where the urine has been carefully examined, and indican in excess found, as soon as that form of treatment was followed which

eliminated this, the patient was relieved, and as this was found more frequently than the excess of acid urates, I conclude it is the most potent excitant of the nasopharyngeal irritation. Hence more stress is put on its elimination than on uric acid. The local manifestations of this so-called diathesis may not be confined to the pharynx, but may exhibit itself in affections of the laryngeal, nasal, auditory, and gastrointestinal tract, without any special organic or systemic symptoms.

The attack causes primarily no lesion, and there is no distinct pathologic alteration, this being a local manifestation of a systemic condition. These cases were almost invariably neurotic, good liver, leading more of a mental than an active physical life. They complain of always taking cold, sneezing, have a stuffy, full feeling in the head, one nostril always stopped up, copious and frequent discharge from the nose, greatly annoyed by accumulation behind the palate and crackling noise in the ear. In addition to these nasal symptoms, attention will be called to a stiffness in the throat, with the sensation of a foreign body, like a piece of bread-crust or fish-bone in the tonsil. Altogether they are a miserable, snorting, snuffling, handkerchief using, irritable, and generally uncomfortable set who blame all their ills on a "catarrh."

Interrogation reveals the fact that more or less constipation exists and some laxative is frequently needed. Little water is drunk. Meat and sweets are freely used as well as salads, acids, coffee and tea. The skin is abnormally florid or muddy, in the former case suggesting too free use of alcoholics, in the latter so-called "bilioousness"; in both cases the liver is most unmercifully suspected if not damned. A case with such a history leads me to suspect at once indicanuria with probably an excess of uric acid.

My observation is that where there is an abundance of indican in the urine in cases such as I have described there is no satisfactory and permanent relief until the treatment thoroughly eliminates this and the insufficient functioning of the large and small intestine be remedied and improper diet corrected. It is not so much a question of diet as of regulating the intestinal tract. In aggravated cases, I always have the gastric contents analyzed after giving a suitable test meal, in order to know how much, if at all, the stomach is at fault, for if gastric digestion is not complete, and the contents of the stomach are discharged into the duodenum in a hyperacid condition, the secretion of this organ is not sufficient to neutralize the acidity and, as a result, intestinal digestion is inhibited. The result is a putrefactive fermentation of the mass, developing disagreeable flatulence, dyspnea and intestinal distress. Many of the cases have more nasopharyngeal annoyance, in the form of sneezing, running at the nose, either immediately or several hours after eating. In the former case we suspect the trouble to be reflex gastric irritation; in the latter intestinal toxemia, due to indigestion.

It has been demonstrated that ingestion of citric, melic, or the fruit acids during peptic digestion inhibit secretion of hydrochloric acid and the peptic juices and increases fermentation of the carbohydrates, and the elimination of fruit in the diet, especially with meals, has been most beneficial. Where the patient craves an acid, and many of these patients do, dilute mineral acid drinks, preferably hydrochloric, are given with meals. When the cause of suboxidation is found and removed the victory is won, and in order to bring this about treatment must be directed toward elimination, atten-

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tion to hygiene, and proper selection of diet, exercise in the open air to increase the oxygenating power of the blood, and the free and liberal use of non-medicated drinking water between meals.

The intestinal tract with its varied and complicated organisms being out of adjustment, restoration to health (or the normal) means a readjustment of the basic function, and the function needing the most attention is the eliminative. Metabolism refers to the income as well as to the outcome of cell life, and where there is more put in and kept in than can be put out, poison is the result. The chief question to bear in mind is not what drug or what remedial application, but how best to remove the cause and restore the organs to normal.

TREATMENT.

As stated in a former paper local treatment is of little use, the disease being a local manifestation of a systemic disturbance. Sprays, gargles, etc., tend rather to increase the irritation. Any application containing astringents, cocain or similar drugs is contraindicated. In the beginning of the attack, if the parts are swollen and markedly congested, thorough cleansing of the pharynx, tonsils, postnasal space and anterior nares, with hot alkaline saline solutions by means of lateral and postnasal sprays, affords marked relief by removing the retained and viscid secretion.

The cause of the trouble being within the body and the result of absorption of by-products from the intes-

ted with a perforated stopper containing a small tube, to which is attached an ordinary atomizer bulb. (Fig. 1.)

The nurse or hospital orderly is carefully instructed in the method of giving the treatment, the procedure being as follows: The flushing is given late in the afternoon, an hour before the evening meal, the patient being in bed properly prepared, a rapid flow fountain syringe with capacity of three quarts is filled with soapsuds or normal saline solution, and brought close to the bed on a douche pole. To this is attached the colon tube thoroughly oiled, the best lubricant being castor oil, the cut off is tested, the cheeks of the buttocks are separated with fingers of left hand, and grasping the end of the colon tube an inch from the distal extremity, it is gently inserted past the sphincter ani. When this is done the cut off is released and the water allowed to flow, the tube being rapidly pushed into the bowel. The liquid separates the fold of the gut or floats any obstructive fecal mass out of the way, and makes the successful administration of the fluid not unpleasant. Should there be any pain before the tube is fully inserted or at least two quarts of fluid injected, the flow is stopped for a few seconds till this subsides, then started again. Any marked discomfort is due to moving of gas or the rough handling of the tube. When the full amount is injected, the tube is withdrawn, and the patient allowed to pass the contents of the bowel as soon as desired.

Experience has shown that the injection of the oil is followed by better results when given several hours later, the bowel having recovered from the effect of the washing, and the patient prepared for bed for the night, the oil is retained with more satisfactory results. In giving the oil, the patient is prepared as before, the injecting bottle being filled with olive oil and placed in a pan of hot water. The colon tube is slowly and gently inserted the full length, the tube of the injector is inserted into the projecting end of this, the injector bottle of oil lifted out of the pan of hot water, held upright, the cut off is released and the oil immediately begins to flow, the rapidity of flowing being increased by gently forcing air into the bottle by means of the rubber bulb. The time consumed in inserting the oil is not more than a minute or two, and the sensation to the patient is in no respect disagreeable, a good night's sleep is usually the result, and a copious evacuation of old fecal matter, with many scybalous masses and much gas is the result of the bowel movement the next morning.

Should there be much muscular tenderness or general malaise, strontium salicylate in 10 gr. doses is given every two hours till this is relieved. As a rule, this treatment given four or five days, then once or twice a week, is all that is necessary to give the patient a rapid and satisfactory start toward health. In a majority of cases observed the relief has been so pronounced, the patient so delighted at having found the source of trouble and been taught how to remove it and avoid its recurrence that the gratification has only been equaled by the satisfaction of the physician. Of course, careful attention must be paid to diet, avoiding the eating of much meat, saccharin food, or salads and use of alcohols, and drinking freely of water between meals, attention given to the skin and caution as to leading too sedentary a life. Such a course when adhered to has given some of my chronic and intractable cases complete relief, not only of the nasopharyngeal trouble, but of other systemic lithemic affections.

If I am correct in my observations and conclusions that absorption of products of putrefaction from the in-

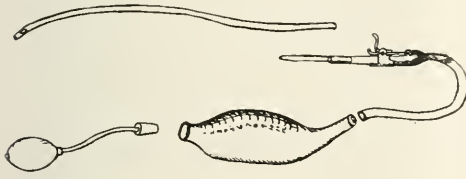


Fig. 1.—Oil injector devised by Dr. Julian McClymonds.

tinal canal, our treatment must be directed toward removing the cause. The first indication is to clean out the alimentary canal and give nature a good start and fair chance. The patient is put on a restricted diet and plenty of water given, an average of six ounces every hour. A dose of calomel and salol five or ten grains each is given, followed in six hours by a saline, preference being given to the Seidlitz salt.

In the afternoon, an hour before the evening meal is taken, the colon is filled and flushed with two or three quarts of soapsuds, by means of a thirty-inch-double-eyed colon tube. Three or four hours later, after the patient has been prepared for bed for the night, the colon tube is carefully reinserted the full length, and eight ounces of warm olive oil injected; the tube is then gently withdrawn, patient cautioned to keep quiet and go to sleep. The bowels rarely ever move till morning, or about eight hours after the oil is placed, if the patient is kept quiet. The injector which I use is the device of Dr. Julian McClymonds, gastrologist, who has rendered me valuable service in ascertaining and locating the source of irritation by examination of the gastric contents after a test meal. Also by chemical and microscopic examination of the urine.

The injector consists of an ordinary nursing bottle with two openings, one at top and one at bottom. In the lower opening a suitable conical tube about 14 inches long is inserted full length. The upper opening is

testinal canal is the cause of lithemic nasopharyngeal irritation, it is of paramount importance that the canal shall be thoroughly cleansed in the beginning of the treatment, and I know of no remedy given by the mouth that will satisfactorily do this without greatly taxing the vitality of the patient. In many of these cases the appearance of the scybalous masses removed after as many as ten of these treatments of the soapsuds followed by the oil, indicated they had been lying in the folds of the gut for weeks or months. Dr. McClymonds had several cases of intestinal toxemia that he observed very closely, and not until after the treatment had been given daily for several weeks was he reasonably sure that the canal was clean. The fact that the patient has one or more evacuations from the bowels daily does not prove the absence of retained toxic fecal matter. The effect of the colon flushings and oil treatment is: 1, mechanical, the scybalous masses being softened and separated from the folds of the canal; 2, the oil is broken up into fatty acids and glycerin, the absorption of the glycerin causing watery flow of bile from the liver, and these treatments must be followed by such remedies as will give tone to the muscular coat of the bowels and stimulate peristalsis. For these nux vomica and cascara sagrada should be given at first in full doses, then in gradually decreased doses, until it is no longer needed.

It is interesting to note the rapid decrease in the amount of indican in the urine as is shown by daily tests.

It is by no means necessary for the patients to quit their business and go to bed in order to take this treatment. Some of my patients spend the evening and night at the hospital for a week, others employ a trained nurse to come to the residence. Confinement to bed or to the house retards the progress. Emphasis is put on the free and liberal use of non-medicated water. Patients are urged to take at least six pints of plain water in twenty-four hours, and few can drink this much of alkalinized or salined water without feeling uncomfortable on account of the increased blood pressure. Distilled or pure rain water is not so rapidly absorbed, much of it going through the bowel, assisting in carrying off the waste material and favoring free and satisfactory evacuation.

While there is an excess of uric acid in addition to the presence of indican in the urine, the drugs indicated are those that will hyperalkalize the blood and increase its solvency for urates. Subalkalinity of the blood indicates diminished oxidation, and consequently retarded nutrition, both being favorable to the formation of uric acid in the body as well as to the growth of pathologic micro-organisms, in this way favoring auto-intoxication.

Mild cases of lithemic nasopharyngeal irritation do not require the detailed treatment referred to, but are relieved by alkaline cathartics. The beneficial results from these are not so much from the absorption of alkaline substances into the blood as from antiseptic, antiputrefactive or antifermentative effect on the intestinal contents. The point made by Dr. Ballenger is: "One of the most beneficial effects is the retarding of the putrefactive process, especially that which produces the toxins so poisonous to the system; the chief indications are we should not attempt to do so much by dieting as by regulating the intestinal tract." Daily or twice daily laxative doses of sulphate of magnesium or sodium phosphate have given good results.

DISCUSSION.

DR. L. C. CLINE, Indianapolis—Dr. Stucky's paper calls attention to a class of cases that needs to be more emphasized and carefully studied. Most of us pay more attention to the methods of surgical treatment and equip ourselves with the latest improved instruments for doing surgical work. We have been passing through a wave of operative procedure regardless of causes that if cared for early would obviate the necessity for surgery in this particular class of cases. There is no question but many of us lose sight of the most important thing—hygienic and eliminative treatment. I have had a good deal of experience along these lines and thereby avoid operations. I fully recognize that some require surgery when first observed, while others need only cleansing and medicinal treatment. We are in some respects a peculiar people; we eat too much, exercise too little, spend too much time at business indoors, and as a result we all have the faulty metabolism and accumulation and retention of effete material mentioned in the paper. We should put these patients in good condition and correct their faulty habits. Instead of surgical instruments it might be better for some of us to carry home with us the doctor's syringe for injecting oil, improvised from a nursing bottle, and learn how to use it. None of us would think at first of operating on an enlarged hyperemic nose following specific infection, as it rapidly subsides under proper treatment. Cases referred to in Dr. Stucky's paper will do likewise. Attention to diet, exercise and care of the skin will accomplish much.

DR. S. F. SKOW, Syracuse, N. Y.—The tendency of the specialist is to become narrow, and Dr. Stucky has shown us that in this lithemic study narrowness has no place. He makes one observation with which I can not agree, that local treatment is of little importance. My experience has been that in all sensitive conditions of the nasal mucosa, though we may find the patient at first with nostrils apparently free, on second examination we will find the region of the middle turbinal congested. Perhaps three-fourths of the man's life has been spent with an enlarged turbinal pressing on a sensitive area. I question very much if, when these parts are overgrown, correction of the other parts of the system thoroughly removes the trouble. I agree as to the importance of removing systemic disturbances and have written and discussed papers on this subject. I do not think we can give it too much consideration, but I think we must consider the local treatment as well. Dr. Stucky has given us his methods in handling these cases, the injection of water, etc., and though I can not use his method in my narrow practice, I believe his ideas are based on sound reasoning. These points are of material importance in every case of hypersensitive catarrh.

DR. E. L. VANSANT, Philadelphia—After getting the patient in good condition an aseptized diet is of the greatest importance. If the patient will leave off all uncooked food and eat aseptic food it will be of immense benefit in the case. I have seen several patients getting along beautifully until they ate some salad made with oil which was not pure, which indiscretion was followed the next day with all the symptoms of which they had previously complained.

DR. D. McALLISTER, New York City—I gather from the paper that Dr. Stucky believes indican to be the irritant that causes the trouble. It appears also from my work that these are cases of local irritation and not systemic, and this is proved by the fact that the administration of rhubarb or soda has the same effect as treatment of the other end of the canal. This part of the throat is at the crossroads of the respiratory tract and the alimentary tract, and the inflammation is more that of the alimentary tract than of the respiratory. It is simply a condition of plethora, and treatment of the alimentary canal relieves the plethora. I think the cure is to be obtained by relieving the acid condition.

DR. C. H. BAKER, Bay City, Mich.—As has been said, we go home with a kit of surgical tools and are disappointed because the majority of our cases are not amenable to surgical treatment. Probably nine-tenths of the patients coming into our offices do not require operative treatment to secure satisfactory

results. I think Dr. Stucky has sounded a timely note and has offered a solution of this difficulty. After twenty years' practice, during which I have believed that auto-intoxication was at bottom the chief cause of so-called nasal catarrh. I have been hoping that some one would tell us what chemical agent or agents are the cause of the inflammation of these mucous surfaces. We have been told that it is due to uric and o her acids, to leucemains, to the products of intestinal fermentation and to all kinds of conditions, and at last it appears we have found the exact substance. I would like to have Dr. Stucky give us a short method for detecting indican which every busy man can apply in a few minutes and which will tell comparatively the amount of the toxic agent present. Dr. Stucky referred to the action of fruit acid in producing these conditions. The typical American breakfast starts out with fruits, cereals and predigested starches, and ends up with meats and other things that combined make an ideal culture medium for bacteria whose growth produces the chemical products which are so irritating to the digestive tract. It is not surprising that Americans are stigmatized as people suffering with catarrh. We are also known as sugar eaters. I would like to ask if these hay-fever people, who are nearly always lithemic, suffer more from indican during that period than any other.

Dr. J. HOLINGER, Chicago—How long after Dr. Stucky has given that course of treatment does the patient stay cured? A man goes back to the same mode of living, and in less than six months he is as bad as he ever was. The treatment must be repeated. After two or three years you have a neurotic patient who relies mainly on his rectal tube. We all know these patients and how much they bother us. If we can make a man understand that he has his muscles to use, his legs to walk with and his arms to exercise, we will accomplish much more than with these cures, which tend to substitute one evil for another.

Dr. R. C. MYLES, New York City—For several years, in conjunction with a specialist on gastrointestinal work in New York City, I have been working along this line and have obtained practically the same results in these obstinate cases. We have relied principally on olive oil, placed in the bowel at night. Dr. Stucky's apparatus, however, is far superior to anything we have. There can be no doubt about the toxins from the colon manifesting themselves in the nose and throat. The edema, the character of the secretions, the decaying odor of the chemical changes, are all due to these toxins, as we have demonstrated in our treatment. This is much better than local treatment, though, of course, we use that also.

Dr. J. A. STUCKY—I am sorry that I can not go deeper into this subject, for I am just beginning to learn something about it. As to Dr. Vansant's aseptic diet, if we get the canal thoroughly emptied and give the patient a good start it does not make much difference what he eats. I can not believe that this is simply a surface irritation. I have tried local treatment thoroughly and have become convinced that the local condition is a manifestation of the systemic condition. I do not know whether indican will be found in the secretions of the nose or not; it is the result of intestinal putrefaction. For three or four years I have been watching several cases of hay fever before and during the attack, and where I can get hold of them before the attack, thoroughly empty the canal, diet them and get rid of the indican, they either escaped the attack entirely or it was very much diminished. I am inclined to believe that this same cause has much to do with vasomotor coryza. As to how long these patients remain cured, it all depends on how long they take care of themselves. They are usually high liver, overfed and underworked: I have never seen any laboring man with indican in his urine. These patients are mental workers, and those who take sufficient exercise eliminate these products. The neurosis spoken of is due to the absorption of the indican, and my experience is that the relief obtained is sufficient to induce them to take care of themselves, and that it is not a habit.

SPONTANEOUS TONSILLAR HEMORRHAGE.*

LEWIS S. SOMERS, M.D.

PHILADELPHIA.

Spontaneous hemorrhage from the tonsillar region independent of traumatism or surgical measures, but as the result of destructive inflammation from a tonsillar or peritonsillar abscess, occurs but infrequently and in the majority of recorded cases the bleeding has resulted fatally. The following case is therefore recorded inasmuch as it presents several features of importance, namely, its successful issue without operative interference; the age of the patient and the harmful results following too conservative treatment of pus collections in or about the tonsils.

Mrs. A., aged 71 years, of excellent surroundings, had been ill for one week with a peritonsillar abscess of the left side.

History.—She had never had any trouble with her upper respiratory tract so far as she could remember, this being her first attack of tonsillitis. Her family physician attended her and the treatment consisted of strychnia, nutritive enemata and gargling with an alkaline solution. Two days before I first saw her the abscess had discharged profusely and she was emaciated, extremely weak and refused all mouth nourishment on account of the intolerable pain consequent on swallowing. I was called to see her at midnight for the first time, when the nurse stated that she was bleeding to death.

Hemorrhage.—During the evening she had suffered from great pain in the throat, and a few moments before I was summoned the nurse heard her groaning and strangling. It was then found that a column of blood was pouring from her mouth, and when I arrived a large basin was filled with bright arterial blood, the patient's clothing and bedclothes were covered with it, and a stream was still gushing from the mouth.

Treatment.—Pressure as forcible as possible was made over the carotid artery of that side; on account of the patient's prostrate condition and the inability to obtain proper illumination of the pharynx, it was impossible to ascertain the vessels involved in the bleeding, but with the unengaged hand forcible pressure was made by means of two fingers over the tonsil, compressing the pillars together, and a saturated solution of tannic acid was poured in the mouth, the hemorrhage diminishing sufficiently in amount to allow of this procedure. Strychnia and ergot were administered internally and within fifteen minutes the hemorrhage had practically ceased, but enough arterial blood still oozed away to stain the handkerchief. Fifteen minutes later the hemorrhage had entirely ceased and there seemed to be no further immediate danger.

Condition of Throat.—The following day a more careful examination of the throat was possible, as no more bleeding had occurred, although considerable pus had been expectorated. The abscess had destroyed the entire tonsil and in this way had involved several small vessels, while the main volume of blood was evidently derived from the artery of the anterior pillar of the fauces, through which there was a large ragged opening. The pharynx and pillars were much inflamed and the site of the tonsil was covered with a large ulcer, which in turn was covered with pus. Subsequently no further bleeding took place, but it was fully six weeks later before she had again returned to her normal condition.

PATHOLOGY.

The pathologic changes in these cases essentially embrace a purely destructive process, the tissues sloughing away before the eroding action of the confined pus, and although the statement has been made that this can only occur as the result of a gangrenous process, yet such is not the fact, as the few cases reported and also my own

* Eight Epitheliomas Removed from a Single Tongue.—In the course of 21 years a recurring epithelioma on the tongue was removed eight times in a case described by P. Reclus of Paris.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

show none of the phenomena allied to a gangrenous condition.

Jenkins,¹ in an epidemic of 65 cases of tonsillitis, observed one of these fatal cases in a child of six years, where the left tonsil completely sloughed away on the ninth day, with death from hemorrhage, and Bokay and Alexey,² in a boy of four years, with tonsillitis for three weeks, observed two hemorrhages followed by death and the autopsy showed that the tonsil and the surrounding tissue were filled with pus, while the destructive process had produced a perforation of the common carotid artery. Jacobi and Ewing³ report an instructive case showing the pathologic changes in a child, where death occurred after tonsillitis of two weeks' duration, as the result of four hemorrhages at intervals of several days. The autopsy was not made until five months later, when it was found that there was a large cavity filled with blood between the right tonsil and the pharyngeal wall and the internal carotid artery was perforated; the first three hemorrhages apparently being derived from rupture of large veins and arteries attacked by the suppuration, while the fourth and fatal hemorrhage resulted from the opening of the carotid by the tissue destruction.

So long as the purulent matter is confined, the destructive elements remain actively at work and while the softer tissues are necessarily involved at first, yet if the pus be not evacuated by artificial means, or spontaneous evacuation is unduly delayed, the vessels are ultimately involved, the walls softening and final rupture must ensue. Various arteries may be involved in this destructive action, branches of the lingual, the ascending palatine and tonsillar from the facial and even the facial itself as in a fatal case recorded by Bosworth,⁴ the ascending pharyngeal; the descending palatine; or finally the internal carotid as usually occurs in the majority of cases. The smaller arteries are, however, but infrequently involved in a hemorrhage of any magnitude, but that the blood flow is arterial in origin may usually be readily determined by its cessation or diminution when the carotid is forcibly compressed and also by the character of the blood.

The rupture of the affected vessel seems apparently to be the direct result of the local severity of the purulent process and not dependent on general causes such as hemophilia for instance, although the presence of another affection such as arteriosclerosis or the general impoverished condition of the patient may have some effect in determining the extensive purulent process. Such an implied condition being shown by a case of Keiper's,⁵ in which the tonsillitis was considered albuminuric in origin and hemorrhage took place several times and was controlled with extreme difficulty. Seven days, however, after the tonsillar hemorrhages had ceased permanently, the patient died.

RELATION OF HEMORRHAGE TO RUPTURE OF ABSCESS.

As would be expected in these cases of tonsillar hemorrhage, the bleeding does not take place until usually late in the second week of the disease, or as in several of the reported cases, moderate hemorrhage would occur after the suppuration had existed for a week or ten days, and as the tissue destruction increased in extent, additional smaller vessels would be opened until finally the loss of blood from a large vessel would oc-

casional the death of the patient. Such a case illustrating this point was reported by Brewer⁶ in a man of twenty-five years, with peritonsillar abscess of over one week's duration. Then spontaneous rupture occurred followed by slight hemorrhage, repeated several times; while one of the hemorrhages was so profuse as to cause syncope, yet it was controlled until the final hemorrhage taking place, caused the death of the patient from exsanguination.

The relation of the hemorrhage to the time of rupture of the abscess has been especially noted in several cases and, as a rule, the flow of blood of any magnitude does not take place for several hours, or even a day or more after the pus has spontaneously evacuated; this, of course, being in harmony with the course of the tissue destruction, depending undoubtedly to some extent on the loss of support afforded the involved vessels by the pent-up purulent mass, in addition to the direct destructive action on the walls of the arteries. In the case reported here the abscess ruptured two days before the destruction had reached the vascular walls, while in a case reported by Dunn,⁷ of abscess of the right tonsil discharging spontaneously, the hemorrhage was first noted twenty-four hours later; this was again repeated in forty-eight hours and, as during the following three days, several severe hemorrhages occurred and the condition of the patient had become critical, the common carotid was ligated with resultant rapid recovery.

In several instances, two, three or more severe hemorrhages took place before the patient succumbed or radical measures were resorted to for the control of the bleeding, and undoubtedly its cessation under such circumstances was dependent not only on the milder measures such as local medicinal applications, but to a considerable degree on the loss of blood producing a marked lowering of the arterial pressure, with consequent syncope and clot.

PROGNOSIS.

In all instances of such hemorrhage from the tonsillar region, the outcome must of necessity be a most grave one. Immediate death has occurred in several instances, while in others the fatal issue was delayed until several hemorrhages had occurred. In a case reported by Chappell,⁸ the hemorrhage was controlled by making an incision through the anterior pillar, washing out and packing the abscess cavity. The same author in reporting this case found ten similar instances in the literature in which the hemorrhage occurred after spontaneous rupture of the tonsillar abscess and of these but two recovered, both being in cases in which the carotid artery was tied.

3554 North Broad Street.

DISCUSSION.

DR. W. E. CASSELBERRY, Chicago—I have no personal experience to relate, but I recall one case with the circumstances of which I was familiar, where the life of the patient was saved by the method ascribed to Dr. Chappelle. The abscess cavity was opened freely, washed out and packed with iodoform gauze. This is the most rational procedure, provided digital compression and perhaps compression by the Mieluzie clamp have failed. If the cavity is such that it can not be made to retain the gauze I would consider ligation of the carotid artery indicated, provided the hemorrhage is immediately jeopardizing life.

1. THE JOURNAL A. M. A., vol. XXX, 1898.

2. Jahrbuch f. Kinderheilk., 1881.

3. Philadelphia Med. Jour., June 4, 1898.

4. Diseases of the Nose and Throat.

5. G. F. Keiper: Laryngoscope, November, 1898.

6. Yale Med. Jour., December, 1898.

7. Medical News, May 9, 1891.

8. Jour. of Laryn., Rhin. and Otol., June, 1900.

Clinical Reports.

OBSTRUCTION OF THE BOWEL DUE TO A ROUND WORM IN THE APPENDIX.

W. ALBERT NASON, M.D.

ROARING SPRING, PA.

The following case has some unique features which make it of sufficient interest to report.

Patient.—M. E. H., girl, aged 15 years, of Coalmont, Pa., was taken sick Tuesday, Aug. 16, 1904, vomiting freely, for which home remedies were tried.

History.—Wednesday, August 17, at 4 p. m., Dr. Evans of Saxton, four miles away, was called. Friday, August 19, Dr. Evans was again called, as vomiting persisted and was accompanied by some pain. Saturday morning, August 20, a consultation was held with Dr. Schum of Hinvingdon. It was concluded that there was an obstruction of the bowels and that an operation probably would be necessary.

Examination.—I reached the case Saturday evening and found the patient suffering some pain, though it was not severe. Temperature had been normal each time when taken and was then normal. Pulse 120. Abdomen considerably distended. There was some tenderness, but at no particular spot. The vomiting was decidedly stercoraceous and had been so since Friday.

Operation.—All efforts to move the bowels had been unsuccessful, therefore operation was decided on. I made a median incision and found the bowels much distended, especially in the ileocecal region. On endeavoring to bring up the bowel I found it firmly bound down and the appendix wrapped around the small bowel. In the colon I detected peculiar feeling substances which proved to be two worms. One of these was in the appendix and had wrapped itself with the appendix around a loop of the small intestine and then the tip of the appendix had become adherent to the bowel and thus formed a constricting band. I was unable to free the appendix until, after opening the colon, I grasped the worm and drew it out. I also removed its companion and was then able to draw up the appendix and remove it, thus releasing the bowel. The contents of the bowel, being liquid, poured out over the intestines, which were afterward washed off with a carbolic acid solution, as it was impossible to procure sterile water.

Result.—The temperature remained 98, with pulse 120, till Monday, when it went up to 99. An enema on Monday produced a fair result. Salines began Tuesday caused large, free evacuations Wednesday. The highest temperature was 101 on Thursday. The stitches sloughed and were removed Wednesday. Patient made a rapid recovery.

The species of worm was the *Ascaris lumbricoides*.

A CASE OF POISONING FROM BELLADONNA PLASTER.

WILLIAM E. SANDERS, M.D.

ALTA, IOWA.

Patient.—Mrs. W., aged 79, called me at 7 p. m., August 24.

History.—I learned that at 10 a. m. she had applied a belladonna plaster 5x7½ inches over the lumbar spine. During the afternoon her face became flushed and there was a blue discoloration of the lips. She experienced difficulty in swallowing and complained of vertigo and dryness of the mouth. She had taken a dose of Paine's Celery Compound, and to this she attributed her symptoms.

Examination.—There was active delirium, restlessness, rigidity of the flexor muscles, carphologia, bounding pulse (102), temperature 100 F., difficult articulation and extremely dilated pupils.

Treatment.—Pilocarpin nitrate, gr. ¼, was given hypodermically at once, and the belladonna plaster was removed; and after an hour morphin gr. ¼, with pilocarpin gr. ¼, was given hypodermically.

Result.—In an hour the patient became quieter and regained consciousness about 3 a. m., August 25.

A SIMPLE OPERATION FOR SENILE ENTROPION.

CLARK W. HAWLEY, M.D.

Professor Ophthalmology Post-Graduate Medical School.
CHICAGO.

The patient, 80 years old, has suffered many years from trachoma and its following ills, among others senile entropion of the lower lid. The ptosis, the entropion and the corneal disturbance of the left eye is of very old standing, but the right entropion of the lower lid was of recent origin and was causing such corneal opacity that the patient's ability to get about was very much curtailed; she, therefore, asked for relief.

Entropion of this character has to do with the entire folding in of the lid and not to the contraction of the cartilage, and is not uncommon in elderly people not suffering from some other disease. It often seems to be due to a lack of tone in the muscles and skin about the eyes. She was not very hopeful, as one operation on the left lid proved a failure, but was anxious that something be done because of the severe pain and rapidly failing vision. I noticed that by making traction of the skin down and outward, accompanied by massage over the lower lid, that it would remain in its proper position for some time; I was tempted to try massage, but concluded that it would



Fig. 1.—Senile entropion. Dotted line shows where thread was placed.

result in temporary relief only, so decided to try the following simple procedure:

I double-needled a piece of heavy silk thread; then, clamping the lid, a few drops of 4 per cent. cocaine were injected into the skin; removing the clamp, one needle was inserted just below the margin of the lid, about the center, and carried down and outward slightly and as close to the cartilage as possible, passing on to the margin of the orbit, where I caught up the periosteum coming out on the skin. The other needle was inserted about three millimeters away from the first entrance and carried down parallel to the first thread, passing through the periosteum and coming out near the other exit. The two ends were then tied over a piece of cotton with sufficient tension to retain the lid in position, and allowed to remain so for two days, when the loop was fished out from the skin, and every day the threads were drawn back and fourth. At the end of two weeks a heavy band of cicatricial tissue formed; the threads were then removed, the lid being held firmly in position. The result is well shown in the photograph. I propose to treat the other lid in a similar manner.

The operation was performed in April, 1904. In September the patient reports that the result is still as good as at first, so that it gives every evidence of being permanent.

No claim is made for originality.

70 State Street.

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THE SITUATION AS REGARDS THE SERUM TREATMENT OF HAY FEVER.

The exasperating resistance to treatment of the disease commonly known as hay fever makes it one of the most interesting subjects to the practitioner. The great interest shown of late in the serum treatment and the present visit to this country of Dr. William Dunbar, who is a native of this country, and whose serum is being used so extensively for hay fever, make it of interest to review briefly some of the facts that have previously appeared in our own columns and in the literature on the subject.

The disease has been described under a variety of names, summer catarrh, hay fever, hay asthma, pollen catarrh, rose cold, June cold, concert fever, railroad fever, sun fever, dust fever, autumnal catarrh and peach cold. Many theories have been put forward to explain the phenomena of the affection. The pollen theory, especially supported by Blackley, was one of the earliest. The heat theory, the light theory, the nervous theory and other theories are familiar to all. Gradually the view became widespread that at least two factors are concerned in the etiology: a predisposition and an exciting cause. The theory of a bacterial origin found many supporters. Dunbar began by searching for a causal bacterium, but in the course of his studies became convinced that the disease is not due to bacteria, but to the irritative effect of pollen on the mucous membrane of susceptible persons.

Dunbar, in several papers,¹ has detailed the progress of his studies. Suffice it to say here that his experiments indicate that it is neither the mechanical action of the pollen grains themselves nor any oily or volatile constituent of them which sets up an attack, but instead, some proteid constituent of the nature of a toxalbumin. Of the pollens prevalent at the time of the early summer catarrh or hay fever proper, those of rye and maize contain the poison in largest quantities. In the autumnal catarrh of this country golden-rod (*Solidago*), ragweed (*Ambrosia*) and wormwood (*Artemisia*) have been held responsible. As little as 1/40,000 of a milligram of the rye-pollen toxin placed in the conjunctival sac will call forth in susceptible individuals a paroxysm of hay fever lasting several hours. This quantity of toxin corresponds to only two or three pollen granules. Dunbar asserts that

while the toxalbumin constantly calls forth an attack in susceptible persons, it is without effect when instilled into the eyes or placed on the nasal mucous membrane of non-susceptible individuals. Liefman² proved that during the hay-fever period in Germany there is more than enough pollen in the air to account for the toxic effects on hay-fever patients, his researches thus confirming the earlier ideas of Blackley. He has shown also that on days when hay-fever patients suffer greatly there is more pollen in the air than on days when they are relatively free from symptoms.

Dunbar found on mixing the toxalbumin with the serum of animals which had been previously treated with pollen or the extracted poison that the former was rendered innocuous. Unlike diphtheria antitoxin, the hay-fever serum is not to be used subcutaneously, for subcutaneous injections give rise to unpleasant symptoms—itching, swelling and erythema. Experiments have shown that the local application of the serum to the irritated mucous membrane is more effective than its introduction hypodermically.

The serum has been patented under the name of "pollantin" in Germany, England and the United States. To the liquid serum 1/4 per cent. phenol is added, but this amount is not sufficient to delay bacterial growth, if the bottle has been opened and contaminated. Some people, too, have an idiosyncrasy for phenol and can not bear the application even of minute amounts. Instead of the pollantin liquid the substance is now supplied preferably in the form of pollantin powder, the latter being obtained by evaporating the serum to dryness, powdering it finely and mixing it with a little milk sugar. It is maintained that the substance is entirely harmless even in large doses. A single dose, it is emphasized, does not completely immunize the patient against all further attacks. On the contrary, during the hay-fever season the treatment has to be resorted to frequently, best every morning just before rising. Used in this way, it will, it is said, keep a patient free from attacks for several hours, sometimes for the whole day, even when he spends it in the open air.

This new method of treatment of hay fever originating in laboratory experiment, is rapidly being submitted to the test of clinical experience. In this country we have reports from Mayer, McCoy and Somers, and the articles of Bailey, Lockwood, Henderson and Dupuy also deal with the subject. The most complete review of clinical work thus far is that of Lübbert and Prausnitz.³ They have collected some 222 cases of ordinary hay fever and some 63 of the autumnal form, 285 cases in all, which have been treated with the serum. Of the 222 ordinary hay-fever cases, 127 are said to have yielded a favorable result, 71 a partly favorable result, and in 24 the result was negative. That is to say, in 57

2. Liefman, H.: Ein Beitrag z. Frage nach d. aetiologischen Bedeutung gewisser Pflanzenkörner für das Heufieber. Ztsch. f. Hyg. u. Infectiouskrankh., Leipzig, 1904, xlvii, pp. 153-178.

3. Lübbert, A., u. Prausnitz, C.: Zur Serumbehandlung des Heufiebers. Berl. klin. Woch., 1904, xli, pp. 273, 394.

1. Dunbar, W. P.: Zur Ursache und spezifischen Heilung des Heufiebers. Münch. n. Berl., 1903; see also Deutsche med. Woch., 1903, No. 9, and Berl. klin. Woch., 1903, Nos. 24-26, 28.

per cent. of the cases marked relief was obtained; in 32 per cent. the relief was more or less marked and in 11 per cent. no benefit was derived. Of the 63 cases of autumnal catarrh 44 (or 70 per cent.) yielded positive results, 12 (or 19 per cent.) partly positive, and 7 (or 11 per cent.) negative. In view of the short time which has elapsed since this attempt at rational therapy has been begun, and considering the difficulty which physicians have in such a treatment in inducing patients to follow directions strictly, the results thus far gained must be regarded as favorable.

We think, however, that the whole question of the value of the treatment is as yet in the experimental stage. In a disease like hay fever, where at least in a large majority of the cases an oversensitive nervous system plays an important rôle, the greatest care must be exercised, especially in the judgment of the effects of therapeutic measures. We must await a much larger mass of clinical evidence before we pronounce positively in the matter. The disease is so widespread, however, and measures which are purely suggestive are; as a rule, so short-lived, that we can be tolerably sure in the course of the next few summers of arriving at definite conclusions regarding the efficacy of the serum treatment.

A word as to the commercial exploitation of the serum. Pollantin, as has been mentioned above, has been patented. Very vigorous business methods are being utilized to sell it. In Germany medical men think it no breach of medical ethics to patent a new remedy. Physicians feel differently about these matters in America. Should the serum treatment ultimately prove to be positively efficacious in the treatment of hay fever, it is highly desirable that it be furnished to the great host of sufferers at a nominal cost and not for purely commercial gain.

THE DECREASING BIRTH RATE IN NEW SOUTH WALES.

In view of the fact that the birth rate of New South Wales was apparently steadily declining, a royal commission was appointed to investigate the causes. This commission consisted of thirteen members, six of whom were physicians, with Dr. Charles Kinnaird Mackellar as president.

The first volume of the report of this commission has just been received. It contains the general considerations and conclusions and the testimony of the statistical authorities. The special medical testimony of physicians will appear in the forthcoming second volume. The commission found that the decline of the birth rate is a very serious fact in New South Wales, and concluded that the diminution of fertility and fecundity in recent years is due to the deliberate prevention of conception and the destruction of embryonic life and the pathologic consequences following on the means used and the practices involved therein. There is no evidence of any increase of physiologic sterility in the colony nor have they been able to trace the decline of the birth rate to

any well-defined economic cause. Nevertheless, the commission report that they can not overlook the fact that restrictive regulations of trade designed to abolish competition and interfering with continuity of employment, rendering the income of those employed more precarious, indirectly discourage the existence of large families and the natural increase of the population.

The fall of the birth rate, which had been gradual between the years 1867 and 1887, was suddenly accelerated in 1888 and 1889, and has been marked since then, the fall reaching a total of 30 per cent. or more in the last twenty years. New South Wales alone, it is estimated, has lost since 1864 280,000 citizens from this cause alone, and Australia nearly 1,000,000. There is also a certain diminution in the natural increase of population in New South Wales, though the death rate there is less than in some other countries. In 1872 the natural increase was 24 per thousand; in 1902 it was only 15.22, a drop of 36 per cent. from 1872. With these figures, the time is not far ahead when the population will be actually on the decrease, provided present tendencies continue. The report goes at length into the questions of illegitimacy and other subjects bearing on the matter in hand, but space is insufficient to cover all these points. While the ratio of decrease of birth rate is still less in New South Wales than in some other lands, the rapidly progressing diminution is a very alarming fact. The defective birth rate is aggravated, moreover, to some extent in its effects by an excessive infant mortality.

In their conclusions the commission dwell more particularly on the moral effects on the community of the condition of affairs revealed. If Australia is to be a great nation and a power in the world, the present tendencies must be checked. Even if its present natural rate of increase is maintained, it will be forty-six and a half years before Australia will have doubled its population of 3,275,000; a poor prospect, indeed, when we consider the different state of affairs existing in its rivals for the supremacy of the western Pacific Ocean. The possibility of maintaining a "white Australia" is seriously imperiled by the present state of affairs. The commission say: "In whatever way the waning birth rate of New South Wales is viewed, whether in its effects on the health, character or social worth of individuals; on the value of the family as the basis of national life; on the quality and dignity of civic life; on the character of the people; on their social, moral and economic progress; on their national aims and aspirations; on their capacity to survive in the rivalry of nations; whether it is viewed in the light of history or of science, it is seen as a grave disorder, sapping the vitals of a new people, dispelling its hopes, blighting its prospects and threatening its continuance." They conclude with an appeal to the patriotism of the colonies to prevent the loss of the fair heritage of the British race in the southern seas which

is foretold by present conditions. The volume is a valuable contribution to the literature of a problem that is coming to the fore in other civilized countries than New South Wales.

BERI-BERI.

The appearance of beri-beri (beri is Singhalese for weakness) among the soldiers now engaged in bloody conflict in the far east calls our attention to a hitherto little noticed and, therefore, so to speak, new terror of war over which medical science as yet has little or no power. Beri-beri (or kakke, as it is called in Japan) is the pest par excellence of the Malay archipelago and peninsula, but given certain special conditions, it may occur apparently almost anywhere, as witness its occurrence among Newfoundland fishermen and in British prisons. It is widely disseminated in many tropical countries, including the Philippine Islands.

From the clinical and anatomic points of view, beri-beri may be described briefly as a peripheral neuritis, with changes in the central nervous system. Naturally, the disease may manifest itself in varying degrees of intensity; its manifestations will also vary greatly in the different periods of its evolution. For these reasons various classifications have been proposed, and of these the one by Hamilton Wright recommends itself especially for its comprehensiveness and simplicity. Wright separates beri-beri into three principal forms, namely: 1. Acute pernicious beri-beri. 2. Acute beri-beri (running a course of from three to six weeks, leaving the patient paralyzed). 3. Beri-beri residual paralysis.

Any one at all familiar with the clinical picture of acute peripheral neuritis and its consequences can readily reconstruct in his own mind the general clinical aspects of the second and third forms outlined in this grouping. Acute pernicious beri-beri—the first form—may terminate life quickly. Its main symptoms are great dyspnea, cyanosis and cardiac failure, symptoms that indicate that in this form the process attacks specially the nerves concerned in respiration and cardiac function. In some forms of acute beri-beri there may be a pronounced anasarca (wet beri-beri), and pernicious symptoms may arise in the course of such cases even when the progress appears satisfactory. Hence the prognosis in the acute forms of this disease, especially when associated with edema, is uncertain. So far as known, the course of the disease can not be materially modified by treatment. The gross appearances presented by the organs after death are not strikingly or positively characteristic of any single disease, so that, without the knowledge of the clinical history, it is not likely that a correct diagnosis of acute cases would be made postmortem without microscopic study of the nervous system, the central, and especially, of course, the peripheral. There may be more or less edema for which it might be difficult to account in the presence of normal kidneys and normal though dilated heart. Hamilton

Wright lays great stress on the presence of congestion and erosion of the pyloric end of the stomach and of the duodenum, which are said to be constant in the acutely pernicious cases. Wright regards these lesions as the result of the localization of the unknown microbial cause of the disease, which here develops a readily absorbable and powerful neurotoxic substance.

Wright's interesting and plausible hypothesis as to the etiology of beri-beri was discussed in these columns of THE JOURNAL May 21, 1904. The hypothetical organism does not seem to have been described as yet, and it is sincerely to be hoped that this new theory does not only add one more to the long list of theories already advanced to explain the pathogenesis of this disease, which Manson says has been attributed to all sorts of causes: "to damaged fish, damaged grain; to rain, wind, heat, cold; to rheumatism, and many other things, including malaria." Still, in view of the large number of poisonous substances known to be capable of producing multiple neuritis and central nervous changes—lead, arsenic, copper, zinc, ergotin, alcohol, phosphorus, carbonic oxid and sulphid, chick-pea, bad maize, and the products of many microbial infectious agents as seen in the cases of primary and secondary infectious neuritis—it would hardly be surprising if it turned out that the term beri-beri as now used includes a variety of processes due to different causes. Certainly nervous tissues have a remarkable affinity for many harmful substances of diverse nature and origin.

The reactions between the components of nervous tissues and such substances now demand investigation, especially from the chemical side, if we are to understand better the mechanisms that lead to such grave disturbances in the structure and function of the nervous system. All additions to our exact knowledge of neuritis of whatever cause will help to unravel the difficult problems connected with the etiology, treatment and prevention of beri-beri. At the present time progress in these directions appears to hinge largely on the determination of the question whether the disease is microbial in nature or due to faulty hygiene and bad food.

COPPER SULPHATE AND WATER PURIFICATION.

The widespread current interest in the question regarding the effect of copper sulphate on public water supplies dates back to some important observations published last May by Moore and Kellerman in a bulletin of the Department of Agriculture.¹ The experiments, having in view the application of this salt (CuSO_4) to the water of reservoirs, appear to have been undertaken in the first instance with the aim of discovering a means of preventing the unpleasant odors and tastes due to the growth of algae in stored water. A possible extension of this method to the destruction of pathogenic germs was considered by the writers of this bulletin incidental to their main investigation. The wide publicity given

1. Bureau of Plant Industry, Bulletin 64.

to the authors' experiments on the action of copper sulphate on pathogenic microbes appears not to have been foreseen by them. It is certainly true that some have drawn unexpected conclusions from the data presented in the bulletin mentioned. We are very glad to publish in this issue a letter² from the secretary of the Illinois State Board of Health concerning experiments which show the germicidal power of copper receptacles to have been greatly overestimated—at least in the popular press.

As regards the successful inhibition of algal growth by minute quantities of copper sulphate (0.25 parts per million), there can be no question. The first reservoir treated by this method was one at Winchester, Ky., which was grievously infested with the alga *Anabana*, a well-known pest of water-works. The treatment there applied resulted in freeing the reservoir from the cause of offense in the most satisfactory manner. At Elmira, N. Y.; Cambridge, N. Y.; Butte, Mont., and Belchertown, Mass., a similar method of treatment has been practiced with what is thought to be eminent success. The cost of application of the salt is very low, and where the local conditions are carefully studied and the amount of copper sulphate added is in suitable proportion, there can be little doubt of the efficacy of the treatment. The highly toxic properties of copper salts and of colloidal copper have long been familiar. Naegeli's observations on the "oligodynamic" action of metallic copper are a well-known biologic classic. More recently Ficker has shown that such effect is perceptible even in dilutions of 1 to 50,000,000, and has brought out the interesting fact that the walls of glass containers once used in experiments of this character are extraordinarily difficult to free from all manifestations of such oligodynamic action.

It is another matter, however, to assume that a cheap and easy means of ridding water from disease germs has been discovered. It must be remembered that laboratory experiments are rarely if ever applicable without further investigation to complex natural conditions. It is well known, for example, that temperature profoundly affects the action of disinfectants, and this seems to be a point to which sufficient consideration has hardly been given in the present instance. The matter of simple inhibition versus destruction is also one calling for careful discrimination. Perhaps more important than all from the practical standpoint of water purification is the fact that the application of copper sulphate to an ordinary surface water leaves the turbidity unaffected, and yet it is well known that the problem of clarification is often one of the most difficult and expensive to solve. On the physiologic side, the evidence regarding the effect on man of the ingestion of small quantities of copper salts is so conflicting, and various investigators differ so vitally in their judgment of this matter, that a definitive conclusion on this issue at the present time seems hardly possible.

All things considered, the enthusiasm manifested in some quarters in favor of copper sulphate as a substitute for sand filtration seems hardly warranted by the facts at hand or by the conservative recommendations in the original publication by the Bureau of Plant Industry. It is worth while to bear in mind the caution of Moore and Kellerman, that "it would be a matter of regret if the method proposed here should ever be regarded as a universal panacea to be used by everyone, regardless of the organism to be eradicated and the condition of the water."

SUCCESS OF PROPHYLACTIC CAMPAIGN AGAINST YELLOW FEVER IN TEXAS.

We made reference last May to the yellow-fever situation on the Texas-Mexican border, and to the good work which was being done by the Public Health and Marine-Hospital Service, co-operating with the state health authorities of Texas and with the health authorities of Mexico, in preventing the recrudescence of the fever.

The usually accepted season for the appearance of yellow fever having passed, it is gratifying to note that there have been no cases of yellow fever along the Rio Grande during the present year. This result is in striking contrast with the history of epidemics of yellow fever in preceding years, when a greater or less number of cases denominated sporadic, for want of a better term, have always appeared in years succeeding an epidemic outbreak. The outcome is a cause for congratulation, but required much care and labor. For more than six weeks a daily inspection of every house in Laredo was made, and all cases of a febrile nature, due to no matter what cause, were screened from the access of mosquitoes. With the co-operation of the local authorities, who passed ordinances to make the work effective, a vigorous campaign was entered into for the elimination of all mosquito-breeding places, destruction of mosquitoes, and for the fumigation of all premises in which yellow fever or suspected yellow fever had occurred the year before. Sanitary expeditions were made along the railroads radiating from Laredo, and the aid of the state health officer, local health officers, railroad corporations and the communities themselves, was enlisted in a campaign of mosquito destruction, the prevention of mosquito breeding and the fumigation of buildings where cases were supposed to have occurred.

Summer having passed, therefore, without the appearance of the disease, so far as known, in any part of Texas, it may fairly be claimed that the efficacy of antimosquito work in the elimination and prevention of yellow fever has been vindicated. Due credit must be given the Mexican authorities for the sympathetic assistance they rendered by instituting like measures in areas and towns in Mexico infected and liable to infection at any time by the introduction of yellow fever from infected seaports in Mexico. There was little difficulty in enlisting the interest of the Superior Board of Health of the Republic of Mexico, and measures of

² See correspondence department on page 1156.

the same kind pursued in Texas were at the same time going on in Mexican seaports and in places and towns in railroad connection with the same. This experience has demonstrated the usefulness and practicability of international agreement on sanitary matters.

MORE DEATHS FROM WOOD ALCOHOL.

The importance of the subject of poisoning by wood alcohol, treated of in the article by Drs. Buller and Wood, which is now appearing in *THE JOURNAL*,¹ receives marked emphasis in the death of twenty-five persons in New York City from drinking whisky made with that poison. All the victims lived in a section known as Stryker's Farms, and had been indulging in a carousal. Samples of liquor were secured by the coroner, and showed the presence of wood alcohol. This poison was also found in the stomachs of some of the victims. A mob attacked a saloon where some of the poisoned whisky was bought, the saloonkeeper is under arrest, and the occurrence has created great indignation and alarm in the districts mentioned. This is the largest number of fatalities from this cause in a single group, and it will certainly give emphasis to the need of adequate restriction in the use of this poison.

HOW THE FRENCH REGARD SURGICAL CARELESSNESS.

A distinguished Paris surgeon is reported, according to the cable dispatches, to be under indictment for homicide, because he inadvertently, it is presumed, left a portion of a broken instrument in the patient's abdomen after an operation. There are many surgeons who have had a like experience, so far as the accident goes, but this is the first case in which we have heard of a criminal indictment following such an event. Civil suits are not unknown. If the French law is such as to make such oversights criminal carelessness, it will be a special inducement to greater care against the occurrence. Of course, conviction in such a case is by no means a certainty. There are others beside the surgeon who should share or take the responsibility. The engrossing nature of a capital operation, requiring almost every faculty to be at special attention to the operative details, and the absolute necessity in many cases of trusting to assistants, such as can be had, should be very seriously considered. A little inattention on the part of the surgeon to the details of his own manipulation or its diversion to matters that have to be left to others, may be as dangerous to human life as the risk of the possibility of the inattention on the part of the subordinates to the details of counting sponges, artery forceps, etc. Surgery is a perilous business at the best, and there is nothing truer than the old saw that accidents will sometimes happen in the best-regulated families.

THE PSYCHOLOGY OF CHESS.

While the average chess player makes his moves with comparatively little foresight, in the high science of

chess, as played by experts each move for several moves ahead on both sides, including all the contingencies, is carefully thought out. Success depends on the perfection with which this is done, and the method is illustrated to some extent in a recent article in *Everybody's Magazine*, where the performances of the champion chess player, Pillsbury, in so-called blindfold chess, are discussed. Blindfold chess playing is playing without seeing the board, and requires an exercise of visual memory that is almost inconceivable. Pillsbury, it is said, has thus played sixteen simultaneous games with expert players, winning twelve, drawing three and losing only one. He was compelled to remember the position of each of the thirty-two chessmen on each of the sixteen boards. The enormity of the mental task may be suggested by the fact that on one board alone many thousands of different culminations are possible as the result of the first three or four moves. Pillsbury, of course, has a certain system and is permitted to choose his own openings, but this does very little to diminish the astounding character of the performance. It is probable that high-class chess playing is largely, if not exclusively, a matter of visualization, and this involves a kind and degree of mental strain that can not be considered other than abnormal. It is, in fact, practically an exercise in hallucinations—external projections of visual energies mentally conceived—and only possible with a probable special development of the visualizing centers and apparatus of the brain. This implies a certain abnormality, and unless the person is just so constituted and specially resistant to the possible influences, it may work damage to the general mentality. Great chess players, Morphy, for example, and others beside him, have broken down mentally to a certain extent, and this may be, perhaps, the cause. Others who have possessed this faculty of reproducing visual images have likewise shown the evil effects of its overexercise. The English painter, Blake, was a notable example. His power of reproducing the visual images of his sitters developed in time to a hallucinatory insanity. While the usefulness of the accomplishment in many walks of life is self-evident, its abuse may work serious damage, as in the cases mentioned. It is possible, indeed, to suppose that some chess players may be able to play chess well without this power, but it would be impossible in blindfold playing. Mathematicians do not seem to particularly possess it above other men, and the mathematical faculties are probably the purest intellectual ones that we possess. It may be that the visualization power commonly employed checks development in other directions. Galton, in his "Inquiries on Human Faculty," quotes second-hand the dictum of the great Napoleon that no man who habitually formed a picture (tableau) was fit to command. This may be an extreme view. It is referred to here simply as the opinion of one whose words have weight. Chess being, therefore, a game that more than others requires the exercise of this faculty, is an excellent amusement, but may be carried too far, and as some examples seem to show, may have possible dangers even for its masters. It would be interesting to know the real cerebral development, especially of the occipital lobes, of the great masters of chess.

1. THE JOURNAL A. M. A., Oct. 1, 8, 15, 22 and 29, 1904.

THE PREVENTION OF MALARIA.

Several interesting papers were read and discussed before the section on tropical medicine at the late meeting of the British Medical Association bearing on the question of the prophylaxis of malaria. The special point of interest and criticism was the reported ill success of the fight against malaria at a British military station in India. The conclusion reached by the reporters, Drs. Christophers and James, of the Indian medical service, was that mosquito brigades and similar methods of destroying malarial infection were practically futile or very doubtful in their results. The general opinion, however, seemed to be that when sufficiently carried out such measures have in many localities proved to be effective. Havana and Ismailia were quoted instances. It was also pointed out that the experiment of Mian Mir was carried out on entirely too limited a scale and under special conditions that were unfavorable. In fact, the experience of many years long prior to any organized efforts against malaria is, perhaps, almost as valuable in settling the question as the recent brilliant local results in Havana and elsewhere. There are large sections in the Mississippi valley where malaria was formerly very prevalent, but where it has almost, if not entirely, disappeared since cultivation and drainage have become more general. On the other hand, especially in tropical or warm regions, a careful study of the malaria-bearing mosquitoes should accompany or precede any extensive prophylactic measures. If, for example, it is found, as claimed in some Indian localities, that the malaria-bearing mosquito breeds only in running water, the petrozing of the breeding places would more or less be ineffective. Irrigation is another very serious problem. If it is done away with in India or China, the result is famine. With it, we have malaria. Six hundred years ago the abolition of rice culture was ordered in certain sections of Spain on account of malaria, which was observed to be its constant attendant, as quoted by Dr. Crombie in the discussion. The dilemma is not a satisfactory one, and it is possible that in certain regions where irrigation is necessary malaria will be more or less persistent, but even there it would seem probable that the evil could be modified, if not abolished. If we could prevent the introduction of the germs by the human species, the mosquito might be comparatively innocuous. Recent experience in Massachusetts points this way. The anopheles must have existed there, but it was only after the introduction of the genus by Italian laborers that malaria became prevalent. Malaria is a contagious disease, and the recognition of this fact is the most hopeful phase of the question of its prevention. The other prophylactic methods beside larva-killing, such as isolation of cases, the free use of quinin, the use of door and window guards, are none of them to be neglected. They are all essential, but the main part of the war against malaria will have to be an offensive one against the malaria-bearing insects. Mosquitoes, perhaps, have their utility in the order of nature, but there is no reason why, under like conditions, one locality may not dispense with their presence as well as another. Even the so-called harmless ones are a nuisance, and there is no reason why it should not be abated.

THE OHIO HOSPITAL FOR EPILEPTICS.

The thirteenth annual report of the Ohio Hospital for Epileptics is just out, and contains matter of general interest. Under the present superintendent the institution has progressed along several lines, as indicated by the report of the board of trustees. The original institution, while prettily situated in the valley of the Ohio River at Gallipolis, was little better from an architectural and institutional point of view than a series of unlovely barracks, closely grouped, of severe lines and cheerless. The so-called "cottages" were designed for from fifty to seventy-five patients each, admitted of little or no clinical segregation of cases, and were much too large for discipline. In fact, the original plan of the institution apparently was the creating of a special almshouse for the housing of the state's epileptics. Numerous small cottages are being built on modern lines, admirably adapted to the care, treatment and study of differing stages of the disease and of patients of divergent social states. The patients now have systematic outdoor and indoor sports and exercises, as well as more outdoor labor for the male patients. The rigid enforcement of proper discipline on patients and attendants has brought the institution to a much higher degree of efficiency, but, of course, has brought the originator of this improvement the opposition of the political sponsors of some of the worthless employes who were allowed to depart. The discharges necessary to obtain discipline have been made the pretext for numerous public attacks on the superintendent, and also for much political intrigue looking to his removal and the substitution in his place of a man who will better suit the politicians who have political debts to pay. This institution is one of the few in the country that seems to be conducted entirely apart from political considerations and solely for the benefit of the unfortunate inmates. Word reaches us that the medical profession of Ohio is aroused to the situation, and is closely watching the trend of events. No doubt the Ohio physicians can be trusted to see that full justice is done to Dr. Ohlmacher, and in this they will have the active sympathy of medical men everywhere, who feel intensely the paramount necessity of keeping out of "politics" and out of the game of "graft" at least every institution designed to care for the unfortunate helpless wards of the state. The superintendent's report contains much interesting matter under the heads of "Statistics of Population," "Medical Statistics," "Occupation and Amusements," "The Scientific Work," "Scientific Papers Issued from the Pathologic Laboratory of the Hospital for Epileptics During the Year 1903," etc. All these deserve further review than space here permits. During the year of report an increased amount of pathologic work was accomplished and recorded. This hospital remains one of the foremost in the United States for its contribution to scientific literature, and is one of the few state institutions at which scientific work is systematically pursued. Of course, the figures regarding the cure of cases are not imposing, but the report shows that much has been and can be done to ameliorate the condition of these most unfortunate of mankind. The relentless progress of so many of the patients after

epileptic dementia is once established is graphically portrayed. The whole report makes a most creditable document.

Medical News.

ARKANSAS.

College to Open.—The medical department of the University of Arkansas, Little Rock, opens for the year on October 17.

Missing Physician Returns.—Dr. Richard G. Lightle, announced as having been burned to death several months ago, and later accused of an attempt to defraud a life insurance company, has returned to Searcy.

Smallpox is said to be epidemic at Dee, Craighead County, where 21 cases have been reported.—The city physician of Argenta, Dr. Homer L. White, reports that during the recent visitation 50 cases of smallpox occurred with 9 deaths, and that the total expense to the city was \$1,701.82, or \$29.34 per capita.

COLORADO.

Tent City for Consumptives.—A tented city, built up under the auspices of the Jewish Consumptives' Relief Society, on a 20-acre tract near Denver, where consumptives, regardless of creed or financial condition, will be housed and treated, was dedicated September 4.

Must File Certificates.—Dr. Alexander C. Magruder, Cripple Creek, the newly-appointed state medical examiner for Teller County, has notified all practicing physicians to file their certificates with the county clerk, in order that he may ascertain the names of the unqualified.

Petition for Rehearing.—In the case of Dr. L. Carrie Johnson, Pueblo, sentenced to imprisonment for 15 years in the state penitentiary for performing a criminal operation, after the Supreme Court had refused to grant a writ of supersedeas, her attorneys have petitioned for a rehearing.

Deaths and Diseases.—During August 809 deaths occurred in the state, equivalent to an annual rate of 16.34. Of these 31 died from typhoid fever, 8 from diphtheria and one from scarlet fever. During the month 82 cases of diphtheria, 26 of scarlet fever, 31 of smallpox and 250 of typhoid were reported, an increase in diphtheria and typhoid fever and a decrease in scarlet fever and smallpox as compared with the previous month.

GEORGIA.

Will Build.—The Atlanta College of Physicians and Surgeons is to erect new college buildings at a cost of \$100,000.

College Open.—The Medical College of Georgia, Augusta, opened for the seventy-fourth year, October 3, with the largest class ever matriculated. Dr. DeSaussure Ford, the dean, delivered the opening address.

Stabbed in Fight.—Dr. John M. Spence, Waresboro, representative from Ware County, was stabbed and seriously wounded September 23, by a man whom he accused of having circulated false and slanderous reports about him.

Staff Changes.—Dr. R. H. Thigpen has resigned as head interne at the City Hospital, Augusta, and has been succeeded by Dr. J. M. Sigmen. Dr. J. B. Carter, Jr., has been advanced to junior interne and Dr. Asbury Stall has been made ambulance surgeon.

ILLINOIS.

Slayer Adjudged Insane.—George Wilkinson, who shot and killed Dr. Samuel L. Chapin of Saybrook, August 13, was adjudged insane October 3 and ordered to be committed to an asylum.

Smallpox.—Chatsworth reports five cases of mild type.—A case is reported from Charleston.—Shotgun quarantine was unsuccessfully attempted by a town lying between Belleville and East St. Louis.

Personal.—Dr. and Mrs. James W. Van Derslice, Oak Park, have returned from Europe.—Dr. and Mrs. H. Schafer, Freeport, have returned after a year in Europe.—Dr. William E. McClelland, Beason, is seriously ill with appendicitis.—Dr. Harry H. Whitten, Peoria, started, October 1, for Europe.

Chicago.

Popular Lectures Inaugurated.—The first of the series of popular lectures under the auspices of the Chicago Medical Society was delivered October 6 by Dr. Norman Bridge, on "Tuberculosis."

Personal.—Dr. Ralph R. Campbell has returned from a vacation trip to Johnstown, Pa., and Canada.—Drs. David F. Monash and E. J. Doering have returned from their European trip.

Fined for Fraud.—Dr. William S. Maharg, formerly city chemist, was arrested, together with four women, who garbed as sisters of charity, secured contributions from an alleged home for consumptives claimed to be operated by Dr. Maharg at an empty building on North Clark Street called the "Nazarene Mission." He was fined \$100 and the women were recommended.

The Week's Mortality.—During the week ending October 8 410 deaths from all causes were reported, being equivalent to an annual death rate of 11.10 a thousand. Acute intestinal diseases caused 62 deaths; apoplexy, 7; nephritis, 26; bronchitis, 6; consumption, 49; cancer, 25; convulsions, 9; diphtheria, 6; heart disease, 30; nervous diseases, 20; pneumonia, 27; typhoid fever, 11; violence, 22; whooping cough, 3, and all other causes, 99.

Nephritis in Chicago.—The bulletin of the Health Department for the week ending Oct. 8, 1904, states: "It is not reassuring to learn that nearly 6 per cent. of Chicago's male population in early manhood is afflicted with Bright's disease; and yet such is the inference warranted by the results of the examination made during the week by department physicians of 489 applicants for appointment to the city fire department. Of this number 29 (or 5.9 per cent.) were rejected for kidney trouble. When it is reflected that the principal cause of such trouble is exposure to cold and wet after a drinking bout, the figures do not speak well for the habits of Chicago's young men. The first death from Bright's disease in Chicago was recorded in May, 1864, but it was not until 1868 that deaths from the malady were reported in sufficient number to compute rates. In the annual report of the commissioner for 1894 it was shown that the rate had increased 84 per cent. in twenty years, that is in the decade 1885-1894, compared with that of the decade 1868-1877, and it was then said—speaking of the group of steadily increasing diseases—that: 'Sanitary administration can do little with these diseases or with the increase of Bright's disease and of diseases of the nervous system. The high tension of modern life—nowhere higher than here in Chicago—with its besetting temptations to irregular habits and to excesses of various kinds, and its great strain on the most complex and most important mechanism of life—is something that the sanitarian can but recognize and regret; its relief and remedy will come only through saner views and modes of life.' 'Saner views and modes of life' have not yet arrived, and the death rate of Bright's disease has increased upward of another 80 per cent. in less than a decade—that is, from 5 in the 10,000 of population in 1894 to 9.09 in 1903, or \$1.8 per cent in nine years. The apostle of 'The Simple Life' has not arrived in this country any too soon. Chicago needs him."

INDIANA.

Unlicensed Practitioner Fined.—Dr. George W. De Camp, Terre Haute, arrested on the charge of practicing medicine without a county license, was fined \$25 and costs, on September 24.

School Inspectors Appointed.—The Indianapolis Health Board met September 27 and appointed 31 physicians, who will conduct the medical inspection of public and parochial schools and kindergartens.

Inspection of Schools.—A plan has been formulated by the Indianapolis Board of Health whereby the city is to be divided into 16 districts, and the children in each school in each district will be inspected at least twice a week.

Barrel of Alcohol Under Hospital.—An explosion of alcohol in the basement of the Marion Hospital, September 26, resulted in the fatal burning of a careless attendant, serious burns about the head and face to Dr. Albert Davis, superintendent of the hospital, and a panic among the patients. Little damage was done by the fire.

Personal.—Dr. Lee F. Hunt, Anderson, was recently operated on for appendicitis in Indianapolis.—Dr. Seymour C. Wilcox, New Albany, celebrated his eighty-sixth birthday an-

anniversary September 20.—Dr. Whitefield Bowers, Michigan City, while engaged in target practice, September 28, was seriously burned by the premature explosion of a cartridge.—Dr. Augustus F. Tulley, Brazil, was painfully injured in a runaway accident, September 26.—Dr. W. R. Cunningham, Bonrbon, has started for China, where he will establish and have charge of a hospital under the auspices of the Presbyterian mission board.

KENTUCKY.

City Hospital for Paducah.—After a third of a century Paducah is at last assured of a modern hospital to cost \$25,000, which is now in course of construction on a high bluff at the confluence of the Ohio and Tennessee rivers.

Personal.—Dr. W. L. Montgomery, Lockport, in an altercation with the town marshal, was stabbed in the hand, arm and body by that officer, who was held to the grand jury.—Dr. William E. Truesdell, Newport, fell while alighting from a car, breaking a finger and cutting his leg.—Dr. John M. Chambers, Independence, has been critically ill from the effects of a fall from a horse.

MARYLAND.

Baltimore.

Personal.—Dr. T. C. Gilchrist has returned from Europe.—Dr. H. B. Jacobs is back from summering at Newport.—Dr. Charles O'Donovan was elected chairman of the section on clinical medicine and surgery of the Baltimore City Medical Society, under the new arrangement of the Baltimore branch of the Medico-Chirurgical Faculty of Maryland.—Dr. H. Warren Buckler has been appointed a member of the tuberculosis commission.

New Surgical Building Open.—The event of the week was the opening of the new surgical building and clinical amphitheater of the Johns Hopkins Hospital, October 5. Addresses were made by Judge Henry D. Harlan, president of the board of trustees of the hospital; Prof. T. Clifford Allbutt of Cambridge University, England; Professor Louis A. Stimpson of Cornell University; Dr. W. S. Halstead, Dr. A. Jacobi of New York, and ex-President Daniel C. Gilman. In the absence of Dr. Henry M. Hurd, superintendent, Dr. William H. Welch presided. A luncheon was served, after which the tablet to Dr. Lazer was unveiled, Dr. William Osler presiding. Speeches were made by Drs. William Osler, W. S. Thayer and John J. Carroll of the Army. The surgical building cost \$150,000, is four stories high and in general appearance conforms with the buildings of the hospital already erected. At night the medical school was opened with an address by Professor Allbutt.

Wants Embryos.—Prof. Franklin P. Mall has sent out a circular to the physicians of Baltimore soliciting donations of embryos, especially those of the first three months. The embryologic collection of the anatomic laboratory of the Johns Hopkins University owes its origin to the interest of the local profession. All the specimens are carefully preserved and catalogued and the good ones cut into serial sections. It is now one of the best collections, if not the best collection in existence, is used extensively for research and is often studied by advanced students of anatomy. From time to time either sections or whole series are sent to different parts of the country, and sometimes to Europe, which shows that these valuable specimens are appreciated and used by investigators in other laboratories. While the series are of the greatest scientific value, there are many stages still missing. Specimens are to be placed at once and without handling in a 10 per cent. solution of formalin or in the strongest alcohol and sent to the laboratory by express or messenger, the laboratory paying all expense.

MASSACHUSETTS.

Street Car Ventilation.—Cambridge has resumed its efforts through the Board of Health to secure purer air in its closed street cars.

Extermination of Mosquitoes.—Brookline has conducted a successful warfare on the mosquitoes this past summer; every cesspool was visited eight times and thoroughly petzolezed; pools have been filled or drained.

Enlarged Emergency Hospital.—On October 1 the remodeled Emergency Hospital opened, as an emergency and general hospital. The new building is four stories in height and contains new optical and dental departments and a surgical supply room in addition to the usual wards, consultation rooms, etc.

Leprosy in Chelsea.—A Portuguese sailor from Providence, 32 years old, is a patient at the Marine Hospital in Chelsea, afflicted with leprosy, of which he says all the other members of his family have died and from which he has suffered for the last nine years.

English Health Officer in Boston.—Dr. Francis E. Freemantle, county health officer of Hertfordshire, visited Boston, in the course of a tour around the world, and inspected the contagious disease hospital, the vaccine and antitoxin plants, the sewerage outlet, storage basin, pumping station and the Lawrence filtration beds.

New Hospital Buildings.—The three new buildings erected for the Boston Insane Hospital, Dorchester, were opened for public inspection September 22. The buildings have been constructed at a cost of \$350,000 to carry out the idea of classifying patients. There are at present 611 patients in the hospital, many of whom will be transferred to the new buildings.

Meeting of Boards of Health.—The quarterly meeting of the Association of Massachusetts Boards of Health will be held at Mt. Tom, Oct. 13, 1904, the Holyoke Board of Health being hosts. Papers will be read descriptive of the Mt. Tom Reservation, on the new plant for the preparation of the supply of free vaccine for the state, on the results of Boston's examination of bacteria in milk, and in regard to the recent epidemic of typhoid fever in Boston. Of the last disease 54 cases were reported for the week ending October 8, an increase of 90 per cent. over last year.

Thousands for Hospitals.—Mrs. Sarah E. Potter of Boston, in her will, made the following bequests to hospitals and similar charities: Kindergarten for the Blind, \$100,000; Boston Medical Library, \$150,000; Boston Home for Incurables, \$50,000; Hospital Cottages for Children, Baldwinville, \$50,000; Free Hospital for Women, Brookline, \$50,000; St. Luke's Hospital, New Bedford, \$30,000; Convalescent Home of the Children's Hospital, \$25,000; New England Peabody Home for Crippled Children, \$25,000; the Children's Hospital, Boston, \$25,000; Massachusetts Charitable Eye and Ear Infirmary, \$25,000; Boston Floating Hospital, \$20,000; West End Nursery and Infants' Hospital, \$10,000; New England Hospital for Women and Children, \$10,000; St. Luke's Home for Convalescents, Roxbury, \$10,000; Industrial School for Crippled and Deformed Children, \$10,000; the Consumptives' Home, Boston, \$10,000; Sharon Sanatorium, \$10,000; Boston Lying-in Hospital, \$5,000, and Children's Island Sanatorium, Salem Harbor, \$5,000.

Boston.

Vital Statistics for Boston.—For the nine months ending September 30 there were reported to the Boston Board of Health 8,186 deaths; 2,541 were under 5 years and 1,805 less than 1 year old. During July, August and September there were 1,032 deaths under 5 years, and of these 809 were under one, while the total for that three months was 2,625. In the nine months there were reported 3,566 cases of measles, with 78 deaths; 1,920 cases of diphtheria, with 153 deaths; 1,618 cases of consumption, with 986 deaths; 885 cases of typhoid fever, 77 deaths; 733 cases of scarlet fever, 35 deaths, and 978 deaths from pneumonia.

MICHIGAN.

Personal.—Dr. Ovidus A. Griffin, Ann Arbor, has returned from Europe.—Dr. J. A. Cameron, Pickford, has disposed of his practice and expects to go abroad.

Michigan College Opens.—The Michigan College of Medicine and Surgery, Detroit, opened for its fall term, September 21, with an illustrated lecture by Dr. Heneage Gibbs, and addresses by other members of the faculty.

Comparative Prevalence of Disease.—For the month of September, compared with the average for the month in the ten years, 1894-1903, smallpox and puerperal fever were more than usually prevalent; and dysentery, intermittent fever, pleuritis, remittent fever, erysipelas, whooping cough, pneumonia, meningitis, measles and inflammation of brain less than usually prevalent.

The Most Dangerous Communicable Diseases.—Meningitis was reported present in Michigan during September at 8 places, whooping cough at 17 places, measles at 28 places, pneumonia at 33 places, diphtheria at 68 places, smallpox at 69 places, scarlet fever at 73 places, typhoid fever at 196 places, and consumption at 294 places. Meningitis was reported present at 1 place more, whooping cough at 7 places less, measles at 10 places less, pneumonia at 7 places more,

diphtheria at 2 places more, smallpox at 37 places less, scarlet fever at 1 place less, typhoid fever at 35 places more, and consumption at 9 places more, in September, when compared with the preceding month.

NEBRASKA.

South Omaha Hospital.—Beginning September 1, South Omaha has agreed to make a monthly appropriation of \$100 to the South Omaha Hospital Association.

Personal.—Dr. Carleton S. Shepard, Omaha, has been seriously ill with appendicitis.—Dr. Ray G. Pheasant, Osceola, has gone to Europe and expects to be away for two years.

Jonas Convalescent.—Dr. A. F. Jonas, Omaha, who was operated on last December for gallstone disease, and was again taken ill in June, the symptoms becoming more severe until July 20, when a calculus was removed from the common duct, writes that after a severe and tedious convalescence due to infection of the bile passages, he is now able to do some work. He intends to start for Germany some time this month, to remain three or four months.

NEW YORK.

Warning.—The profession should be warned of a man claiming to be a German physician in distress in this country, who is visiting physicians soliciting funds.

Jamestown's Water Good.—Dr. W. G. Bissell of the Department of Health, who examined Jamestown's water supply at the request of the water commission of that city, reports the water in excellent condition.

Personal.—Dr. Louis A. Weigel of Rochester has been made seriously ill as the result of the frequent use of the Roentgen rays in his practice. He has had two fingers amputated and there has been but little improvement in his condition since the operation.

Guarding New York's Water Supply.—Owing to the prevalence of typhoid in New York City extreme precautions are being taken by the authorities throughout the entire watershed region. The trees and underbrush bordering immediately on the water have been cut down. The sewage system of Mount Kisco, where there has been some typhoid and where there is doubt as to the condition of the sewage system, is being thoroughly investigated. If any danger threatens an appeal will be made to the State Board of Health.

Typhoid Fever at Summer Resorts.—The State Department of Health has issued a bulletin calling attention to the insanitary conditions prevailing at summer hotels and ascribing the epidemic of typhoid fever at Albany to that cause. The bulletin states:

This epidemic and many others investigated in the past have shown that hundreds of persons are infected every summer with typhoid fever at country resorts, and return to the city before the disease manifests itself, thus making the number of cases reported to the city boards of health unusually large in the early fall. The same circumstances doubtless surround the increase of typhoid fever in cities in the spring when many persons return from the resorts of the South.

The department suggests that the proprietors of hotels will doubtless be glad to co-operate with the authorities in making their surroundings more healthful.

Buffalo.

Scarlet Fever Abates.—There are no further cases of scarlet fever arising from the infected certified milk. The state agricultural department is instituting proceedings against Mr. Briggs for having unlawfully sold milk under the label of certified milk.

Free Examination of Sputum.—The Department of Health has issued a circular to physicians asking them to co-operate in instructing the public generally and in availing themselves of the privilege of free examinations of sputum and to report cases of tuberculosis, and in furthering the efforts of the department to control the disposition of sputum and the disinfection of the patient, his clothing and domicile.

New York City.

The Mackay Fair.—This fair, which was held for the benefit of the Nassau Hospital, netted \$10,750. Of this sum \$2,000 is to be used annually for three years in defraying running expenses and the bulk of the remainder is to be added to the endowment fund.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending Oct. 1, 1901, 356 cases of tuberculosis, with 147 deaths; 221 cases of diphtheria, with 31 deaths;

136 cases of typhoid fever, with 18 deaths; 88 cases of scarlet fever, with 1 death; 51 cases of measles, with 5 deaths; 16 cases of variella, and 13 deaths from cerebrospinal meningitis.

Typhoid Cases Below Normal.—Dr. Darlington of the Health Board states that typhoid statistics are better than in the several preceding years. For the first thirty-nine weeks of 1902 2,148 cases were reported; in 1903, 2,565, and in the same number of weeks this year, 2,042. In the thirty-ninth week of 1902 155 cases were reported; in 1903, 119 cases, and this year, 102.

Personal.—Dr. Elizabeth Gillispie of Brooklyn has obtained a verdict of \$1,000 against the Brooklyn Heights Railroad Company in a suit for damages caused by the use of abusive language by one of its conductors.—Drs. Clifford Allbutt of London and B. Laquer of Wiesbaden were guests at the Academy of Medicine, October 6.—Dr. L. Duncan Bulkeley returned from the continent, October 4.

New Anti-Smoke Ordinance.—The Board of Health has amended the section of the sanitary code in regard to the smoke nuisance. The amendment now makes it unlawful to permit smoke to issue from any building "to the detriment or annoyance of any persons not being therein or thereon," or to permit the smoke "to enter any other building or to pollute the air in any street or thoroughfare within the city limits."

OHIO.

School Opens.—The medical department of Western Reserve University, Cleveland, opened October 3 for the year 1904-1905.

Damages in Libel Suit.—In the suit of Mayor John S. Muddell of Oxford against Dr. Robert Harvey Cook of the same city for libel, the offense alleged being that the defendant in a circular charged the plaintiff with untruthfulness and suggested that he could be bought, the jury decided for the plaintiff and gave him a verdict for \$1,400.

Condensed Courses.—The trustees of the Ohio Medical University propose to shorten the academic and medical courses one year, allowing academic students in their senior year to take the first year of work in the medical school, receiving the A.B. degree at the conclusion of the year, and the M.D. degree three years later, thus condensing the combined courses into seven years.

Personal.—Dr. John A. Caldwell has resigned his position as resident physician at the Cincinnati Sanitarium to enter private practice in Cincinnati, and has been succeeded by Dr. Charles B. Rogers, formerly of Massillon State Hospital and late of Fair Oaks Sanitarium.—Dr. Allen B. Thrasher has been elected professor of laryngology of the Medical College of Ohio, Cincinnati.—Dr. Henry R. Mallory, the oldest practitioner in Hamilton, is seriously ill with apoplexy.—Dr. and Mrs. John E. Myers, Springfield, have gone to Cuba for the winter.—Dr. and Mrs. E. D. Burton, Cleveland, celebrated their fiftieth wedding anniversary, October 4.

PENNSYLVANIA.

Diphtheria in Chester.—Diphtheria continues present to an alarming extent in Chester, and by special order of the Board of Health several of the public schools have been closed. The sewage plant of the city is in extremely bad condition and the persistent presence of the disease is attributed to this condition. A malignant type of diphtheria has also made its appearance in Monarch, Schuylkill County. More than a score of children are afflicted with the disease and several deaths have occurred. The public schools have been closed.

Report of State Hospital for the Insane.—According to the twenty-fifth annual report of the State Hospital for the Insane at Norristown, there were treated in the institution during the year just ended 1,175 persons. Seventy-six patients were discharged as cured, 10 as improved and 3 unimproved. There were only 78 deaths during the year. The greatest number of patients in the hospital at one time was 1,196, and the total number was never less than 1,126. Ten of the patients marked as absent from the hospital are escaped criminals. The death rate for the year just closed is lower than for fifteen years previously.

Philadelphia.

Personal.—Dr. and Mrs. S. Lewis Ziegler, Dr. and Mrs. A. O. J. Kelly, and Dr. and Mrs. McCluney Radcliffe have returned from Europe.

Prominent Foreigner Here.—Dr. G. Marcelle of Brussels, and surgeon to the Charity Hospital of that city, visited here and studied the methods in the various hospitals. Dr. Marcelle was a special representative of his country to the St. Louis exposition.

Isolation Ward for University Hospital.—A contract is awarded for the erection of an isolation ward in the rear of the University Hospital. The building will be firebrick, with all the modern appliances for the isolation and treatment of all forms of contagious disease. The cost when completed will be \$13,000.

Officers of New Chestnut Hill Hospital.—The physicians attached to the new Chestnut Hill Hospital are Dr. John H. Musser, in charge of the medical department, and Dr. Harry Wharton, consulting surgeon. The superintendent is Miss Rena Wood, formerly of the Children's Hospital. The president of the institution is Dr. Radcliffe Cheston; vice president, Rev. Dr. J. Andrews Harris; secretary and treasurer, J. Andrews Harris, Jr.

Money for His Alma Mater.—By the terms of the will of Dr. Spencer Norris of the class of 1871, the trustees of the University of Pennsylvania received a sum exceeding \$10,000. This is to be invested and the income resulting therefrom is to be awarded each year to the medical student graduating who shall pass the best final examination. It will be known as the Doctor Spencer Norris prize and the income will amount to about \$400 annually.

Health Report.—The total number of deaths for the week numbered 280, a decrease of 19 from last week, and a decrease of 15 for the corresponding period of last year. This is the lowest weekly death rate recorded in the city for many years. There were 88 new cases of typhoid fever reported, an increase of 8 over the previous week. There were 219 new cases of contagious diseases with 16 deaths reported, as compared with 200 cases and 17 deaths for the previous week. No new cases of smallpox were reported.

Loving Cup for Provost Harrison.—The medical students of the university, to show their appreciation of the efforts of the provost, presented him with a beautiful loving cup on the opening day of the college. The cup is 20 inches high, and is inscribed as follows: "A token of love and esteem in appreciation of his earnest efforts and interest in the advancement of the medical school. This cup is presented to Provost Charles Custis Harrison by the students of the medical department of the University of Pennsylvania, Sept. 30, 1904."

New Italian Hospital Opened.—The Italian Hospital erected in the heart of the Italian colony was opened for the admission of patients October 5. The building is a three-story structure and has an enclosed roof garden to be used for convalescent children, and also for the isolation of tuberculous patients. The staff of the institution at present is as follows: Dr. Ciccone, superintendent; Drs. Bey, De Stefano, Ruffel, Lowenburg, Menah, Hurlong, Craney, Louis Jacobs, H. I. Cathrall and Georgio Sparano. Miss Lida Reeves Neal is the superintendent of nurses.

Fresher Milk for the City.—An effort is being made by Director Martin, chief of the Health Department, to secure a fresher supply of milk for the city. The milk received in the city at the present time is practically two days old before it reaches the consumer. This is due to the fact that the milk shipped from the surrounding counties does not reach the city until the afternoon or the following morning. Efforts are being made to have the evening milk shipped in time to bring the milk here in the early morning, by having the railroad companies arrange a suitable schedule. A change in the Philadelphia milk supply has long been needed.

Work of the Hospitals.—At the Methodist Hospital during the month of September 2,704 visits were made to the dispensary and 76 patients were admitted to the wards. In the Howard Hospital on an average of 60 patients a day were treated, and during the month 1,681 were treated in the different dispensaries. Seventeen hundred and seventy new patients were treated in the Polyclinic Hospital, and with the return visits to the various dispensaries brought the total to 8,456 cases. In the Medico-Chirurgical Hospital 5,692 patients were treated; in the St. Agnes Hospital 594 new and 2,571 old cases were treated; in St. Mary's Hospital 144 patients were admitted to the wards and 3,100 patients were cared for in the different dispensaries.

TEXAS.

State Board of Health.—At a meeting of the Bexar County Medical Society, October 6, the advisability of establishing a state health board was discussed. At present Texas has a health officer, whose duty it is to attend to all matters of quarantine and public health. Many members of the profession, however, believe that a state board of health should be created and that all matters relating to quarantine and public health should be passed on by that board. They also claim that the quarantine now maintained by the state of Texas along the Texas coast and Mexican border should be turned over to the Federal authorities, as the points are national boundary lines and should, therefore, be cared for by the national government. They point out also that state boards of health prevail in Louisiana, Mississippi, Alabama, etc., and that they have been successful in handling quarantine matters. The society passed a resolution, the object of which is to prevent any action by the legislative committee of the state association until it can hear the views of the legislative committees of the 140 county societies. The resolution provides that as medical legislation of vital importance to the public health of the state will probably be asked of the next legislature and the medical profession will be called on to lend its aid in securing such legislation, and that as the profession of the state have a right to be thoroughly enlightened on the measures they are expected to support, the Bexar County Medical Society asks the other component county societies to join in requesting the chairman of the committee on legislation of the state association to call a meeting of the committees on legislation of the county societies and that each county society request of the chairman of the committee on legislation of the state association copies of the bills intended to be presented to the state legislature.

UTAH.

A Travesty on Justice.—J. W. Pidcock of Ogden was fined by Judge J. A. Howell for practicing medicine without a license from the state board of medical examiners. Our reporter says that defendant had a contract with a druggist whose influence tempered justice, and he remarks that such mock justice tends to discourage the efforts of physicians to maintain a better standard of medical fitness.

New Salt Lake Hospital.—Dr. Joseph S. Richards, chief of staff of the new Groves Latter-Day Saints' Hospital, Salt Lake City, has gone east to procure the equipment for the institution. The staff members thus far selected are Drs. Fred Stauffer, Leslie W. Snow, Joseph S. Richards, Samuel H. Allen and Charles F. Wilcox. Up to date the building has cost about \$150,000, of which \$45,000 was a bequest of the late Dr. Groves.

CANADA.

Opening of Medical Department of Toronto University.—On September 4 the medical faculty of Toronto University reopened for the session of 1904-1905. Prof. J. Algernon Temple, in the opening lecture said that the experience of the past year had demonstrated beyond question the wisdom of union of Trinity and Toronto.

McGill University Celebrates Its Seventy-Fifth Birthday.—Principal Peterson delivered the lecture commemorating the seventy-fifth anniversary of the founding of McGill University, and sketched the history of the university and the progress it had made. The lecture served also to honor the anniversary of the birthday of the late Hon. James McGill, its founder.

St. Paul's Hospital, Vancouver, B. C.—The new annex to St. Paul's Hospital, Vancouver, B. C., was opened recently. The new wing is 45 feet wide and 145 feet long, and consists of three stories with a basement. One of the wards was fitted up through the generosity of Dr. Langis of Vancouver. This hospital can now accommodate about 400 patients. The institution is non-sectarian and is open to every race and creed.

General Gift to Toronto General Hospital.—Toronto General Hospital has been given \$100,000 by Mr. Cawthra Mulock of Toronto to erect an out-patient building, so much needed by the institution, and to provide satisfactory clinical teaching for the University School of Medicine. It is not yet decided whether this out-patient department should be erected as a wing to the present hospital or built adjoining the medical building of the university to serve a better purpose for clinical instruction.

Toronto General Hospital.—There were 211 patients in the Toronto General Hospital on Aug. 31, 1904. There were admitted during September 290 patients; births, 13; total in September, 514. Patients discharged in September, 224; died in September, 27; patients in the hospital September 30, not including infants, 244. During the month 1,112 patients were treated in the externe departments. Two hundred and thirty-one accident cases received first aid at the emergency branch of the hospital. Of the 27 deaths five were from tuberculosis.

FOREIGN.

Golden Jubilees of Physicians.—Among the physicians who have recently celebrated their golden wedding with medicine, that is, the celebration of the termination of fifty years of practice, are Prof. M. Blancas, one of the most prominent medical authorities of Buenos Ayres, and Professor von Voit of Munich, Germany.

A Chemical and Pharmaceutical Congress.—An international exposition is to be held at Liège, Belgium, opening in July, 1905. In connection therewith there will be a congress of chemistry and pharmacy, organized under the auspices of the Liège Pharmaceutical Association and the Chemical Society of Belgium. Questions relating to legislation and professional ethics will be discussed in addition to technical matters. Address for further particulars M. J. Raymond, 16 Place des Carmes, Liège.

Bubonic Plague.—*Public Health Reports* states that the Transvaal is now free from plague. A report from Brisbane, Queensland, states that the last case of plague in man in that state occurred on June 12, and the last plague-infected rat was found July 29. In Fuchau, China, there is an epidemic of plague in the native portion of the city. So far as is known, there are no cases in the foreign quarter. In Bahia, Brazil, there are a number of cases of plague, and several deaths from the disease have occurred. Vaccination against the plague is being practiced on a large scale, and the government is considering the establishment of anti-plague vaccination stations throughout the city.

Hygiene of the Barber Shop.—The *Lancet* mentions that ten countries have adopted regulations for controlling barbers and hairdressers to prevent contagion. Among them are Japan, Sweden, the State of New York, Uruguay and San Salvador. It suggests, further, that as brushes are so hard to disinfect, the use of formalin is probably advisable. Powder puffs should be replaced by pieces of cotton, which can be burned after using. The barber should wear an apron without pockets, and should wash his hands between attending on customers. An important regulation which should be decreed is that no one suffering from an obvious disease of the scalp or face should be served in a public barber shop.

Australian Lepers.—Wherever possible the government of New South Wales departs Chinese lepers. There are now seven of these unfortunates in the leper lazarette at Little Bay and arrangements are being made to send them back to China. Victoria has one Chinese leper and the health authorities of the two states are arranging to send him to China with his countrymen from New South Wales. The patient has no objection to returning to China, but asks the government for £150 (\$750) with which to start in business in Hongkong. In similar cases the Victorian government has made grants ranging from £60 to £120 (\$300 to \$600), as the repatriation of such cases even with a substantial gratuity means a saving to the treasury.

Suit Against a French Surgeon for Homicide.—Dr. J. A. Fort of Paris performed an operation on a patient for the relief of a stricture of the esophagus. The patient died a few days afterward. Eight months later the aid who had assisted at the operation denounced the surgeon as having caused the death of the patient by a piece of an instrument left during the intervention. The bulging tip of the thin, flexible sound he was using had been broken off by a spasmodic contraction of the stricture, but as the digestive tract tolerates readily much larger foreign bodies than this, he did not regard the incident as at all serious. The body was exhumed and during three hours' examination by three physicians besides Fort, nothing was discovered to show the slightest damage from the tip of the sound, which was found in the intestine. Nevertheless, the authorities have formally instituted suit against him for homicide by imprudence, as mentioned in an editorial on page 1150.

Present Status of Medical School Inspection in Germany.—A full report on this subject is published in the *Allg. med. Ct.-Ztg.*,

September 17. In Dantsic the school inspectors are members of the board of education. The number includes 4 ophthalmologists and 12 physicians. The former examine the children's eyes on their entering school, and thereafter at two-year intervals. Charlottenburg has 12 medical inspectors. They make out a health chart for each child, which accompanies it from grade to grade. Each month the medical inspector holds a conference with the principal and the teacher of each grade, and the children are inspected at least once a quarter. The heating, cleaning and ventilating of the buildings are also under his jurisdiction. In Breslau the children are examined after they have had two or three months of school life. In Paderborn the demand for medical school inspectors was rejected by the city authorities on the ground that, as the state did not think them necessary for the higher institutions of learning, they were not needed in the lower grades. In Leipzig the regulations require the inspector to visit each school once a month to confer with the principal and examine such children as are presented to him. The inspectors are also required to accompany the architects and the board in their rounds of inspection of the school buildings. These Leipzig regulations are proving exceptionally satisfactory.

An Exposition of Irregular Methods.—The "Naturforscher" Congress is one of the events of the year in Germany. It is an annual gathering of physicians and workers in other sciences for the purpose of presenting and discussing the various achievements in science during the past twelve months. The medical section is always particularly interesting, and physicians flock from near and far, the total attendance at the congress reaching well up into the thousands. The seventy-sixth annual session was held at Breslau Sept. 18-24, and one of its features was an exhibition of the measures and practices of quacks and charlatans as encountered by medical men. Dr. Carl Alexander had the matter in charge, and several addresses were made by editors and physicians on the subject of quacks in general. The exhibition included the advertisements of all kinds of quacks and charlatans, as well as the advertisements of proprietary medicines and secret remedies, the various cures "without poison" and "without the knife," faith cures and pseudo-science cures, the institutions conducted by "nature healers," their periodicals, books, etc., in short, the entire history of charlatanism during the last decades. An important feature of the exhibition was the statistics and data collected by physicians in regard to the persons practicing these irregular methods. They show that 70 per cent. had barely an elementary education. The literature is shown to be enormous; the principal organ of the German "nature healers" is in its thirty-second year and claims 125,000 subscribers. Dr. Reissig has collected data which prove that the number of books and treatises on "nature healing" sold during the past fifteen years amounts to a total of more than \$3,000,000. More than a million copies of Bilz' book have been sold, and more than a quarter of a million of Kneipp's, not to mention Mrs. Eddy's book. Specimens of all of these were on exhibition. It is proposed to keep this collection together and throw it open to the public as a means of instructing the people in regard to quack practices and methods, using every means to render it more instructive in this respect. The effectual organization of the charlatans must be met by concerted action on the part of the profession. Lejars remarks in a letter on the subject in the last *Semaine Méd.*, that all the members of the profession do not suffer in the same degree from the ravages of quack practices, and consequently the physicians whose influence would be most powerful in the matter are the very ones who regard it with apathy and selfish indifference. The matter is so appallingly serious, however, he adds, that it threatens the very existence of the liberal, honest medical profession, and effectual organization to combat it is imperatively needed. The German Society for the Repression of Charlatanism was founded in 1902, and Holland has had a similar organization since 1880. The present exhibition is due to the initiative of the German society. Some of its previous efforts were mentioned on page 384 of the last volume of THE JOURNAL.

Correspondence.

State Supervision of Public and Private Care of the Insane.

EAST ST. LOUIS, ILL., Oct. 2, 1904.

To the Editor:—In your editorial, September 17, with the above title, your reference to Illinois institutions may admit of a little explanation. You speak of the "ruin" wrought and

their "fall" under the present system, as shown in articles in the *Illinois State Medical Journal*. I am aware that some such articles were published, but I believe the profession generally understands the animus and circumstances under which they were published. But when such reference to our charitable institutions is made in a journal of national circulation the matter assumes a different aspect.

Now, I am deeply interested in these institutions, am a visitor of them, and of similar institutions in other states, and if it can be pointed out to me in what particular, in any one of these institutions there is a defect, I will make an effort to remedy it. If any defects can be shown in the medical treatment of our insane, any want of efficiency or kindness on the part of nurses, any harsh treatment on the part of attendants, any lack of cleanliness or sanitary condition in the buildings or grounds; if, indeed, there is any point in any one of these institutions that will not compare favorably with any other institution for the insane in this country, I most earnestly want to know it.

I will gladly accompany you, Mr. Editor, or the former editor of the *Illinois State Medical Journal*, to any of these institutions you may select for this observation.

With reference to "the loss to the state of eminent medical men," I can recall but one change in superintendents during the present administration, that at Jacksonville, and that was certainly not for political reasons.

H. C. FAIRBROTHER, M.D..

Member State Board of Charities.

[We do not question the good faith of the author of this letter. As to the editorials in the *Illinois State Medical Journal*, we know nothing of their "animus" nor of the "circumstances" under which they were written. They appeared in the editorial columns of a highly respectable medical journal and, as we recall, they were warmly commended at the time by the leading Republican daily of Chicago, and were indorsed in the issue of THE JOURNAL, Feb. 20, 1904, because they seemed to us to show, without personality or partisanship, the evil effect of political influence on a body of institutions whose directing spirit should be purely that of medical science.

The writer of the above letter states that he has no knowledge of any defects in the Illinois institutions, but expresses an admirable willingness to remedy them if any can be shown to him. It would be no difficult task to do this. The subordination of the Illinois institutions to party politics has been so evident that it is now a public issue in the state, and neither party dared to frame a platform this year without a plank demanding a merit system for the appointments to these institutions. A powerful voluntary organization of representative men throughout the state has been formed for the express purpose of securing a state civil service law, and, as its reports will show, the primary need of this law was found in the condition of the state institutions. For the past eleven years, since the inauguration of the spoils system in 1893, at least 90 per cent. of the offices, over 2,500 in number, in the state charitable and penal institutions, have been used for the payment of political debts or the purchase of political power. This system has naturally resulted in a deterioration in the management of our institutions. At the present time, in at least nine cases out of ten, fitness and experience combined have no influence in obtaining a position even in the insane hospitals.

There is one respect in which the institutions of Illinois do not compare favorably with "other institutions for the insane in this country." There is no governing body whose members are appointed and hold office in a way that makes it a proper body to hear complaints and investigate charges. The State Board of Charities is appointed by the same head who appoints the superintendent and chief officers of the various institutions, and as a consequence they are naturally inclined in all investigations to shield the management rather than to protect the

inmate. For specific instances we may point to the Kankakee investigation, to the Elgin investigation, and to the attempted investigation of the Illinois Industrial Home for the Blind. It is fair to say that the instances referred to occurred before Dr. Fairbrother's very recent appointment to the board. For details we refer him to the "Plea for a State Merit Law" published by the Illinois Civil Service Association. That Illinois has lost the good name she once boasted of is shown by the fact that a commission appointed a few years ago by the governor of Pennsylvania to visit the various state charitable institutions and report on the same, passed through Illinois, stating in a personal interview with the representatives of the press in Chicago that they could learn nothing from the Illinois state charitable institutions, as they were among the lowest in point of efficiency.

Our correspondent questions our assertion as to "the loss to the state of eminent medical men" and says he knows of but one change in superintendents in the "present administration." We can not state too emphatically that we intend no reflection on the "present administration" of Illinois or of any other state. THE JOURNAL does not lend itself to partisan politics, nor does it hold any one administration responsible for the general situation, but it has been repeatedly pointed out that political control of public medical charities under any administration always has been and always will be disastrous.

We are sorry to say that, unlike our correspondent, we are able to recall a considerable list of excellent alienists who by various "methods of elimination" have been removed from the service of Illinois since 1893, when the period of political control set in. Among these are a pathologist of national reputation, the successful heads of three large institutions in other states, the superintendent of another public insane asylum which is now among the most progressive in America, and others equally meritorious but less conspicuous.

We would remind our critic that the points mentioned in his letter are not the only ones in which we have a right to demand a high standard for our insane asylums. Let him compare the medical, surgical and laboratory work in the asylums of Illinois with that carried on now in New York, Minnesota, Michigan and Ohio—the actual volume of scientific, clinical and pathologic work as evidenced by publications in the current literature. Cleanliness and kind treatment are certainly necessary, but the twentieth century has advanced beyond these points, and so long as mechanical restraint still obtains in our asylums, so long as they still retain the "Utica crib," and so long as they fail to keep up with the march of modern psychiatry, so long shall we be justified in our criticism of them.—
EDITOR.]

Copper Containers Not Sufficiently Germicidal to Typhoid Bacilli in Water.

SPRINGFIELD, ILL., Oct. 5, 1904.

To the Editor:—According to newspaper reports of the latter part of August Dr. Edward Martin, director of public health and charities, Philadelphia, stood sponsor for the following statement: "Typhoid fever germs may be removed from water without boiling or filtering. It is only necessary to let water stand for four hours in a copper kettle in a living-room temperature or twenty-four hours in a refrigerator. The water will receive sufficient colloidal impregnation from the vessel to kill typhoid fever and cholera germs."

At about the same time the newspapers published an announcement that municipalities and communities suffering from or threatened with the presence of typhoid germs in drinking water were requested to call on the Secretary of Agriculture to render assistance; that the Department of Agriculture, after exhaustive investigations, had found a remedy for the destruction of typhoid bacilli in the simple retention of infected water in copper vessels.

Further, about September 5, Dr. George T. Moore of the Department of Agriculture was quoted as saying: "I am perfectly willing that the press should say for me that the death rate in any community from typhoid fever, so far as the disease is caused by infected drinking water, may be wiped out by the scientific use of copper as a germicide."

The wide publicity given to this subject by the press, and the simplicity, economy and alleged certainty of the process, caused serious apprehension on the part of the Illinois State Board of Health, lest local authorities of the state might advocate and adopt the method without further investigation, neglecting the more thoroughly tried and approved methods of the prevention of water-borne diseases. To determine the accuracy of the claims made, the State Board of Health immediately undertook a thorough and painstaking investigation of the germicidal powers of copper and its salts, under the direction of Prof. John H. Long, of Northwestern University.

These investigations have been completed and show conclusively that typhoid bacilli may live in water in copper containers or in water brought in contact with copper, at ordinary room temperature, not only for four hours, but for twenty-four or even forty-eight hours. According to Professor Long's report, "while in sterilized water in contact with copper, the 'death rate' of typhoid bacilli is high, their persistence for two or three days, and the possible persistence for longer periods in larger amounts of water, render the method impracticable for use in rendering a suspicious water safe for household use."

There is no question but that the contact of copper with water contaminated with typhoid bacilli brings about more rapid destruction of these bacilli, and some germicidal power must be admitted, but that this germicidal power can not be depended on, especially in the small space of time suggested in the newspaper reports, is made apparent by the persistence of the bacteria for over forty-eight hours under conditions in which this germicidal power is stated to be at its highest.

It is to be remembered that the disappearance of typhoid bacilli from water in a copper vessel, at the end of forty-eight hours, can not be entirely attributed to the germicidal action of the copper. Typhoid bacilli disappear from ordinary water in from one to ten days, and from Chicago tap water, they are, as a rule, entirely absent five days after seeding. Hence, the disappearance of the bacilli forty-eight hours after seeding, in a copper vessel, may be due, not only to the action of the copper, but to the natural destruction of the bacilli in water.

It must be further remembered that water which receives sufficient "colloidal impregnation" to destroy typhoid fever and cholera germs may receive also sufficient poisonous properties to render it unfit for drinking purposes. Be that as it may, there is no question but that the copper-lined canteen, advocated and said to be under consideration by the government for the uses of the Army, would be more deadly in its results than are the typhoid bacilli to-day. Lacking the germicidal properties to destroy the germs of water-borne diseases, they present merely an added danger from the contamination of the water from material of their own construction.

The "purification" of water by the destruction of bacterial poison through the addition of chemicals which may be in themselves poisonous, has ever been a theory untenable to the logical sanitarian or physician. The interest manifested in the earlier reports of this "copper kettle water purification" justifies the assumption that even greater interest will be shown in the results of accurate investigations determining the truth or error of the earlier theories or assertions.

J. A. EGAN.

Secretary Illinois State Board of Health.

Should the Appendix Be Removed When the Abdomen Is Opened for Other Conditions?

BALTIMORE, Oct. 4, 1904.

To the Editor:—I beg leave to make a slight correction in an admirable article by Dr. Floyd McRae in THE JOURNAL, Sept. 24, 1904, on "The Diagnosis of Appendicitis. Should the

Appendix Be Removed When the Abdomen Is Opened for Other Conditions?" He writes as follows: "Kelly, in his classical work on gynecology, gives the opinion of a number of the leading surgeons and gynecologists in this question. Most of them were of the opinion that the removal of the appendix, unless markedly diseased, should not be a routine practice, the author agreeing with them." My remarks on this subject were published, not in my "Operative Gynecology," but in a paper entitled "Under What Circumstances Is It Advisable to Remove the Vermiform Appendix?" which appeared in THE JOURNAL of the American Medical Association, Oct. 23, 1902. The point in regard to which I asked for opinions was not "whether the appendix should be removed unless markedly diseased," but whether it should be removed when it deviated in the slightest degree from normal, my question being: "When the abdomen is opened for other causes and the perfectly normal appendix is easily accessible, is it your rule to remove it?"

HOWARD A. KELLY.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ELIGIBILITY OF SECTARIANS TO COUNTY MEDICAL SOCIETIES.

MINNEAPOLIS, Sept. 25, 1904.

To the Editor:—I write to you in behalf of the board of censors of the Hennepin County Medical Society of Minneapolis, to ask you what has been the practice of societies in affiliation with the American Medical Association with regard to admitting homeopathic physicians into membership. We wish to ask especially: Are homeopathic physicians, if they practice "non-sectarian medicine," eligible for membership? Is there a precedent for receiving them? If so, what society affiliated with the American Medical Association has received such? If they are admitted can they still retain their positions as professors in homeopathic medical colleges, their appointments as visiting physicians on the homeopathic staffs of hospitals, and their memberships in homeopathic medical societies?

DAVID OWEN THOMAS.

ANSWER.—The members of a number of county medical societies have been more or less puzzled to find an answer to the question propounded in the above letter, namely, whether the new plan of organization commands, recommends or permits the reception into membership of sectarians. The provision governing action on this point as suggested in Article III of the "Standard Constitution for County Medical Societies" is as follows: "Every legally registered physician residing and practicing in ——— county, who is of good moral and professional standing and who does not support or practice, or claim to practice, any exclusive system of medicine, shall be eligible for membership." The difference between this and the earlier practice lies in the fact that the school of graduation and the former practice of an applicant for membership no longer act as a bar, provided that the applicant now fulfills the conditions laid down in the article quoted—that is, does not limit himself, either in his claims or in his practice, to any exclusive system. However, the autonomy of the county society is complete and it has full power to decide under exactly what conditions any individual applicant may be admitted. Those who have professed to practice an exclusive system in the past, but who now renounce such claims, are declared to be "eligible for membership," and it is recommended that they be admitted. No compulsion exists. There may be other reasons for refusing to accept such applicants; the county society must decide. Under the new order of things and by reason of the complete freedom of decision as to membership that rests with the county society, the practice of societies varies in different counties. A society in Ohio and another in Iowa received into membership all the irregulars in their respective counties. This may have been a permissible procedure and the result of the experiment is being watched with interest. Some difficulties have arisen in the effort to keep straight some of the former irregulars. On the other hand, some decided good has been accomplished. Sectarians who retain their claims, practices and college, society and hospital affiliations are not supposed to be eligible. It seems wisest to construe the statute with liberality when deciding an individual case. It may be better, in some instances, to admit than to reject one whose status is not perfectly clear, because the very admission, through its fellowship with men of high professional ideals, may prove the turning point of a career begun in error and continued for the lack of opportunity to retrace false steps taken in ignorance and innocence.

CONTRACT PRACTICE—AN EXPERIENCE.

A physician, who desires his name withheld, writes from Indian Territory regarding contract practice, endorsing the movement in

opposition thereto. He gives a view obtained from his own experience, which it would be well for others who have a desire to do such work to read? He says: "I have been much interested in the discussion of contract practice from time to time. I am a married man of 29 years, with both literary and medical degrees obtained in first-class institutions, after the prescribed course, and have had five years of practice. After graduation, on account of ill health and financial stress, I was compelled to accept a contract mining practice at this place. I am thoroughly disgusted with contract work, and have been from the start, but necessity demanded me to take it up. I would that your time would permit me to tell what I know of the work. It is the most humiliating, degrading and unsatisfactory work one could engage in. Once in it it is next to impossible to relinquish. I know many contract physicians in this section, but have never known one to voluntarily give it up. I started a movement to try to abolish it in this vicinity, but it met a dismal failure."

RECIPROCIITY BETWEEN OHIO AND ILLINOIS.

PAULDING, OHIO, OCT. 7, 1904.

To the Editor:—Does the Illinois board recognize licenses from the Ohio board?

G. E. BRATTAIN, M.D.

ANSWER.—Yes, in case of licenses issued on examination to graduates of recognized medical colleges. For further particulars consult Dr. J. A. Egan, secretary of the Illinois State Board of Health, Springfield, Ill.

Marriages.

REGINALD SMITH, M.D., New York City, to Miss Neva Scott, in Chicago, September 26.

FRED R. JEWETT, M.D., to Miss Emily Pryor, both of Cambridge, Mass., September 28.

MOTON E. CUMMINGS, M.D., to Miss Ida Sargent, both of Malden, Mass., September 28.

WILLIAM J. BUSSEY, M.D., to Miss Winifred Streeter, both of Sioux City, Iowa, October 1.

ISAIDORE J. WOLF, M.D., Kansas City, Mo., to Miss Leah Marks of Cincinnati, September 26.

HENRY S. PLUMMER, M. D., to Miss Daisy Louise Berkman, both of Rochester, Minn., October 6.

C. E. STEPHENSON, M.D., Portland, Ind., to Miss Blanche Miller of Decatur, Ind., September 28.

CHARLES A. DAWSON, M.D., to Miss Berenice Inez Potter, both of Glyndon, Minn., September 29.

WILLIAM M. NEWMAN, M.D., Spokane, Wash., to Miss Nellie Levens of Albert Lea, Minn., October 5.

L. B. CAMBREATH, M.D., Cambria, Iowa, to Miss Daisy May Wells of Keokuk, Iowa, September 28.

FRANK WALLACE SMITH, M.D., to Miss Sophie Vinal Bowen, both of York Village, Maine, October 1.

J. RANDOLPH GRADHAM, M.D., New York City, to Miss Bessie Knight Ward, at Winchester, Va., September 28.

ISAIAH BENNETT, M.D., to Miss Grace S. Pearson, both of Wilsonville, Neb., at Clayton, Mo., September 29.

FREDERICK WALTON, M.D., Plymouth, Pa., to Miss Mary Martha Weiler, of Flemington, N. J., September 28.

FREDERICK H. THOMPSON, M.D., Fitchburg, Mass., to Miss Katherine Livick of Roxbury, Mass., September 28.

CHARLES L. HARMER, M.D., Farnington, Mo., to Miss Goldie Alice Beach of Mount Vernon, Ohio, September 28.

DENNIS FRANCIS FITZPATRICK, M.D., to Miss Maurice Pauline Murphy, both of Iowa City, Iowa, September 28.

FERDINAND GEORGE BENN, M.D., Kuhl, N. D., to Miss Elizabeth Helen Kane of Escanaba, Mich., at Long Prairie, Minn., September 29.

Deaths.

J. Merrick Bemis, M.D. Castleton (Vt.) Medical College, 1852, for many years assistant and superintendent of the Worcester Insane Hospital; physician in charge of Herbert Hall, Worcester; a member of the Massachusetts Medical Society, Worcester Medical Society, and American Medico-Psychological Association, died at his home in Worcester, October 3, from Bright's disease, aged 84.

Thomas Lincoln Axtell, M.D. Bellevue Hospital Medical College, New York City, 1881, a member of the Connecticut Medical Society and the Waterbury Medical Society, some-time

surgeon to the Second Infantry, Conn. N. G., died at his home in Waterbury, Conn., from paralysis of the heart, September 26, aged 51.

T. James Owens, M.D. Bellevue Hospital Medical College, New York City, 1873, assistant commissioner of agriculture of New York, and a practitioner for many years in Steuben and Remsen, N. Y., died at his home in Utica, N. Y., September 28, after a lingering illness from diabetes, aged 57.

William J. Williams, M.D. Rush Medical College, Chicago, 1887, a member of the American Medical Association, one of the most prominent and beloved physicians of Dallas County, Iowa, who has been in declining health for several years, died at his home in Adel, Iowa, September 30, aged 50.

Samuel E. Freeman, M.D. College of Physicians and Surgeons in the City of New York, 1858, the fifth of that name in direct line to practice in Woodbridge, N. J., died at his home in that city, September 24, from apoplexy, after an illness of two months.

John W. Jones, M.D. Tulane University of Louisiana, New Orleans, 1861, for many years ordinary of Crawford County, Georgia, died at his home in Knoxville, September 30, from injuries received six days before in a runaway accident, aged 63.

Frederick Marshall, M.D. Harvard University Medical School, Boston, 1904, interne in the Boston City Hospital, was instantly killed by an explosion of dynamite under a trolley car on which he was riding, near Melrose, Mass., September 22.

David Decker Wickham, M.D. College of Medicine, Syracuse University, New York, 1875, the oldest practitioner in Orange County, died at his home in Port Jervis, N. Y., October 1, from pneumonia, after an illness of three weeks, aged 74.

Henry McDonnell, M.D. Tulane University of Louisiana, New Orleans, 1870, a member of the state and county medical societies, died at his home in Huntsville, Ala., October 2, after an illness of several weeks, from typhoid fever, aged 56.

Isaac MacBride, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1854, died at his home in Philadelphia October 2, as the result of injuries received in a fall from a trolley car two months before, aged 73.

John E. Hutton, M.D. Marion Sims College of Medicine, St. Louis, 1891, for several years demonstrator of anatomy in Barnes Medical College, St. Louis, died at his home in Mexico, Mo., September 30, aged 34.

Van B. Thornton, M.D. National Medical College, Washington, D. C., 1861, physician and health officer of the Prairie View State Normal and Industrial College, died recently at his home in Houston, Texas.

Leroy M. Taylor, M.D. University of Georgetown, Medical Department, 1860, a Confederate veteran, died at his home in Washington, D. C., September 27, from acute Bright's disease, aged 66.

James H. Gray, M.D. Chattanooga (Tenn.) Medical College, 1894, of Chattanooga, died at Grayville, Tenn., from disease of the stomach, after a long illness, September, 30, aged 49.

Jefferson F. Lytton, M.D. Kentucky School of Medicine, 1866, of Wheatland, Ind., was found dead in his buggy, three miles from Wheatland, October 2, from heart disease, aged 71.

Joseph Newton Johnston, M.D. Cooper Medical College, San Francisco, 1886, died at his home in San Jose, Cal., September 21, from tuberculosis, after a prolonged illness, aged 40.

Cicero D. Rounds, M.D. Michigan College of Medicine and Surgery, Detroit, 1894, died at his home in Detroit, September 25, after an illness of five months, aged 51.

Theodore Schultz, M.D., the oldest physician of Evansville, Ind., died at his home in that city, September 30, after an invalidism of several years, aged 88.

William H. Moore, M.D. Tennessee Medical College, Knoxville, 1893, died at his home in Fountain City, Tenn., October 4, after a brief illness.

Reuben S. Myers, M.D. University of Vermont, Burlington, 1875, died at his home in Clarence Center, N. Y., September 30, aged 75.

Melvin W. Wilson, M.D. Castleton (Vt.) Medical College, 1852, died at his home in Oakland, Cal., September 27, aged 76.

William H. Knepple, M.D., died at his home in Wakarusa, Ind., September 27, from gallstone disease, aged 73.

Caleb C. Harris, M.D. Illinois 1878, died at his home in Dousman, Wis., September 24, from peritonitis, aged 69.

State Boards of Registration.

COMING EXAMINATIONS.

Board of Medical Examiners for the State of Texas (Regular), Dallas, October 18. Secretary, M. M. Smith, M.D., Austin.

State Board of Medical Examiners of New Jersey, Trenton, Tuesday, Tuesday evening and Wednesday, October 18-19. Secretary, E. L. B. Godfrey, M.D., Camden.

Louisiana State Board of Medical Examiners, New Orleans, October 21-22. Secretary, Felix A. Lurie, M.D., New Orleans.

Board of Medical Examiners of the State of California, San Francisco, October 25. Secretary, Charles L. Tisdale, M.D., Alameda.

Nebraska State Board of Health, November 9-10. State House, Lincoln. Secretary, George H. Brash, M.D., Beatrice.

College Entrance Supervision in Indiana.—The secretary of the Indiana State Board of Medical Registration and Examination has notified the secretaries of the various medical colleges of the state that all documentary evidence of preliminary education offered by freshmen entering the college must be submitted to the board for approval. This relieves the colleges of the responsibility of accepting or rejecting students on educational grounds and insures a uniform standard of education for all students. It is urged that a thorough preliminary education should be insisted on for all students entering medical colleges because, while it does not mean that it will make them more successful as practitioners, it at least enables them to study medicine understandingly.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, for the week ending Oct. 8, 1904:

Billingslea, C. C., asst.-surgeon, ordered to proceed not later than Nov. 1, 1904, from U. S. General Hospital to Presidio of Monterey, and accompany troops to Fort Riley, Kan., and report to the commanding officer of that post for duty.

Keller, W. L., asst.-surgeon, relieved at Fort Riley, Kan., and ordered to proceed not later than Oct. 12, 1904, to Fort Leavenworth, Kan., to accompany troops to Presidio of San Francisco, and report to the commanding general, Department of California, for assignment to duty at the U. S. Army General Hospital, Presidio of San Francisco.

Smart, Robert, asst.-surgeon, now at San Francisco, is relieved from duty in the Philippine Division and will accompany troops from the Presidio of San Francisco to Jefferson Barracks, Mo. On completion of this duty will proceed to Fort Du Pont, Del., and report to the commanding officer of that post for duty.

Fuller, L. A., asst.-surgeon, granted twenty days' leave of absence.

Winter, F. A., surgeon, granted leave of absence for twenty days from Oct. 10, 1904.

Smart, Charles, asst.-surgeon general, arrived at Army and Navy General Hospital, Hot Springs, Ark., for treatment.

Reutes, James, contract surgeon, ordered from Fort Keogh, Mont., to Fort Yellowstone, Wyoming, for temporary duty.

Sievers, Robert E., contract surgeon, ordered from Fort Harrison, Mont., to Fort Assiniboine, Mont., for temporary duty.

Koyle, Fred T., contract surgeon, relieved from duty at Fort Brown, Texas, and ordered to duty at Fort Bliss, Texas.

Burr, Rollin T., contract surgeon, left Fort Rodman, Mass., October 4, on leave of absence for three months, which he will pass at Pomona, Cal.

Mahry, William C., contract surgeon, returned to duty October 3 at Fort Sheridan, Ill., from leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Oct. 8, 1904:

Steele, John M., surgeon, ordered to the Naval Station, Baltimore.

Ledbetter, R. E., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Oct. 19, 1903.

Den, J. H., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from May 4, 1904.

Seaman, W., Richardson, R. R., and Asserson, F. A., commissioned P. A. surgeons, with rank of lieutenant, from May 18, 1904.

Smith, A. W., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from June 22, 1904.

Sutton, R. L., asst.-surgeon, ordered to the Naval Hospital, New York.

McDonell, W. N., asst.-surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

Strite, C. E., Smith, H. W., and Clifford, A. B., asst.-surgeons, appointed asst.-surgeons, with rank of lieutenant (junior grade), from Sept. 27, 1900.

Strite, C. E., asst.-surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

Carpenter, D. N., surgeon, ordered to the Naval Hospital, New York.

Owels, R. T., P. A. surgeon, detached from the Naval Hospital, New York, October 4, and ordered to the *Chatanooga*.

Richardson, R. R., P. A. surgeon, detached from the *Wabash* and ordered to the Navy Yard, Mare Island, Cal.

Dunn, H. A., asst.-surgeon, detached from the Naval Proving Ground, Indian Head, Md., and ordered to the Naval Hospital, Newport, R. I.

Judd, H. W., A. A. surgeon, ordered to the Naval Proving Ground, Indian Head, Md.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Oct. 5, 1904:

Danka, C. E., surgeon, granted extension of leave of absence for twelve days from September 27.

Richardson, T. F., P. A. surgeon, to proceed to Eagle Pass, Texas, for special temporary duty.

Trotter, F. E., P. A. surgeon, relieved from duty at Plague Laboratory, San Francisco, and temporarily assigned to exclusive duty in connection with the examination of aliens at San Francisco.

Lord, C. E. D., asst.-surgeon, relieved from duty in connection with the exclusive examination of aliens at San Francisco and directed to proceed to Mare Island, New York, and report to Surgeon G. W. Stone, for temporary duty.

Bogges, J. S., asst.-surgeon, granted leave of absence for fifteen days from October 16.

Trucker, W. C., asst.-surgeon, Bureau letter of September 12, granting fourteen days' leave of absence from September 15, amended so that said leave shall be effective September 16; and Bureau telegram of September 26, granting three days' extension of leave of absence, revoked.

Collins, G. L., asst.-surgeon, granted leave of absence for three days from Sept. 30, 1904, under Paragraph 191 of the Regulations.

Tuttle, Jay, A. A. surgeon, granted leave of absence for four days from September 19.

Wibb, C. K., A. A. surgeon, granted leave of absence for fourteen days from September 25.

McDonald, Jeanette, medical inspectress, granted leave of absence for three days from Sept. 25, 1904, under Paragraph 210 of the Regulations.

LaGrange, J. V., pharmacist, granted leave of absence for seven days from Sept. 26, 1904, under Paragraph 210 of the Regulations.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Oct. 7, 1904:

SMALLPOX—UNITED STATES.

Illinois: Chicago, Sept. 25-Oct. 1, 3 cases, 1 death.

Louisiana: New Orleans, Sept. 25-Oct. 1, 1 case.

Massachusetts: Sept. 25-Oct. 1, Fitchburg, 1 case, 1 death; North Adams, 2 cases.

New York: Buffalo, Sept. 25-Oct. 1, 1 case.

Ohio: Cincinnati, Sept. 23-30, 1 case.

Pennsylvania: Philadelphia, Sept. 25-Oct. 1, 1 case.

Tennessee: Nashville, Sept. 25-Oct. 1, 2 cases.

Wisconsin: Milwaukee, Sept. 25 Oct. 1, 1 case.

SMALLPOX—FOREIGN.

Brazil: Bahia, Aug. 27-Sept. 3, 1 death.

France: Paris, Sept. 10-17, 16 cases.

Great Britain: Glasgow, Sept. 16-23, 1 case, 1 death; Sept. 10-17, London, 1 case; Manchester, 7 cases; Newcastle-on-Tyne, 6 cases.

Italy: Palermo, Sept. 10-17, 17 cases, 1 death.

Mexico: City of Mexico, Sept. 3-17, 7 cases, 4 deaths.

Russia: Moscow, Sept. 3-10, 4 cases, 1 death; Warsaw, Aug. 6-13, 23 deaths.

Turkey: Beirut, Sept. 10-17, present; Constantinople, Sept. 11-18, 22 deaths.

Venezuela: La Guayra, Sept. 10-17, present.

YELLOW FEVER.

Mexico: Tehantepec, Sept. 18-24, 2 cases, 2 deaths.

Venezuela: La Guayra, Sept. 17, present.

CHOLERA.

India: Bombay, Aug. 31-Sept. 6, 18 deaths.

Turkey: Bagdad and vicinity, July 31-Aug. 20, 423 cases, 392 deaths.

PLAGUE.

Africa: Cape Colony, Aug. 20-27, 3 cases, 1 death; Tringa (German East Africa), Jan.-March, 47 cases, 41 deaths.

Brazil: Bahia, Aug. 27-Sept. 3, 6 deaths, verified.

Chile: Arica, Sept. 3, present.

Egypt: Aug. 26-Sept. 2, Achmm, 1 case, 1 death; Alexandria, 5 cases, 3 deaths.

India: Bombay, Aug. 31-Sept. 6, 51 cases; Karachi, Aug. 28-Sept. 4, 5 cases, 4 deaths.

Peru: Aug. 27-Sept. 3, Callao, 1 case; Chichlayo, 2 cases, 1 death; Eten, 3 cases, 2 deaths; San Pedro, 3 cases, 5 deaths; Lima, Aug. 20-Sept. 3, 15 cases, 4 deaths.

Turkey: Smyrna, Sept. 5-7, 2 cases.

Medical Organization.

Ohio.

WAYNE COUNTY MEDICAL SOCIETY.—Physicians of Wayne County met with Dr. T. Clark Miller, Massillon, counselor for the Sixth District, at Wooster, September 15, and reorganized the county society on the standard plan, electing the following officers: Dr. Hugh A. Hart, Wooster, president; Dr. Henry L. Blankenhorn, Orville, secretary; Dr. George W. Ryall, Wooster, treasurer, and Drs. John W. Irvin, Creston, and the secretary and treasurer, committee on revision of by-laws.

Pennsylvania.

ORGANIZATION IN PENNSYLVANIA.—It is a privilege for any one interested in a progressive medical profession to attend a meeting of the Medical Society of the State of Pennsylvania.

The meeting at Pittsburg last month was hardly up to the average in attendance, as the location was not central, but the program was an unusually interesting one and the spirit was fine. (A report of the meeting will be found under society proceedings. The officers elected were named October 8, page 1071).

Although young in point of years when compared with New Jersey, Rhode Island or Massachusetts, the membership of this society is the second largest in the country. In personnel, professional zeal and scientific work it also ranks deservedly high. For these reasons, and this has been especially noticeable since the creation of a House of Delegates in the American Medical Association, its representatives exert a great and conservative influence in the councils of the national body. Its delegates are selected with commendable care, and in everything one gets the impression that veterans are at the helm.

Some of the leading members are a little sensitive over the frequent criticisms that the society is not organized on the model plan, and this is not unnatural when the earnest efforts which have been made in this direction are understood. The county society has always been the unit of organization here, with practical coincident membership in the state society, and the total membership is 4,025. Of 67 counties 59 are well organized, nearly all of them years ago, and 2 are now in process of organization. The others are in the sparsely settled oil and mineral regions, and most of the physicians in them hold their membership in adjacent counties.

The reorganization movement started while Dr. Keen was president of the American Medical Association and Pennsylvania was one of the first states to take favorable action in this direction. Before the model constitution and by-laws were completed, a committee reported and the society adopted a plan of organization which was thought by all to be in perfect accord with the Association ideas. In fact, with county societies and coincident membership in the state society long established, it seemed that little remained to be done except to form a separate legislative body for the transaction of routine business, called here "the Judicial Council," but corresponding to the House of Delegates of the Association; and an executive committee of this body, called here "the Board of Trustees," and corresponding to our council. Of course, the difference in name is of little or no importance, but the provisions relating to the makeup of these bodies here are indefinite and confusing. As many of the members thought they had adopted and were working under the Association plan the latter has been held responsible, to some extent, for these unsatisfactory conditions.

At the meeting at York in 1903 a strong committee was appointed to report what changes were needed, if any, to adapt the new constitution and by-laws to the present needs of the society, and the model plan was offered and referred to it. The committee reported progress at Pittsburg and was continued for another year. As to whether the inequalities of the existing plan can best be cured by amendments or the uniform plan adapted to their needs, presents a practical problem which this committee will work out. The Association plan would relieve the confusion in the legislative body at the annual meetings by giving a more definite and uniform representation from the county societies, and, through its council, more assistance to, and better organization of, these local societies, but the disadvantage of frequent changes in plans and methods has also to be considered. In any event, it may be expected that this society will practically have the plans and lead in all the best things for which the Association stands, in the future as in the past.

Under the impetus of the organization movement, in spite of the difficulties indicated and generally recognized, much gain has already been made in this state. Largely owing to the coincident membership feature of their old plan, an unusually full per cent. of the profession was already enrolled. Still the net gain since 1902 has been 623. This gain has been as marked in Philadelphia as in the county districts, and is expected to increase even more there under the systematic efforts which are being made. The councilor feature of the Association plan would be especially helpful here, and, because of the good work already done, would soon give Pennsylvania the most perfect organization in the union in every respect.

The following officers were elected: President, Adolph Koenig, Pittsburg; vice-presidents, E. V. Swing, Coatesville; W. S. Stewart, Wilkesbarre; John Carson, Chatham Run, and J. B. Ewing, Fayette; secretary and editor of the *State Journal*, Cyrus L. Stevens, Athens; treasurer, George W. Wagoner, Johnstown; trustees, Henry Beates, Jr., Philadelphia; L. B.

Kline, Catawissa, and William H. Hartgell, Allentown; delegates to the American Medical Association, H. S. McConnell, New Brighton; John B. Roberts, Philadelphia; William L. Rodman, Philadelphia, and F. W. Frankhauser, Reading.

Virginia.

ALGUSTA COUNTY MEDICAL SOCIETY.—This society met at Staunton, September 21, and reorganized on the standard plan. All but 8 of the 42 physicians in the county are members of the society. The following officers were elected: Dr. Joseph S. De Jarnette, Staunton, president; Drs. Marshall P. Jones, Churchville, Albert C. Fox, Waynesboro, and Walter S. Whitmore, Mount Sidney, vice-presidents; Dr. John W. Freed, Hermitage, secretary; Dr. Thomas M. Parkins, Staunton, treasurer, and Drs. John B. Tuttle, Spottswood, John B. Catlett, Staunton, and Benjamin Blackford, Staunton, censors.

Washington.

LEWIS COUNTY MEDICAL SOCIETY.—Lewis County physicians met at Centralia recently and organized a society on the standard plan, with Dr. John T. Coleman, Chehalis, president; Dr. Harding, Pe Ell, secretary, and Dr. Thomas Primmer, Centralia, treasurer.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905

New York State Medical Association, New York, October 17-20.

Medical Society of Virginia, Richmond, October 18-21.

Hawaiian Territorial Medical Society, Honolulu, November 5.

Oklahoma State Medical Association, Oklahoma City, November 9

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting, held at Pittsburg, Sept. 26 to 29, 1904.

The President, Dr. William B. Ulrich, Chester, in the chair.

Addresses of welcome were made by Mr. J. A. Blair, on behalf of the city; Dr. T. M. T. McKennan, president of the Allegheny County Medical Society, on behalf of that society, and William J. Holland, Ph.D., LL.D., curator of the museum of the Carnegie Institute.

Dr. Philip Marvel of Atlantic City, N. J., delegate from the New Jersey County Medical Society, made a few remarks on the work of that society, the oldest in the United States.

Reports of Committees.

At the executive council session, the reports of the various officers and committees were received, including the secretary's report, which showed at the present time 59 county societies, five having been established within the past year, with an aggregate membership of 4,025, a net gain of 360 during the past year; and the report of the State Board of Medical Examiners, giving in detail the results of the two examinations for licenses to practice held during the year.

The election of officers has been already mentioned on page 1071, October 8, and a report on the organization aspects of the meeting appears elsewhere in this issue.

At the afternoon session the addresses in medicine, surgery and hygiene were read.

Qualifications of the Practitioner.

The address on medicine, on this subject, was delivered by Dr. Henry Beates, Jr., of Philadelphia. He stated that medicine was essentially the consequence of cause and effect, and that the highest physical and mental health and character were necessary to a physician in order that he might properly execute the bond of trust existing between himself and his patient. He dwelt on the detrimental effect of the spirit of commercialism which to some extent is invading the ranks of the professions, as well as the electropaths, osteopaths, etc., and urged the necessity for the education of the laity to the value of consulting only a qualified practitioner. He urged the neces-

sity for the better fundamental education of the medical student before he be allowed to matriculate at colleges, and that only those should be permitted to enter who possessed the required preliminary education.

Malpractice Suits.

The address in surgery, on this subject, was delivered by Dr. Winters D. Hamaker, Meadville, in which he dwelt particularly on the disadvantages of the physician when sued for malpractice, assigning as reasons: 1. His prosecutor is in nearly all cases without property, and the juries know that the counties must pay the costs if the suit fails. 2. In many of the cases the poor results have been brought about by neglect or disobedience on the part of the patient or his friends. 3. Before a jury a case may be made out worse than it really is or can be "made up" entirely. 4. Courts will not allow an examination under an anesthetic in order to make a complete diagnosis. 5. The profession has devised no system of common defense. 6. The juries are ignorant of the subjects discussed. 7. So-called experts, very often ignoramuses, are brought in to testify against the defendant. 8. The impossibility of obtaining good results in many cases of severe injury.

He urged that the surgeon in complicated cases should have frequent consultation or x-ray examinations, and insist on strict obedience from the patient. He referred to the insurance companies which had been formed to defend physicians from such attacks, and recommended that the society appoint a committee to investigate this matter, as well as to consider the advisability of attempting to secure more favorable legislation.

Hygiene and State Medicine.

The address on this subject was read by Dr. Alexander Abbott of Philadelphia. He stated that the subject should include nuisances and places which under improper care might become such, the compilation of vital statistics, the management of contagious diseases and the establishment of hospitals for the reception, as well as maritime and, when necessary, inland quarantine. He referred to the fact that the statistics showed larger mortality rates in contagious diseases than those of the rural districts, because therein illness, death and interment could take place without any record being made thereof. He especially urged the value of vital statistics of the regions from which the water and milk supplies of cities are obtained, and the prevention of the deposit of human waste in channels which would lead to the water supply. He believed the examination of the physicians for a license should be less theoretical and more practical. He particularly commented on the value of vaccination, giving detailed statistics of the recent Philadelphia epidemic.

The Need for Systematic Study of Individual Characteristics as Manifested by the Organisms' Reaction to Sensory Stimuli.

DR. WALKER, Dixmont, urged the importance of the individual study of each case, particularly the chemical and physical phenomena of nutrition and the vasomotor and secretory conditions.

The Physicians and the State.

This paper, by Dr. Benjamin Lee of Philadelphia, was read by Dr. Eugene E. Matson, Pittsburg. It called attention to the duties of the man entering the medical profession to his fellow citizens and the state, particularly his duty to have a cultivated mind, thoroughly trained in all the branches of the medical art. It also commented on his duty to the state in the compilation of vital statistics and in notifying the health authorities of contagious diseases. The paper stated the belief that it was the duty of every physician offered a place on the board of health to accept.

Personal Recollections of Drs. John L. and Washington L. Atlee.

DR. B. H. DETWILER, Williamsport, reviewed the life and work of these men, referring particularly to the introduction of ovariectomy by Dr. Washington L. Atlee.

DR. S. P. HEILMAN of Heilmandale referred to the remarkable vitality of Dr. John L. Atlee, at the age of 81 years, at which time he had performed an operation for him.

Indicanturia Complicating Typhoid Fever.

DR. JUDSON DALAND, Philadelphia, after going into the technique of the analysis for this substance, gave in detail the diet and treatment employed therefor, and expressed the belief that the condition was frequently present in these cases.

Remarks on Some New Clinical Methods.

DR. H. E. WETHERILL, Philadelphia, described a centrifuge in which the speed is attained by means of a twisted cord, and an instrument for measuring the perspiration.

The first session of Section A was called to order Wednesday by the president of the state society, Dr. William B. Ulrich, Chester, and was then presided over by Dr. M. V. Ball.

Drugs Vs. Other Methods of Treatment.

DR. T. W. GRAYSON, Pittsburg, referred to the present tendency among physicians to give greater attention to the use of diet, electricity, massage and hygienic measures generally, and not to depend so exclusively as formerly on drugs alone. This is shown by the text-books and by the fact that much besides drugs has been used in the treatment of tuberculosis, gastrointestinal diseases, malaria, rheumatism and typhoid fever. He did not wish to be termed a "therapeutic nihilist," but emphasized the fact that, though a certain drug may sometimes meet the condition, a better remedy is found in the use of hygienic measures which may be much harder for the physician to find and more troublesome for the patient to use than a bottle of medicine or a few tablets.

DISCUSSION.

DR. JAMES TYSON referred to the subject of polypharmacy and cited an instance of a prescription containing six different ingredients, and in which two capsules were necessary for a dose.

DR. BOYCE, Pittsburg, believed that no true physician would be ignorant of what may be done by diet, exercise and physio-medical measures, yet these could not be employed with the physiologic effect as could drugs. However valuable physical means might be, he would be sorry to see them put into the hands of men ignorant of the use of morphia, digitalis, and the drugs for treating symptoms.

DR. DILLER, Pittsburg, said that there should be obtained the true proportions between the relative value of hygienic measures and drugs and that there ought not to be any controversy between mechanical means and the use of drugs. He believed that polypharmacy was decreasing and was surprised that Dr. Tyson was able to cite such a remarkable case.

Asthma; Its Varieties and Their Treatment.

DR. S. SOLIS COHEN, Philadelphia, said that no condition exhibits so many individual peculiarities as asthma, which condition he declared to be a group of symptoms and not an independent disease. The underlying affection must be discovered before the diagnosis can be complete. In the presence of definite lesions in the heart and kidneys and so-called cardiac and uremic asthma supervene, the condition is not usually pure asthma, but dyspnea dependent on heart failure—sometimes, it is true, aggravated by the presence of uremic toxins. True asthma presents clinically four varieties: 1. Asthma dependent on vasomotor ataxia; 2. asthma dependent on bronchial spasm, muscular, and, perhaps, vascular; 3. asthma associated with chronic bronchitis and emphysema; 4. asthma associated with nasal turgescence and sometimes with polypi and other mechanical obstructions, or with enlarged glands and other sources of irritation in the nose and nasopharynx. These are not pathologic divisions, and are not co-ordinate, but permit useful working rules for practice.

In treatment, asthma dependent on vasomotor ataxia is to be prevented by constitutional measures and the administration of remedies which raise vascular tone. For the relief of the paroxysm he suggests the use of suprarenal spray or in-

halation, or, if necessary, hypodermic injection. The local application of suprarenal is especially useful in the nasal variety and any mechanical obstruction should be removed. Spasmodic asthma is to be prevented by avoidance of exciting causes and by the use of such agents as the nitrites. In cases associated with emphysema and chronic bronchitis, treatment with iodid of potassium during the intervals is especially useful. Especially useful is exhalation in rarefied air, and, when emphysema is not too excessive, this may be useful by combining with inhalations of compressed air. In this, as in all other measures of treatment, physical individualization is needed.

DR. JAMES TYSON believed that the use of the term asthma had become exceedingly careless, and said that the so-called pneumonic asthma is the result of a weak heart which has become dilated and unable to push the blood through the lungs; in the effort to get more air, there is edema of the lungs and sometimes consolidation. The application of the term asthma, therefore, to bronchial asthma is really speaking no more correct than the extension of it to the so-called uremic asthma. Dr. Tyson is apt to prescribe in the condition more commonly known as asthma, the iodids and belladonna, and with surprising success.

DR. G. HUDSON MAKEN cited a case of nasopharyngeal irritation as a cause of asthmatic breathing, which was cured by operation.

The Diagnosis of Major Hysteria.

DR. THEODORE DILLER, Pittsburg, read this paper, and emphasized the diagnostic importance of the condition. Failure in recognition of the condition he attributed to the too limited conceptions of its manifestations, a too great insistence on crying or laughing spells or convulsions as expressions of the affection, the failure to recognize that the symptoms may change little and persist for years, and that the disease may be thoroughly chronic and the failure to recognize the great diagnostic value of sensory changes. A clear recognition of hysteria and a positive statement to patient and friends that the disease is well understood constitutes the first step in treatment.

DISCUSSION.

DR. S. SOLIS COHEN referred to two great errors on the part of physicians in the treatment of hysteria: Vague diagnosis and an air of mystery which is maintained in even recognized cases. He agreed emphatically with Dr. Diller that a definite statement, even if incorrect, is better for the patient, for the family and for the physician than to allow the patient to consider himself the subject of some mysterious ailment, perhaps of some supernaturally inflicted visitation. Dr. Cohen further called attention to the importance of the better recognition of traumatic hysteria. He thought many physicians were to blame for their testimony in court tending to belittle the condition brought about.

DR. C. C. HERSMAN cited several cases of hysteria incorrectly diagnosed, and followed by consequent fatal results.

DR. J. M. FISHER, Philadelphia, emphasized the importance of certain gynecologic conditions which often bring about the symptom complex recognized as hysteria. Illustrative cases were cited which had been cured by the correction of disturbances of the pelvic organs.

DR. MAYER, Pittsburg, agreed with Dr. Diller that hysteria is a mental disease akin to insanity, and believed that physicians are prone to forget that the hysterical symptoms are due to a primary mental condition, that there is a congenital psychosis inherited in the individual.

Amnesia.

DR. C. C. HERSMAN, Pittsburg, reported the following clinical case: A man, aged 40, left his home in 1892 without cause. He thought he was going to the Atlantic coast, but went to Cleveland, returning in four days, when he wanted to start for his home in Austria. He was treated in a hospital for two weeks and at his home for three or four weeks, with complete recovery. In 1903 he left the city, not knowing where he went. Does not know where he first came to him-

self. He left Boston for Jamaica. He was under different names, which condition he thought was imperative. He felt as though he were undergoing a transformation, and a part of the time thought he was dead. He returned in six months, placed himself under treatment, and again made a complete recovery.

Lax Sanitation; the Cost of It.

DR. S. P. HEILMAN, Heilmandale, made a plea for a more united effort to secure legislation which shall prevent laxity in applying those sanitary precautions and safeguards to which the public is entitled. As a representative of the Society of the Associated Health Authorities and Sanitarians of Pennsylvania, he referred to two propositions made at the last annual meeting: 1. That the Medical Society of the State of Pennsylvania should be asked, with other societies, to unite in drafting a bill for the registration of vital statistics of the state. 2. That the society shall lend its influence to the enactment of law which shall provide for a county health officer and a deputy township health officer, who shall be under the instruction and direction of the State Board of Health, to supervise sanitary affairs of every township, independent of any local influence. Statistics were quoted showing the enormous pecuniary loss to New York and Pennsylvania in the last year from preventable diseases.

DISCUSSION.

DR. COHEN said that the public needed to be told such facts as had been stated, and suggested the advisability of such papers being read often where they could be heard by those who needed to be informed on such matters. What the physician needed to know was, what can he do toward the enforcement of proper legislation? With that knowledge given him, he personally was willing to do what he could.

The paper was also discussed by Drs. W. J. Campbell, Huntington; McKinley, Somerset; Erdman, Lehigh, and Bishop, who were all heartily in accord with Dr. Heilman.

(To be continued.)

Travel Notes.

XII.

AUSTRALIA.

ITS CLIMATE, DISEASES, PEOPLE, NATIVES, SYDNEY, HOSPITALS, MEDICAL PROFESSION.

NICHOLAS SENN, M.D.

CHICAGO.

ADELAIDE, AUSTRALIA, August 11, 1904.

The voyage from Auckland to Sydney takes four days. The first two days we encountered a strong northwesterly gale which, on shifting to southwest, brought with it the cold breath of the south polar region. Sailing in a southwestern direction the cold gradually increased until we entered the magnificent harbor of Sydney. Saturday evening, July 30. It was soon after leaving Auckland that it became apparent that we were in the vicinity of an entirely new world, with strange animals, trees, plants and flowers by the appearance of a rare and strange bird—the albatross. About half a dozen of these giant sea-gulls accompanied us from coast to coast, but carefully avoided the harbors. It is a magnificent bird with snow-white body, yellow straight bill, the upper part of which at its distal end is bulbous and its tip sharply curved downward, overlapping the lower; the enormous wings, measuring from tip to tip from eight to twelve feet, are white underneath, and the upper surface brown with the exception of its inner fourth, which is also white. These birds live on the waste material which is thrown overboard by the passing vessels. They fly with and against the wind nearly with the same velocity and with very little effort on their part, three or four strokes of their immense wings sufficing to start their graceful sailing movements, and by poising their body and wings in proper attitude they ascend, descend and make all kinds of curves

and circles with very little if any effort until a few active movements of the wings again become necessary to keep up the necessary momentum. They are very fast flyers and multiply many times the distance made by the steamer in their ceaseless to-and-fro flights in search for the very irregular and often scanty food supply. Many people are still under the erroneous belief that Australia is an island, and few, indeed, have a correct conception of the magnitude of this great continent which probably emerged from the bosom of the Pacific Ocean before the other continents saw daylight. It is nearly as large as the United States, inclusive of Alaska. Australia was first discovered by the Dutch and Spaniards in 1601-1606, and Captain Cook visited it in 1770, entering Botany Bay, near where Sydney is now located, April 28, where he landed and took possession in the name of King George III. For a long time England used it as a penal colony. There is perhaps no other country that presents to the stranger more characteristic features than Australia. Many things are the reverse to those who live north of the equator. When we have summer it is winter here. The tropical part of Australia is in the north and the frosts and occasionally a flurry of snow in the south. The crescent of the moon appears to us turned around. The animals are strange. It is the home of the strangest of all known animals, the duck-bill platypus (*Ornithorhynchus paradoxus*), which forms the connecting link between quadrupeds and birds. It is about two feet in length, has a flat black bill, webbed feet and body covered with a brown, silky fur skin like a beaver; it lays eggs and supplies the young with milk from its breasts. Australia is also the land where the giant emu (*Dromaeus nova-hollandia*) lives, a bird with only rudimentary wings and in size as large as the ostrich of Africa. Among the other strange animals there are the kangaroo, the wallaby, the kangaroo rat, flying fox, blind snakes and a small species of bear not larger than a guinea-pig, and the cassowary, a turkey as large as the emu, and more than sixty varieties of parrots. The vegetable kingdom is characterized by its great variety. The vast forests are composed of eucalyptus trees which are evergreen, but instead shed their bark annually; 400 species of this tree have been described; more than 10,000 of its indigenous plants have been classified. The great variety of the fauna and flora of Australia alone should be a sufficient inducement for all those who take interest in natural history to visit this land so full of Nature's strangest productions, all of which seem to point to the great age of this part of the world.

THE KANGAROO.

The kangaroo is a striking freak of Australia's fauna. For the purpose of increasing its speed, its only defense, Nature has supplied this animal with a fifth leg in the form of a long and powerful tail. Shorten the ears of one of our jack-rabbits one-half, lengthen the hind legs four times and add the tail of a kangaroo and it would be converted into a kangaroo on a small scale. This animal has a special interest for the surgeon, as the numerous delicate tendons of its tail have supplied a good substitute for catgut as a suturing and ligature material. For more than twenty years my friend, Dr. H. O. Marcy of Boston, has expounded the virtues, advantages and use of the kangaroo tendon in surgery, and through his influence it has become a very popular substitute for catgut in the practice of many American surgeons. I was somewhat astonished to find that American surgeons entertain a more favorable view of the utility of the kangaroo tendon than their Australian colleagues. Some of the latter never use it, some occasionally, and very few, if any, use it exclusively. It will interest the devotees of the kangaroo tendon ligature and suture to know that what they have been using is, as a rule, not the tendon of the kangaroo, but of the different species of wallaby. The kangaroo tendon is very coarse, at least the size of an old-fashioned knitting needle, altogether too large for general use. The wallaby is a very much smaller animal of the kangaroo family and yields a much finer material. There are three large species of kangaroo—the red kangaroo (*Macropus rufus*), the great gray kangaroo (*Macropus giganteus*), Bennett's tree kangaroo (*Dendrolagus Bennettianus*). The wal-

labys that furnish the tendon supply are represented by Parry's wallaby (*Macropus Parryi*), agile wallaby (*Macropus agilis*), brush-tailed rock wallaby (*Petrogale pericillate*), black wallaby (*Macropus robustus*). The rat kangaroo has a tail like a kangaroo and its fine, extremely delicate tendons, I am informed, have been used by some ophthalmic surgeons. The real kangaroo has become quite rare, as their skins are valuable and the price paid to market hunters was a sufficient inducement for them to carry on a war of extermination. For the same reason the wallabys have also become much less numerous. These animals are now protected during certain seasons of the year, which will, it is to be hoped, prevent them sharing the same fate that we meted out to our buffalo. The tendons are obtained by divesting the tail of its skin, cutting off its tip, grasping each tendon with forceps and extracting it with a jerk. The proximal end of the evulsed tendon is a little larger and more flattened than its distal end.

CLIMATE.

The Australian has a wide range from which to make a selection of climate, as it is influenced by latitude, elevation and distance from the coast. Floods and drought are the bad things which have seriously interfered with the continuous prosperity of the country, and they likewise have a decided influence on the climate. The northern part of Australia is tropical and has a tropical climate, and the vast forests secure for that section of the country an abundant rainfall and a luxurious vegetation. In the vast dry plains of the interior the heat during the summer months is intense; here the thermometer has been known to register as high as 140 degrees F. The Australian Alps consist of a range of mountains in the southeastern part of the country called Warragong by the natives. The highest peak is Mt. Kosciusko, which rises to an elevation of 7,176 feet. This forest-clad mountain range has a decided influence on the climate of the surrounding country, breaking the force of the icy winds from the south in winter and the land breezes from its summit moderating the heat during the summer months. The climate of Sydney is very much like that of Naples, with a mean annual temperature of from 58 to 62 degrees F. Frosts in winter are common; the highest temperature in summer does not exceed 104 degrees F. At Melbourne, 500 miles south of Sydney, very thin pellicles of ice are sometimes seen during midwinter on small, quiet pools of water; the summers are decidedly cooler than in Sydney. At Sydney the average annual rainfall is over 49 inches, and during the summer, from December to the beginning of March, the sky is cloudless and the nights generally cool, sufficiently so to remind the people of the use of woolen blankets. For the American visitor winter is the proper time to see Australia, as he will then escape our summer heat and will enjoy the Australian winter with its flowers and invigorating cool breezes.

PREVAILING DISEASES.

With few exceptions the prevailing diseases of Australia are the same as of our middle states. It has escaped the ravages of cholera. Sydney recently has had a number of cases of bubonic plague, but the rigid sanitary precautions resorted to by the Board of Health have succeeded in stamping out the disease. Malaria is met with only in the tropical part of the country. Pneumonia of a very virulent type occurs most frequently during the winter season. Acute articular rheumatism is quite rare. Influenza, scarlatina and measles make their appearance from time to time. Typhoid fever appears to be more frequent in the country and villages than in the large cities, as the latter have an excellent water supply. At Melbourne this disease is most prevalent during the holiday season, when the people leave the city for their vacation and live in the country towns, where the danger of infection from contaminated water is much greater. Isolated cases occur in the cities and can usually be traced to infected wells, which are still in use in parts of the cities that remain outside of the reach of the regular water supply. The skill of the medical men is well shown by the very low mortality which attends this disease and which does not exceed 6 per cent.

Prof. F. D. Bird has operated on three cases of typhoid fever in which a fatal termination from sepsis was imminent. He opened the abdomen, where he found a small quantity of serum, flushed with a hot saline solution, closed the wound and had the satisfaction of saving all of them, marked improvement being noticed as soon as the patients recovered from the immediate effects of the operation.

Tuberculosis of the lungs, joints, bones and lymphatic glands is met with in about the same frequency as with us. Leprosy prevails to some extent in Sydney and its vicinity. There are at present 17 cases in an isolation hospital on the coast at Botany Bay, several miles from the city. If a patient affected with leprosy has sufficient means to support himself in a house sufficiently isolated from other habitations he is not molested; if this is not the case he is compelled to seek the shelter of this "leprosy." Although actinomycosis is quite a frequent affection among cattle it is almost unknown in man. Blastomycosis is very rarely seen. Not a single case of hydrophobia has even been seen in Australia, although it has a large dog population, and the dingo or wild dog is numerous, as well as other animals capable of transmitting this disease. Tetanus is not more common than with us. In every large hospital from two to four cases are treated annually. In the acute form of the disease antitetanic serum has been found absolutely worthless as a curative agent. Hydatids are very common in the southern part of Australia, Adelaide and Sydney furnishing the largest percentage. The physicians attribute the disease to the drinking water. It affects most frequently the liver and lungs, but spares none of the internal organs. Operations on the brain for hydatid cysts figure in almost every hospital report. In all of the museums may be seen beautiful specimens of hydatids of the bones obtained by operation or postmortem specimens, illustrative of the extensive destruction of the entire shaft of the large long bones. It is also frequently found in the fascia and omentum. The disease is very rare in Queensland, resembling the geographic distribution of the disease in Germany, where it is very common in the northern part and rare in the southern. It has been observed in children from 3 to 4 years old. It pursues a more rapid course in the young than in the aged. Its course varies in different individuals. It may become latent when the cysts shrink and the symptoms subside. As the disease is often multiple, more especially in the liver and omentum, a number of operations may become necessary, as the surgeons have learned by experience that it is not wise to undertake too much at one time. Dr. Bird operated on a patient suffering from hydatids of the omentum nine times before he was able to eliminate all the cysts. The *x-ray* never fails in locating cysts affecting the upper surface of the liver; this diagnostic resource invariably yields a negative result when the under surface is affected. The methods employed in operating for hydatid cysts of the liver are not uniform. Dr. Bird cuts down on the cyst, makes a free incision, inserts the index finger, brings up the margins of the cut and stitches them to the external wound, extracts the lining membrane and drains. In operating for a cyst on the upper surface of the liver he resects a short piece of the eighth rib near the costal cartilage and through this wound deals with the cyst in a similar manner. He always drains. Dr. Fiaschi of Sydney, on the other hand, is in favor of suturing the wound at once, without drainage. In nine cases he was obliged only once to reopen the wound. At the Children's Hospital in Melbourne it has been observed that in 90 per cent. of the cases of hydatid cysts operated on an urticaria develops in from a few minutes to two hours after the operation, which disappears in the course of from one to two days and which is attributed to an intoxication by the contents of the cyst absorbed from the wound surfaces or the peritoneal cavity. The contents of monocytes are much more virulent than cysts which contain daughter cysts. In rare cases, after tapping or operation, speedy death from this cause takes place; tapping has consequently been abandoned.

THE PEOPLE.

Most of the original settlers of Australia came from England, Scotland and Ireland. These people have reserved their

habits and customs to a large extent, but in the course of time a new generation has grown up whose methods of life have been molded by climate, occupation and environments. The English, Scotch and Irish accents have not suffered on Australian soil; if anything, they have become accentuated, more especially the English. This accent is bad enough in London, but is worse here. In rapid conversation some words are unintelligible to the American. It does not take long for the stranger to find this out, as all he has to do is to tackle one of the big policemen and ask him for directions to find a certain street or place of business, and he will have to listen very attentively to interpret his brogue. The real Australian is determined to make the best of the present and enjoy life. His desire for great wealth is a very moderate one, and he will not sacrifice his personal comfort to obtain it. He is satisfied with an income that will insure for him an easy existence and the cherished personal comforts. He agrees with Juvenalis:

"Wretched is the guardianship of a large fortune."

You will fail to find here the careworn, determined faces that throw a gloom over the restless throngs that crowd the streets of Chicago and other great American business centers. The Australians are excessively fond of outdoor sport. Men and women, young and old, are equally determined to throw away the cares of life as often as possible and enter with heart and soul into the enjoyment of all sorts of outdoor sports. Every Saturday noon business is suspended and the whole afternoon is devoted to pleasure. Yachting, races, baseball, golf and cricket are the most popular outdoor amusements. On the Saturday I was in Sydney 30,000 people attended a game of baseball, and as a yacht race was going on at the same time and the many events elsewhere were well patronized, it is evident that nearly every family contributed its share to the vast outdoor crowds. Sunday is respected as a day of rest. All shops and saloons are closed. In the morning the churches are filled to overflowing and during the hours of worship all tram cars come to a standstill. In the afternoon the houses are deserted and the people congregate in the many public parks, botanical and zoological gardens. The Public Domain, across the street from the Botanical Garden, is the place for the stranger on Sunday afternoon if he is desirous to obtain a good idea of Australian life. On the Sunday I visited this park, which includes about forty acres, I found a moving sea of human beings, in the center of which a military band played martial music. A short distance from the periphery of this immense gathering were smaller groups in all directions. The first one I approached was an old-fashioned Methodist exhortation meeting with a leader on one side of the small open space. After each stirring song someone would step forward and in a few words relate his religious experience and encourage others to do the same. Almost within hearing distance of these revivalists was a much larger crowd listening to a fiery political speech, the subject of which was the pending election. In the middle of the next group, and it was not a small one, a tall, lean, long-bearded man was discoursing on personal magnetism, illustrating his smooth talk with crudely drawn pictures. He explained to the gaping men, young and old, the mysteries of love and how to prevent shipwrecks in the matter of the selection of a partner for life. He had fathomed the human heart to its very depth and evidently had his share of this world's experience. For the time being he gave his advice free and liberally, but undoubtedly at the end of his harangue he supplied his audience with his address so that they would have no difficulty in finding him to obtain further details. Several fake physicians were expounding the virtues of their specific remedies which would cure all kinds of chronic diseases which still baffle the skill of the medical profession. These men had their stuff with them and were lining their pockets with silver. The next orator was talking to a large crowd of laboring men on the evils of monopolies and our millionaires received their full share of condemnation. The Salvation Army and temperance people were also well represented in this complex of gratuitous humane endeavors. In the evening the great thoroughfares presented a similar

spectacle. Australia has more than its share of orators who firmly believe in the power of eloquence.

"Nothing appears to me nobler than to keep assemblies of men entranced by the charms of eloquence, wielding their minds at will, impelling them at one time, and at another dissuading them from their previous intentions."—Cicero.

The orderly behavior of the people and the close attention they paid to the speakers is deserving of well-merited praise. What Australia needs to develop its slumbering resources and to increase its prosperity is a larger population. The present population of this great country is less than 5,000,000, and statistics show that for the last ten years it has rather decreased than increased. Japanese and Chinese immigrants are, by a recent act, absolutely excluded. For some time these yellow people paid \$500 for the privilege of entering the country. Abject poverty and begging are almost unknown. All classes of people take a keen interest in educational and charitable institutions. The typical Australian is neither a European nor an American; he exhibits qualities that indicate the geographical location of his country half-way between the European and American continents, from each of which he has assimilated habits and customs which characterize his thought and action. He has acquired the business tact of the American and retains the love for recreation and amusement of the Europeans.

THE NATIVES.

The aborigines of Australia appear to be quite a distinct race and have nothing in common with the South Sea Islanders. They bear a closer resemblance to the Africans in the black or dusky brown color, thick lips, short flat noses, narrow, high and sloping forehead; copious growth of jet black straight hair. Mentally they are far beneath the Polynesians. They live a nomadic life without a permanent habitation and rely on fish and game for sustenance. They were a fierce, warlike people who with spear, arrow, clubs and boomerang, fought the whites persistently until they became convinced of the utter uselessness of their efforts to resist the superior force of the invaders. Even now the natives of Queensland in the dense forests and jungles occasionally show a hostile attitude toward the pioneers in the steadily advancing line of civilization. The natives, who numbered hundreds of thousands when the white man took possession of the country, as the result of a war of extermination, and acute and chronic infectious diseases introduced by the whites, have been reduced to a very small number. The census taken in 1902 shows that the present native population consists of 52,157 blacks and 7,128 half castes. The Tasmanians fared even worse than this. In 1803 the island had at least 5,000 inhabitants. The whites began a war of extermination which lasted thirty years. The crude implements of native warfare proved powerless against the firearms of the invaders, and when resistance ceased there were few left to relate the story of the heroic struggle made in the defense of their beloved island, and the whites could ease their conscience by asserting:

"It is the right of war for conquerors to treat those whom they have conquered according to their pleasure."—Caesar.

The race became extinct with the death of the last Tasmanian in 1876. Such is the cruel fate of the primitive races. Tuberculosis and syphilis are doing their insidious deadly work among the survivors of war and the ravages of acute infectious diseases, and their complete extermination is only a question of time.

THE MIKA OR KULPI OPERATION.

This custom was first noticed by Eyre (1845) in the country around the great Australian Bight, and is well described by Professor Stuart of the University of Sydney in a paper read before the Royal Society of New South Wales, June 3, 1896. The operation practically consists in, generally at the age of puberty, cutting the floor of the urethra so that it is slit completely open from below, the cleft sometimes extending only half-way back, sometimes the whole way back to the scrotum.

Sometimes a more perforation is made. The intent of the operation is to prevent impregnation and came into use as a safeguard to prevent a too rapid increase of the population, serving thus a useful purpose in diminishing the struggle for existence. The operation consists in creating a partial or complete hypospadias. "The incision is made with a sharp-edged piece of quartz, shell, flint, or, in more recent times, glass. These fixed with resin, twine, etc., into handles constitute the 'mika-knives.' The bleeding is stanching with sand, and the edges of the wound are burnt, Lemholz says, with hot stones—perhaps, as Etheridge suggests, to cauterize them—and keep from adhering again and healing by being kept apart with bits of stick, wood, bark or bone inserted between them, or by being filled with clay, or by being rubbed with a broad-edged stone." The operation constitutes a kind of a ceremony and is performed sometimes eight days after birth, but more frequently between the ages of 14 and 18. The men thus operated on are given privileges that are not within reach of the non-kulpi men. In regard to the effect of this mutilation on the chances of impregnation opinions differ. Eyre, who first described this condition, says: "This extraordinary and inexplicable custom must have a great tendency to prevent the rapid increase of population, and its adoption may perhaps be a wise ordination of Providence for that purpose, in a country of so desert and arid a character as that which these people occupy." Professor Stuart summarizes his very instructive paper in the following conclusions: 1. Nothing whatever can be definitely stated as to the origin of the custom. 2. The operation does not necessarily render the man sterile. It merely diminishes his fertility; what the degree of diminution may be will depend entirely on circumstances.

THE SURVIVING ABORIGINES.

A large number of natives still live in unexplored parts of northern Australia in their original state. The civilized portion has become a government charge like our Indians. They are extremely lazy and depend almost entirely on the government support. I visited two of these settlements, one at La Perouse on Botany Bay, seven miles from Sydney, and the other at Coranderk, near Healeville, forty miles from Melbourne. At each of these places there are about sixty persons, most of them half-castes. The first colony lives on a forty-acre tract of land; the latter has 5,000 acres set aside by the government for their exclusive use. At La Perouse they live in small huts made of corrugated iron; at Healeville there are small frame or brick houses. Some of the oldest members of these settlements retain their original type and were children when Sydney and Melbourne were villages. All of them speak English and the children have lost the language of their parents.

SYDNEY.

Sydney is a prosperous, growing city with 450,000 inhabitants. The houses are built of stone, brick and cement or brick alone. Most of the main thoroughfares are paved with hard-wood blocks, the spaces between them filled in with cement. The electric lighting and electric tram system, water supply and sewerage, the many public parks, library, museum, botanical and zoological gardens are the best proofs of the wide-spread public spirit of its citizens. The university, public and private schools, hospitals and other charitable institutions and the many churches speak well for the intellectual quality of its people. The location of the city on the hills inclosing the magnificent harbor compares well with Naples. The country around Sydney surpassed all my expectations. Dr. Hinder gave me an automobile ride of sixty miles and we passed through a country dotted with orange groves and fruit orchards, and a part of the faultless macadamized road led over mountains 900 feet high, through virgin forests skirting dark, deep ravines, with inspiring glimpses of country scenes in the far distance. The orange trees are small and not over six feet in height, with dark green shining leaves in such strong and beautiful contrast with the heavy burden of golden fruit. The forest, or as it is here called, the bush, was resplendent with flowers of all hues and blooming shrubs.

HOSPITALS.

Sydney has made ample provision for its sick poor. The public hospitals are supported by donations and annual subscriptions; the latter are doubled by the government, besides the government pays for each charity case \$5 per week. None of these hospitals has private rooms, but the patients who have means pay what they can toward their support, the maximum charge being \$5 per week. Medical and surgical service is rendered gratuitously by the members of the staff. The lack of private rooms in all of these institutions makes it necessary to establish private hospitals, a number of which are conducted by nurses; others are owned and managed by the surgeons themselves.

SYDNEY HOSPITAL.

The Sydney Hospital was founded in 1814 and the original building remains as a wing of the new building. It is a massive three-story stone building adjoining the Houses of Parliament. It is the largest of the hospitals, the number of beds aggregating 460. Two large marble tablets in the main hall are inscribed with the names of its donors in gilt letters. The smallest amount that entitles a person to this distinction is \$250; the largest contribution among the more than 100 names I noticed was \$11,500. The ceilings are high and the wards well lighted and ventilated. Scrupulous cleanliness prevails throughout. There are two operating rooms, one for aseptic, the other for septic cases, and both are well equipped for modern work. Ether is the favorite anesthetic and biniodid

land, M.B. (Ch.M. Sydney). The medical staff has an equal number of members. The specialists are well represented in this institution. A very interesting feature in this hospital is the meeting of all attending men for consultation every Tuesday evening. At these meetings cases are presented and difficult diagnoses settled, and advice freely given as to the best treatment to be pursued. This phase of the medical service has much to recommend for imitation in our great hospitals. Dr. Fiaschi, who conducted me through the hospital, showed me many cases of gastric and intestinal surgery, all doing well, and a number of cases of hydatids recently operated on. Operations for stone in kidney and bladder and removal of hypertrophied prostate are of very frequent occurrence. Dr. Fiaschi is in favor of the suprapubic route in both of these operations, while some other surgeons prefer the perineal in performing prostatectomy. I was somewhat surprised to learn that the ligature remains popular in operations for hemorrhoids. The annual report shows that 19 cases of hydatids were operated on with no death. Of these cases 13 involved the liver and the remaining other parts. Of 8 cases of prostatectomy 5 were cured, 1 relieved and 2 died. No mortality in 20 ovariotomies and only one death in 12 cases of operation for myofibroma.

ROYAL PRINCE ALFRED HOSPITAL.

This is a modern hospital in every sense and has accommodations for 250 patients. It is a solid red brick building three stories high, built on the pavilion plan. It is in this hospital

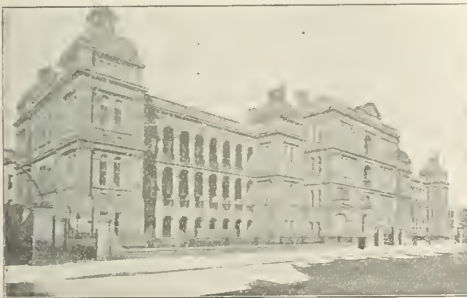


Fig. 1.—View of Sydney Hospital from the northwest.



Fig. 2.—The operating theater, Sydney Hospital.

of mercury 1 to 500 is used for hand disinfection, and catgut has the preference over kangaroo tendon as a suturing and ligature material. In the surgical wards I found many cases of fracture and excision of joints. Plaster of paris is used extensively as a fixation material, both in the treatment of fractures and after resection of joints. Hip-joint resections are usually made through the anterior Luecke incision. Asepsis is carried out in a thorough manner, as was evident from the many primary wound healings I saw. The medical staff is assisted by ten internes, graduates of the Sydney University. The appointment of internes is made on the merit of their standing in their college work. Those who have the best record go to the Prince Alfred Hospital; the Sydney Hospital has the next choice, then come the remaining hospitals. The internes receive a small salary, serve for one year and receive the benefit of all departments by transfer every three months. The Sydney Hospital has an excellent training school for female nurses which occupies a separate wing, the Nightingale wing. The course of training extends over four years. The nurses are in charge of a matron and five Protestant sisters. They receive a small compensation during their pupilage. A well-equipped laboratory and a complete Roentgen outfit add much to the scientific work of the institution. The attending surgeons are called "honorary surgeons." The present surgical staff consists of W. Chisholm, M.D. London, M.R.C.S. England; R. Steer Bowker, L.R.C.P. Edin., M.R.C.S. England; Thomas Fiaschi, M.D. and M.Ch. Univ. of Pisa; H. L. Mait-

that the students of the Sydney University receive their clinical teaching and training. It was founded in 1871 in memory of the Duke of Edinburgh, who visited Australia in that year and was wounded by a crank who shot him. It was framed as a general hospital and medical school for the instruction of students attending the Sydney University, and for training of nurses for the sick. It is managed by a board of fifteen directors. The chancellor of the university and the dean of the faculty of medicine are directors *ex-officio*; three directors are appointed by the government and the remaining ten are selected by the government and subscribers. The medical officers are all appointed by a conjoint board, consisting of the senate of the university and the directors of the hospital. The selection is made from the teachers of the medical school and the appointment is made for six years. The medical staff is composed of three physicians, three surgeons, two gynecologists, one ophthalmologist, one dermatologist, one rhinologist and aurist. A resident medical superintendent and six internes reside in the hospital. The clinical amphitheaters are small, furnished with wooden benches and desks, the latter a great convenience for the students in recording their observations. The training school for this hospital has seventy pupil nurses who remain for four years, but receive a small salary after their period of probation.

I found in this hospital, under the guidance of Dr. Alexander MacCormick, professor of surgery in the Sydney University, many rare and interesting cases of gastrointestinal surgery.

Professor MacCormick has a very large service in this institution. The remaining members of the surgical staff are Messrs. Charles P. B. Clubbe and H. V. C. Hinder, both of them eminent and successful surgeons. The gynecologic practice is in the hands of Messrs. Foreman and Thring, whose reputation extends far beyond the limits of Australia. The last annual report of this hospital shows some very remarkable statistics. Of 20 cases of hydatid of the liver operated on all recovered. In 30 cases of cholecystotomy operated on 26 recovered and 4 died. No death in 64 radical operations for hernia. In 16 cases of suprapubic and perineal cystostomy 2 died and 14 recovered. Sixty-five cases of simple appendectomy without a death; 27 cases of appendicitis with abscess formation with 7 deaths; 14 cases of appendicitis with rupture and peritonitis, 7 deaths and 7 recoveries. Three cases of pylorectomy without a death; 33 abdominal hysterectomies with 3 deaths; 60 cases of salpingo-oophorectomy for tubal disease with 2 deaths; 11 tubal gestations with no mortality. The operative records of this hospital make an excellent showing and would compare well with those of any hospital in America and Europe. The outdoor department is in a separate building and furnishes an enormous amount of material for the teaching of minor and casualty surgery.

MEDICAL PROFESSION.

The medical profession of Sydney is fully imbued with the spirit of modern medicine and surgery. Isolated as Australia is from the other continents, its medical profession keeps pace with the newest and best in medicine and surgery. The country has no lack of the very best medical talent. The three medical schools furnish an abundant supply of young, enthusiastic and well-educated doctors to fill the gaps made by death, retirement and removal, and for this reason the country has no need of medical men from without. The doctor's social standing in Australia is much superior to our own. His financial possibilities compare well with that of any other country. A fair average fee for a capital operation is \$250; maximum, \$500; consultation from \$10 to \$25, and visits average \$2.50; obstetric fee from \$10 to \$25. There are several men in Sydney whose annual income amounts to \$30,000. The country practitioners, of course, do not fare so well, but their expenses are so much less that at the end of the year their bank account makes a fair showing. The relations between the members of the medical profession are cordial and the commercial element is not nearly as rampant as with us. The requirements for entrance into the practice of medicine are not at all stringent. A licensing board examines the credentials of the applicant and, if the candidate is in possession of a diploma from a recognized medical school, he is admitted without passing an examination. The local branch of the British Medical Association meets monthly and the sessions are usually well attended. The Australasian Medical Congress meets every three years and includes New Zealand.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Tuberculous Peritonitis.

Jour. des Practiciens gives the following suggestions:

ACUTE.

The treatment of this condition may be outlined in general the same as for any acute peritonitis: ice on the abdomen, opium, and milk diet.

CHRONIC.

Surgical interference is rarely demanded; never, perhaps, unless there is intestinal occlusion or a suppurative process.

MEDICINAL TREATMENT.

External.—Paint the abdomen with tincture of iodine; when this is dry apply collodion. The following has also been recommended:

- R. Guaiacal m. xv | 1
- Olei olivæ m. cl | 10

M. Sig.: Paint the abdomen and cover warmly with cotton.

Brisk friction with soap has been tried. The actual cautery and fly blisters have relieved pain; the urine should be examined before blistering. The following soothing ointment is recommended:

- R. Extracti belladonnae |
- Extracti hyoseyami |
- Extracti conii, 5â gr. xv | 1
- Chloroformi m. xlv | 3
- Adipis benzoatæ 5i | 30

M. Ft. ointment. Sig.: Use morning and evening.

Internal.—Care should be taken not to disturb the digestion. Cod-liver oil is not well borne. The following is prescribed by the French:

- R. Infus. walnut leaves 5i 3 | 10
- Garus' elix. 5i 2/3 | 50
- Sodii arsenatis gr. 3/20 | 01
- Syrupi cinchonæ 5v | 160

M. Sig.: Two tablespoonfuls daily.

Garus' elixir is a favorite French compound of cloves, aloes, saffron, myrrh, cinnamon, nutmeg, vanilla, maidenhair fern, orange flower water, sugar and alcohol. As this elixir probably could not be obtained in the United States a substitute might be used.

In cases of diarrhea, instead of giving the arsenic internally, hypodermic injections of sodium cacodylate should be administered; these might be alternated with injections of lecithin or the glycerophosphates.

Thomas of Geneva advises:

- R. Olei morrhuae 5iii 1/3 | 100
- Creosoti (beechwood) gr. viiiss | 50

M. Sig.: Use for a daily enema.

For diarrhea, bismuth, opium, and tannic acid are indicated; for constipation, castor oil.

GENERAL HYGIENE.

As in pulmonary tuberculosis, hygiene is important, plus good and nourishing foods, e. g., eggs, broiled meat, fresh butter, milk, milk stews. Fresh air, plenty of rest, and the seashore is advisable when the fever has subsided.

Facial Paralysis.

Pritchard, in the *Internat. Clinics*, vol. i, gives the following outline of treatment for this condition:

1. Massage the face daily with inunctions of lanolin.
2. R. Strychnin sulphatis gr. 1/25 | 0025
- Quinin sulphatis gr. i | 06
- Ferri carbonatis gr. iii | 2

M. Ft. capsule No. i. Sig.: One such capsule three times a day.

3. The application of electricity in the form of galvanism is made three times a week. An Erb electrode, 2x4 inches, is applied back of the neck, and to the paralyzed side of the face an adjustable (pliable, flexible) Erb electrode, 2x4 inches, is applied. Five to seven milliamperes of electricity are introduced by means of the rheostat and the seance lasts from 10 to 25 minutes. Faradism, with a current of high tension, on alternate days would prove advantageous, especially in preventing atrophy. The empirical use of potassium iodid is sometimes of benefit, when given in doses of from 5 to 10 grains well diluted.

Influenzal Sciatic Neuritis.

1. Functional rest so far as possible. It may be necessary to put patient to bed; it may be necessary to apply the long hip splint so adjusted that local applications of heat or cold

may be made along the course of the nerve. The actual cauterization may be advisable at times.

2. If drugs are necessary for the pain it is not worth while to waste time with the coal tar products or anti-rheumatic remedies, but resort to morphin in sufficient doses.

3. Electricity applied as follows is useful: Galvanism daily, from 5 to 10 milliamperes through the largest sized Erb electrodes, one under the right foot and the other under the buttocks, the patient sitting on the well-protected electrodes.

4. Massage given daily, gently at first; all so-called Swedish movements being avoided.

5. For general internal medication the author recommends the following:

R. Strychnin sulphatis	gr. 1/40	0016
Acidi arsenosi	gr. 1/50	0013
Quinin sulphatis	gr. i	06

M. Ft. capsule No. i. Sig.: One such capsule three times daily.

The author urges the utmost conservatism in surgical intervention, and recommends the thorough study of the case for a possible causative factor; e. g., diabetes, gout, malaria, pelvic tumors, hyperplastic conditions of the bones, aneurisms, varicose veins. Flat foot may induce symptoms closely resembling sciatica.

Intercostal Neuritis.

The author recommends the following two formulas, the second one having given the best results:

R. Quinin salicylatis	gr. iiii	20
Codein	gr. ¼	016
Quinin sulphatis	gr. i	06

M. Ft. capsule No. i. Sig.: One such capsule every four hours.

R. Strychnin sulphatis	gr. 1/25	0025
Caffein	gr. i	06
Quinin sulphatis	gr. ii	12

M. Ft. capsule No. i. Sig.: One capsule every three hours.

Brachial Neuritis.

The undershirt is lined with lamb's wool fleece covering the shoulder and arm down to the wrist. Daily injections of lanolin by very gentle massage are given. Galvanism is given daily as follows: one electrode, 2x4 inches, heavily protected back of the neck, the extended hand resting comfortably on the other electrode, which is of the same size. The current is introduced cautiously for the first two or three treatments and the quantity must not exceed 3 milliamperes. Gradually the current is increased to 3 or 4 and even to 8 milliamperes. The following is recommended for internal use:

R. Codein	gr. ¼	015
Quinin sulphatis	gr. i	06
Sodii salicylatis	gr. iiii	2

M. Ft. capsule No. i. Sig.: One capsule every four hours.

Diet in Diabetes.

Hutchinson, in the *London Practitioner*, gives the following suggestions for the dietetic treatment of diabetes:

In severe cases a change of diet must be made very cautiously. If the addition of a few drops of a solution of the perchlorid of iron causes the urine to assume a dark port wine color, such a patient is in danger of coma, which may apparently be precipitated by any sudden change in dietetic habits. The carbohydrates should be reduced very slowly, and bicarbonate of soda given in doses of from one-half to one ounce daily. If the patient shows signs of failure and coma by the gradual withdrawal of the carbohydrates and the substitution of the proteids and fats, it is best to abandon all attempts at a rigid diet and allow a definite quantity of carbohydrates in the form of bread and milk. In any event in this class of cases it is not advisable to give more than the equivalent of 500 grams of nitrogenous food daily.

If the perchlorid of iron test is negative a more strict diet may be adhered to without much anxiety. The sudden or the gradual method may be used; the latter is to be preferred. Eliminate from the diet sugar, and all the grosser forms of the carbohydrates, then the farinaceous foods, then bread, and finally even milk, each of the articles being replaced as it is

withdrawn, by a carbohydrate-free substitute. The author gives the following as the final strict diet:

Breakfast: Bacon or buttered eggs, or both, or some cold ham; casoid-meal bread with plenty of butter; coffee made with sugar-free milk and sweetened with saccharin.

About 11 a. m.: A glass of sugar-free milk and a diabetic biscuit or rusk.

Luncheon: Any animal food, e. g., a little cold meat or game, or some fish; cheese; salad with plenty of oil; some starch-free bread; as a beverage, any natural wine or a little spirit and aerated water.

Afternoon: Tea with plenty of thick cream and a diabetic rusk or two, or biscuit, with plenty of butter.

Dinner: Any clear soup with the addition of some grated cheese; fish; any meat; green vegetables with melted butter; baked custard made of sugar-free milk and eggs; beverage as at luncheon.

At bedtime: A glass of sugar-free milk and a diabetic rusk or biscuit. If after a few weeks the patient has been doing well a small quantity of weighed bread may be allowed and the condition of the urine carefully watched.

FATTY FOODS.

"It may be truthfully said that the usefulness of any article of diet to a diabetic is in direct ratio to the amount of fat which it contains. Fat is the only nutritive constituent of food, which can not do a diabetic any harm; it never increases the output of sugar." "The best forms of fatty food are bacon and butter (each of which contains about 80 per cent.) cream (60 per cent.), and salad oil or olive oil (which are pure fat). Every diabetic should learn to consume at least a quarter of a pound of butter a day; his bread should be soaked in it, and it should be used as a sauce for green vegetables and fish. Cream may be taken in tea or coffee. If there is difficulty in digesting enough fat, the administration of a little alcohol at meals will often improve matters."

Medicolegal.

Improper Questions for Judge to Ask Expert Witness.—The Supreme Court of Georgia holds, in *City of Columbus vs. Anglin*, that it is error for a trial judge, after an expert witness has testified, to ask him questions so framed as to intimate an opinion that the testimony of the witness is improbable or erroneous.

Insanity or Unconsciousness as Defense.—The Supreme Court of California says, in the case of *People vs. Nihell*, a prosecution for assault with a deadly weapon, that the instruction given the jury that the burden of proof is on the defendant where the defense of insanity is relied on was, as a proposition of law, correct. It was contended, however, that the defense in this case was not insanity, but that the defendant was unconscious of the act. But this could not render the instruction prejudicially erroneous. The theory of the defense on the trial seemed to be that the defendant was unconscious from the dual effects of liquor and epilepsy. The jury could not fail to see that the instructions regarding insanity related to that peculiar mental condition that the defendant claimed to have been in, by whatever name it might be called. And, thus understood, it was correct to say that the burden was on him to establish the peculiar mental condition which he relied on as a defense. Men are presumed to be conscious when they act as if they were conscious, and if they would have the jury know that things are not what they seem they must impart that knowledge by affirmative proof. The rule as to the burden of proof was correctly stated, whether it be applied to insanity or to unconsciousness as a defense; and the refusal of instructions recognizing the opposite rule was proper.

Power to Quarantine—Construction of Health Laws.—The Supreme Court of Minnesota says, in *Town of Isoco vs. Board of Commissioners of Waseca County*, that the town, during the months of February and March, was afflicted with one case of diphtheria and a smallpox epidemic. It was claimed that un-

der the statutes the board of supervisors of the town, together with the physician to be employed by them, when, in their judgment, necessary, constituted the board of health, and that the duty of ordering and enforcing a quarantine rested with that body as a legal entity; hence that the action of the chairman of the board of supervisors of the town, who immediately, on notice from the secretary of the state board of health, proceeded to employ a physician, and then take steps to enforce a quarantine, was without authority, and furnished no sufficient basis for subsequent reimbursement against the county. But the court holds that where the chairman of the town board of supervisors, on information of the secretary of the state board of health, received information that an epidemic of smallpox was prevalent in his town, and incurred expenses to quarantine the persons afflicted therewith, but without receiving specific authority therefor from the town board of health, and the expenses were audited and paid by such board, the want of authority to order the quarantine was sufficiently ratified to authorize reimbursement from the county under the statutes in force at the time. It says that the provisions of law for the protection of the public against the spread of a pestilence are remedial, and to be largely and beneficially construed, to advance and subserve, but not embarrass, the purpose of their enactment. Effective regulations can not be promptly and successfully enforced without the employment of efficient means to accomplish that result, which requires the speedy use of the necessary remedial agencies. To delay the institution of a quarantine until the board of supervisors can be called together might defeat the very purpose of the statute, and deprive the community of the benefits intended by the health laws of the state. Hence, under an emergency such as was found to have existed in this case, where the chairman of the town board acts immediately in good faith, incurring expenses of a beneficial nature to the public, the court regards it as its duty to hold that a practical construction of the statute must be given to accomplish the purposes intended thereby. To sensibly give effect to the health laws to secure a protection of the public, a liberal and sensible view must be taken of the law to secure its object, and no technical objection that would prevent its enforcement according to the spirit and purpose of the statutory regulations should be sanctioned.

Validity of Practice Act.—The Supreme Court of California says, in *ex parte* Whitley, with reference to the constitutionality of a statute exempting from its requirements those practicing at the time of its passage, that in some instances the question arose under acts regulating the practice of medicine, and in others, as here, regulating the practice of dentistry; but the same reasoning would apply and the same constitutional principles govern as to the validity of provisions of a dental as of a medical act, because the profession of dentistry is but a special branch of the medical profession, and the power of the state to regulate as to both in the interests of the public is equally clear. Such legislation has been uniformly upheld. It is neither special nor class, and no privileges or immunities are conferred thereby on one class to the detriment of another. Nor does the court find any merit in the contention that the statute arbitrarily creates three classes of persons who may practice dentistry in the state after examination: 1, Graduates of reputable dental colleges; 2, graduates of high schools or similar institutions of learning requiring a three years' course of study, who have served an apprenticeship of four years with licensed practitioners within the state; 3, dentists from other states who have been licensed practitioners for five years. The court says that it is entirely within the power of the legislature to fix any reasonable standard for determining the competency of an applicant for admission to the practice of dentistry. It might, as under the act regulating the practice of medicine and surgery in California, where only those who are graduates from a medical college can be admitted to practice, have also made a similar single standard, limiting admission to practice dentistry to those alone who had graduated from some dental college. As this might have been the sole condition on which an applicant could be examined, it can

not be said that legislation which enlarges the right and extends it to others can be said to be discriminatory. The law, no doubt is discriminatory, but not in any constitutional sense. It does not discriminate between classes. The discrimination goes to the degree of learning and skill which all applicants for examination must possess. It is a discrimination which, in the interest of the public welfare, it is the duty of the legislature to make, and concerning the necessity for which, and its nature and extent—whether an examination and right to practice shall depend on the possession by the applicant of a diploma of a dental college only, or be extended to others and how far—depends primarily on the judgment of the legislature which, when reasonably exercised, the courts can not control. And the court says that the power to determine whether a college was reputable had to be lodged somewhere, and it was properly committed to the only body which could fairly and intelligently determine, not only the qualifications of the applicant, but on the reputation of the college whose diploma he claimed to possess—the state board of dental examiners.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

October 7.

1. *The Advantages of Combining Various Modern Methods in the Radical Cure of Hernia, and the Use of Local Anesthesia. M. B. Tinker.
2. *Atypical Cases and Dust Infection. Robert Hessler.
3. Total Coloboma of the Optic Disc Without Affection of the Chorioid; Total Trichemia; Ectropion Uvea; Retained Pupillary Membrane. R. Chance.
4. *Ethyl Chlorid as a General Anesthetic. A. B. Craig.
5. Treatment of Chronic Suppurative Otitis Media. J. G. Luizaga.
6. *Present Status of the Etiology of Malignant Growths. Raymond Wallace.

1. **The Radical Cure of Hernia.**—The adoption of the important suggestions of a number of different surgeons with reference to the radical cure of hernia is advocated by Tinker, who believes that such a combination operation is superior to any of the numerous methods which have been devised. The Ferguson method of closure, with the imbrication or overlapping method of Andrews, with excision of the veins of the cord, as suggested by Bloodgood; transplantation of the rectus muscle, by Woelfler, and transplantation of the neck of the sac behind the internal oblique, probably would give the results necessary to a radical cure. This composite method has all the advantages of any of these single methods, and a great many advantages not possessed by most of them. Of course, the value of faultless surgical technic can not be overestimated. Tinker also advocates local anesthesia, principally because of the lessened danger to life. He uses a 1 to 500 cocaine solution to which a 1 to 120,000 solution of adrenalin chlorid is added. This prevents oozing by delaying the rapidity of absorption, practically eliminates all danger of poisoning, at the same time adding greatly to the efficiency of the anesthesia. The solution does not need to be freshly made, and it can be boiled without deterioration.

2. **Dust Infection and Dust Disease.**—Under the name dust disease, or dust fever, Hessler describes an acute infectious, endemic disease, due to the inhalation of dust contaminated by sputum. The specific diseases which can be transmitted through the agency of dust or which may follow the inhalation of dust, such as pneumonia, tuberculosis, typhoid fever, etc., are not included in the definition, but only those heretofore vague and illly defined symptom-complexes that are variously referred to or misdiagnosed as "colds," "biliousness," sick headache or migraine, hypochondria, etc., or as atypical cases of influenza, rheumatism, neurasthenia, gastritis, malaria, etc., or as cases of a rheumatic or gouty diathesis, or of lithemia, not to mention autointoxication, eyestrain, etc. Dust disease is characterized clinically by an irritation of mucous membranes; vague wandering pains throughout the body, mostly referable to the mus-

cles or ligaments; lassitude, headache, feverishness, and anorexia, up to vomiting, marked nervous disturbance and severe localized pain. It is often followed by other specific diseases. The disease is most prevalent in crowded cities, although country people may become affected or attacked on going to the city. It is absent among arctic explorers and weather observers in high mountains. Dust disease belongs to that class of affections in which there are no marked or recognizable pathologic lesions. Mucin may play an important part. The causative factor is infective dust. It is most common in the fall and spring, when high winds prevail and when the streets are not sprinkled. The practical application of the recognition of dust disease or of a knowledge of the evil influence of the dust lies along the line of prevention, pointing out to the afflicted the nature of their ailment and its cause. The inhalation of a sputum-contaminated atmosphere, also a history of attacks after similar exposures, and the absence of the disease while living in a good atmosphere, are important points in making a differential diagnosis. The treatment is principally prophylactic.

4. **Ethyl Chlorid.**—Craig says that the merits of ethyl chlorid as a general anesthetic are not fully appreciated. The drug is peculiarly adapted to conditions requiring brief anesthesia, such as the various minor surgical procedures occurring in dispensary service of general surgery and gynecology; in a fairly wide field in obstetric practice, and in much of the operative work of the nose and throat specialist. Its use is especially indicated in young subjects. Only the pure preparation of the drug should be used for general narcosis, and the best method of administration is some form of the "open" method—either the Ware mask or the ordinary gauze compress, the former requiring a smaller amount of the drug. It is not suited for prolonged operations, as it does not produce complete muscular relaxation.

6. **Etiology of Malignant Growths.**—Wallace summarizes his paper as follows:

It would appear that as the dividing line between various neoplasms is so difficult to determine, and the transition from a non-malignant to a malignant growth depends on such slight conditions, that contrary to all infectious conditions which might be considered analogous, exceedingly few cases have been recorded of malignancy in the newborn, and exceedingly few cases in childhood, which also militates against any theory of direct heredity; a multiplex and varying etiology must seem the most plausible. Intrinsic irritation of the cell-proliferating mechanism in the nucleus may, with the advance of cell chemistry, yield certain autogenous factors; but as extrinsic factors, may be summarized; various physical, chemie and physiologic irritations and the irritations caused by parasitic life, any of which cause an evident disturbance in cell-proliferation, as it were, a loss of equilibrium, which leads to insane proliferation and the consequent formation of neoplastic growths. The degree of malignancy would then depend on the rate and type of proliferation, and the loss of function and consequent reversion of type in the proliferating cells, attest the theory of nuclear or chromatin alteration or rearrangement. The foregoing argument, based on both clinical observation and pathologic data, is offered, perhaps, as a slightly different phase of a much-discussed and ever-important subject.

New York Medical Journal.

October 1.

- 7 Mitral Regurgitation. O. L. McKillop.
- 8 The Present Condition of Tenoplasty. (Continued.) Professor Vulpius.
- 9 *Professional Responsibility in Accident Cases Involving Litigation. John T. Roberts.
- 10 *Some of the Difficulties to Be Overcome in the Radical Mastoid Operation for the Cure of Chronic Purulent Otorrhea. Frank Allport.
- 11 *Headache in Relation to Diseases of the Nose and Nasopharynx. Oscar Wilkinson.
- 12 *Report of a Case of Sigmoid Sinus Thrombosis. Operation Without Ligation of the Internal Jugular Vein; Recovery. Gorman Bacon.
- 13 *Hereditary Abnormality of the Little Finger. George T. Mundorf.
- 14 The Fly as a Carrier of Tuberculous Infection. E. H. Hayward.

9. **Professional Responsibility.**—The professional responsibility of the medical attendant or examiner employed by the party sued for damages and that of the doctor of the patient, says Roberts, are identical. The duty of both is to obtain, as soon as possible, restoration of the victim's health and a just settlement of the pecuniary debt of the agent responsible for the accident. The writer emphasizes two points: 1. That an ignorant, careless or injudicious doctor may be the real cause of many cases of traumatic hysteria and neurasthenia, and, 2.

that prompt settlement of damage suit is an inestimable aid in the cure of accidental injuries associated with litigation.

10.—This article has appeared elsewhere. See THE JOURNAL of September 10, title 82, page 759.

11. **Headache and Diseases of the Nose.**—Headache as a symptom is mentioned in connection with the following diseases of the nose and nasopharynx: Acute rhinitis, specific rhinitis, hay fever, asthma, hyperesthetic rhinitis, hypertrophic, atrophic, fetid and non-fetid rhinitis, morbid conditions of the osteo-cartilaginous framework, such as deflected septum, thickening of the septum, pressure on the septum, exostoses, synechia, and caries; sinusitis; benign growths of the nasopharynx, such as adenoids, polypi, syphiloma, echondroma, papilloma, osteoma, and rhinoscleroma; malignant growths of the nasopharynx, first, by pressure on the nasal membranes from their rapid growth, and, secondly, a constitutional condition due to cancer cachexia; finally, foreign bodies in the nose and rhinoliths.

12. **Sigmoid Sinus Thrombosis.**—Bacon's patient, following an attack of gripe four years ago, had an acute mastoiditis on the right side, which subsided promptly under treatment. The present illness began three weeks ago, when she had another attack of gripe followed by a severe throbbing pain in the left ear and side of the head. Four or five days later there was a discharge, profuse and thick at first, and tinged with blood. On cutting down on the mastoid process, the cells were found to be filled with pus. The mastoid tip was removed, and the sigmoid sinus exposed for one inch below the knee. It was covered with granulations, and in removing these the sinus wall was accidentally injured. In spite of every precaution, sepsis developed, necessitating a second operation. On incising the sinus between two points of compression, it was found that a thrombus was forming at the bulb. After this operation the temperature gradually came down and the patient made an uneventful recovery. Bacon thinks it probable that the infection of the sigmoid sinus is due to the accidental injury of its wall during the mastoid operation, although it is possible that the infection had already reached the sinus in the usual way. Although there was but a slight flow of blood from the bulbular end of the sinus during the second operation, he did not ligate the interior jugular vein, believing it unnecessary, as the clot in the vein had not broken down. The symptoms of sepsis subsided as soon as the parietal clot in the bulb was removed with a curette.

13. **Hereditary Abnormality of Little Finger.**—Mundorf's paper is the result of an examination of 38 persons, all descended from one individual. The deformity was a permanent flexion of the little finger, resembling the condition known as Dupuytren's contraction. In the members of this family, consisting of grandfather, children and grandchildren, the deformity occurred in 14; in one hand in 11 persons, and in both hands in 3 persons. In 10 cases the little finger of the right hand only is abnormal, and in one case the little finger of the left hand only is abnormal. Each of the five children also suffered from hallux valgus, but the deformity was not transmitted to the grandchildren, except in one case. Mundorf believes that these findings point to a strong hereditary influence.

Medical News, New York.

October 1.

- 15 A Case of Tumor of the Spinal Cord in the Cervical Region. George Woolsey.
- 16 The Need of Efficient Public Health Work in the Suburbs. George A. Soper.
- 17 *Cytodiagnosis in Pleural Effusions. Herbert S. Carter.
- 18 *An Analysis of 42 Cases of Venous Thrombosis in Typhoid Fever. W. S. Thayer.
- 19 *The Treatment of Simple Rectal Fistula by Excision and Suture Without Cutting the External Sphincter Muscle. Howard A. Kelly.
- 20 Observations on the Blood and Circulation in Unclamped. W. G. Harrison.
- 21 Presidential Address; Our Aims. S. J. Meltzer.
- 22 Report of a Case of Obstinate Phosphatic Diathesis Cured by Systemic Dilatations of the Posterior Urethra. George T. Mundorf.

17. **Cytodiagnosis in Pleural Effusions.**—With a view to establishing the value of cytodiagnosis in pleural effusions, especially those of tuberculous origin, Carter carefully examined 56

cases, 10 of which were of known tuberculous origin and 20 of probable tuberculous origin. In 6 cases the effusion followed lobar pneumonia. His results are extremely suggestive, and because of their uniformity in the various series of cases, certain facts may be accepted as positive. He found that all true pleural effusions have a specific gravity over 1010, usually much higher, with an average of about 1017.9; a high fibrin and albumin content. Pleural transudates, on the other hand, have a low specific gravity, the average being about 1008, a small fibrin and albumin content. An almost certain diagnosis of tuberculous pleurisy can be made by the morphologic examination of the fluid. It rests on its having a high specific gravity—1012 to 1024, average 1018.6; a large amount of fibrin and albumin, with an accompanying lymphocytosis. If a polymorphonuclear leucocytosis is found before the third or fourth day of a tuberculous pleurisy, subsequent examinations will be necessary to establish a positive diagnosis. Post-pneumonic serous effusions have a very high specific gravity, averaging 1016.5; large fibrin and albumin content, with a polymorphonuclear leucocytosis, 58 to 92.5 per cent., averaging 71.7 per cent. A differential diagnosis between a pleural transudate and a tuberculous pleurisy can not rest alone on a differential cell count, as they both show a lymphocytosis, but must rest on a more complete examination, including the specific gravity and the amount of fibrin and albumin. The fluid should be examined as promptly as possible after aspiration. The color, turbidity, specific gravity, reaction and relative albumin content are then obtained. When the fluid cools the presence or absence of a fibrin clot is noted. This is a gelatinous mass when seen fresh and undisturbed, but on agitation of the fluid collects into a small oblique mass of more dense fibrin, resembling that seen after whipping fresh blood. Guinea-pigs may be inoculated for bacteriologic diagnoses with from 2 to 9 c.c. of the fluid, the injection to be made subcutaneously into the anterior chest wall. To complete the examination, a conical tubeful of the fluid is rapidly centrifuged for five minutes and the sediment stained on a cover slip with Jenner's differential stain. A differential count is then made of the leucocytes; the endothelial cells, erythrocytes and general characters noted.

18. **Venous Thrombosis in Typhoid Fever.**—Thayer has gathered together statistics with regard to cases of venous thrombosis occurring in the course of typhoid fever. Out of 1,463 cases of typhoid fever, there have been 39 instances of venous thrombosis, a percentage of 2.6. Two cases were admitted during convalescence, while one case, a patient who had suffered from double iliac thrombosis coming on during typhoid fever, entered the hospital for treatment two years later. In all these cases the onset occurred almost invariably in the third week or later. Local pain and fever were usually the first symptoms. The fever sometimes preceded the localizing symptom. In 28.2 per cent. of these cases there were chills, the chill in several instances preceding the appearance of localizing symptoms. As a rule, the condition was associated with an increase in the number of leucocytes, the leucocytosis apparently depending on the extent of the lesion. In mild cases it may be absent. The thrombosis was commonest in the lower extremities, especially on the left side. The femoral vein was most often involved. Thayer says that in the event of a sudden severe pain in the lower part of the abdomen, coming on during the latter part of typhoid fever, and associated with a leucocytosis, the possibility of iliac thrombosis should always be considered. Venous thrombosis in a lower extremity is always a serious complication of typhoid fever. Although the immediate danger is not great, the after-results are often grave. In thrombosis of the popliteal or deep veins of the calf alone, the permanent changes are much less severe, though the leg always remains larger than the other. In thrombosis of the femoral vein a greater or less part of the blood from the affected extremity is often carried up by the iliac vein of the opposite side, the current crossing the abdomen through an anastomosis in the hypogastrum, resulting in a characteristic triangular area of varicose veins.

19. **Treatment of Simple Rectal Fistula.**—Kelly describes a

method which he has tried in five cases, with three successes. However, to employ his method successfully, the fistula must be simple and direct. He empties the bowel thoroughly, having the patient under his care for at least two days before the operation. The rectum is dilated under anesthesia, and a pack is inserted within the ampulla. The external orifice of the fistula, which must be free from any signs of surrounding inflammation, is then circumscribed, and after being grasped with forceps, the fistulous tract is carefully dissected out up to its abutment of the mucous surface of the bowel, in the region of the internal sphincter muscle. The rectal orifice is next carefully excised through the wound so as to make a transverse opening parallel to the sphincter fibers, when the excision is completed and the fistula removed. If the wound is a shallow one, it may be closed with a few interrupted silk-worm-gut or silver-wire sutures, extending from the skin surface down to the bottom, care being taken to draw the circular muscle fibers together above and below the rectal orifice, and to avoid leaving any dead spaces. The margin of the bowel is next everted and the operation concluded by closing the opening on the mucous surface with fine silk suture. It is a good plan, says Kelly, to cut away some of the mucosa below the rectal end of the fistula, so that when the mucous membrane is sutured the mucosa from the upper margin of the opening is drawn down and sutured to a point a centimeter or more below the orifice, in this way covering it in by withdrawing the line of suture from any direct relation to the deeper wound. No effort should be made to move the bowel for from five to seven days, keeping the patient on a diet consisting of nothing more than sips of albumin water. If suppuration occurs, the infection breaking through into the bowel, Kelly advises passing one blade of a pair of scissors or a bistoury through the opening, dividing it with one cut and packing it, the patient in that event being no worse off than if an ordinary incision and packing operation had been done.

Medical Record, New York.

October 1.

- 23 *A Critical Review of the Study of Cancer. Anna M. Galbraith.
- 24 Electricity in Medicine. A. D. Rockwell.
- 25 The Idea of Gross Cleanliness in Surgery and Its Harmful Results. Robert T. Morris.
- 26 Traumatic Apoplexy. Pearce Bailey.
- 27 The Indications for Surgical Intervention in Chronic Gastric Ulcer. Frank H. Murdoch.
- 28 *Peculiar Nervous Symptoms Following Operation. W. R. Blalock.
- 29 Some Thoughts Concerning Two Recent Cases of Ectopic Gestation. A. Brothers.
- 30 Esophageal Diverticulum; Operation; Death. H. A. Bernstein.

23. **Study of Cancer.**—Some of the more striking features of the review by Galbraith of the study of cancer covering the last two hundred years are: 1, That cancer is almost wholly absent in the tropics; 2, that cancer is very rare among savage races; 3, that with the advance of civilization and the increased prosperity of nations there has been a steady and marked increase of cancer; 4, that this disease is more prevalent among the well-to-do and wealthy than it is among the poor; 5, that it is more common among men; 6, that it is hereditary; 7, that it is a disease par excellence of the climacteric; and 8, that in order for tumors to become malignant a lessened physiologic resistance of the whole tissues or of the body in general is necessary. As to treatment, the first step taken must be in the direction of prophylaxis; when a woman reaches the age of 40 she must be placed in the best possible position for the resistance of this disease. Should cancer make its appearance, an immediate operation is imperative. If the case, when first seen, is too far advanced to make operation advisable, or should there be a recurrence of the disease, the x-rays and violet rays, combined with serumtherapy, offers the greatest hope. Based on the absence of cancer in the tropics, and that other well-known fact that light is capable of killing the tubercle bacillus, treatment by direct sunlight should be instituted.

28. **Peculiar Nervous Symptoms Following Operation.**—Blalock removed a cystic tumor in a young woman, aged 22, who, seventy-two hours after the operation, began to have slight twitchings, not confined to any special muscles. Soon after the

patient became unconscious, the right leg and arm were extended, the left was drawn up; the jaws were locked; the pupils were normal. When she was allowed to be perfectly quiet for awhile the lower jaw was dropped, but as soon as she was touched the jaws would close violently. This condition lasted eight days, during which time the patient received large quantities of normal salt solution. The temperature never exceeded 99, and only once did the pulse rise to 130. The patient eventually made a complete recovery.

Boston Medical and Surgical Journal.

October 1.

- 31 Disease of the Myocardium. Henry Jackson.
- 32 *Abscess of the Liver Following Abdominal Infections, with a Report of Four Cases. Daniel F. Jones.
- 33 *The Blood Pressure in Fevers, Before, During and After the Administration of Strychnia. Richard C. Cabot.
- 34 Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (Continued.) Percy Musgrave.

32. **Liver Abscess Following Abdominal Infections.**—Jones has collected 114 cases of abscess of the liver following abdominal infection from the literature. Of these, the appendix was the focus of infection in 100 cases; salpingitis or pelvic cellulitis in 11 cases, and perforating gastric ulcer in 3 cases. The most frequent situation was the right lobe, close to the posterior superior surface. It was the seat of the abscess in 50 per cent. of the cases, both lobes in 44 per cent., the left lobe in 6 per cent. The varieties of abscesses found were: 1, Multiple abscesses, usually situated near the periphery, and varying in size from that of a pinhead to that of a walnut; 2, the single abscess, usually situated close to the periphery, but may be found in any part of the organ; 3, large single abscess surrounded by a colony of small ones; 4, two or more large abscesses, widely separated; 5, several large abscesses which may connect; or, 6, one large abscess, with the remainder of the liver filled with small ones. The portal vein was found to be infected in 55 cases; in 38 it was not stated whether the vein was infected, while in only 21 was it stated that it was not infected. Of 114 cases, 16, or 14 per cent., were operated on for drainage of the abscess; 7 cases, or 44 per cent., recovered, while of those not operated on none recovered. It is interesting to note that of the 7 recoveries, in 3 one or more ribs were resected; in 2 the abscess was in the left lobe and drained through the abdomen; in 1 it was in the right lobe and drained through the abdomen; while in another, after an abdominal incision had been made and closed, the abscess ruptured through the incision. Jones adds to this list of cases culled from the literature, 4 cases seen by him, 2 of which were undoubtedly the result of appendicitis. One was possibly due to the result of appendicitis, though there was no definite proof of this, and 1 was the result of an abscess in the region of the pylorus, probably a perforated gastric ulcer. All of these cases were operated on, but only two recovered.

33. **The Effect of Strychnia on the Blood Pressure in Fevers.**—Cabot noted the effects of strychnin on the blood pressure in 31 cases of typhoid, 4 of pneumonia, and 15 others with a variety of diagnoses. In 32 cases the strychnia was given by mouth and in 18 subcutaneously. The total daily dose was usually 1.8 grain, sometimes 1.6 grain. Records were taken for days and occasionally for weeks before and after the drug was given. All measurements were taken with Stanton's modification of the Riva-Rocci instrument at intervals of a few minutes to several hours, succeeding the administration of the strychnin. The observations extended over about eight months, and included about five thousand measurements. The total result was negative. Cabot was unable to convince himself that strychnin exerts any influence on the blood pressure of febrile cases when given in the manner and dose mentioned above. There was no change in the blood pressure following the administration of the drug in 24 cases, a fall in 17, a rise of 5 millimeters or more in 16 cases. The average pressure in the 50 cases that received a daily dose of strychnia was no greater than in 18 cases without any drug.

St. Louis Medical Review.

September 21.

- 35 An Instance of Heredity in Werthoff's Disease. John Knott.

October 1.

- 36 Remarks on the Surgery of the Biliary Passages. Maurice H. Richardson.

Cincinnati Lancet-Clinic.

October 1.

- 37 Retroversion. J. C. Tritch.
- 38 Pericemental Abscess. D. D. Smith.

Therapeutic Gazette, Detroit.

September 15.

- 39 *Feeding and the Rest Cure in Typhoid Fever. H. A. Hare.
- 40 Some Observations on Malaria with Special Reference to the Disease as Complicating Enteric Fever. A. S. Pendleton.
- 41 Vertigo. Charles J. Aldrich.
- 42 Alveolar Pyorrhœa; Its Cause, Sequelæ and Cure. D. D. Smith.
- 43 *The Use of Sodium Chlorid After an Application of Silver Nitrate. Walter R. Griess.
- 44 Sepsis and Asepsis in Intranasal Surgery. Joseph S. Gibb.

39. **Feeding and Rest Cure in Typhoid.**—Hare fails to see any reason that would justify disordering metabolism by the institution of a rigid single diet, and is fully impressed, from personal experience as well as from physiologic facts, with the utter inadequacy of the pure milk diet in the treatment of typhoid fever. It is his custom to give all patients after the first week of typhoid from one to two soft-boiled eggs a day in addition to the ordinary allowance of milk, and to vary their diet by the use of curds and whey, rice which has been boiled to a pulp, barley, wheat, and oatmeal gruel, and a cup of cornstarch with vanilla or some other flavoring substance of a like character. As a result of this diet he very rarely sees marked ataxia, which is so common a symptom in convalescence and typhoid; and the patient's nutrition is so well preserved that he is but little more emaciated than many cases of acute pneumonia at the time of recovery. Secondary complications like furuncles and bedsores are unknown. He believes that the average case of convalescent typhoid fever is a fair mark for any infection, because the patient is half starved. Recognizing that typhoid fever is characterized by a deficient secretion of digestive juices, all his patients receive hydrochloric acid and pepsin with their proteid foods, and taka-diastase and pancreatin when carbohydrates are used. He is utterly opposed to the use of beef tea, which he believes acts as a first-rate culture medium and frequently increases tympanites and diarrhea, and the stools become infected under its use. Hare considers that the value of the modern method of treating typhoid by cold depends in great part on the fact that when cold bathing is used the patient, who is undoubtedly suffering from a form of toxic neurasthenia, receives a form of rest cure which maintains strength and puts him in first-rate physical condition. The free use of cold water is not the chief factor for good in these cases, but the rubbing or massage which follows these baths is of the very greatest importance, aiding the dissipation of body heat, readjusting the circulation and exerting on the patient the beneficial effects which follow the use of massage as seen in the rest-cure treatment of neurasthenia. Therefore, he advocates the employment of the Weir-Mitchell rest cure in the treatment of typhoid fever. Equally good results can be obtained if these patients are properly sponged, with friction, instead of being plunged. The sponging possesses the additional advantage that the patient does not have to be moved from his bed, that the great muscles of the back can be given more attention than the anterior portion of the body, thereby increasing the dissipation of heat very greatly and preventing the formation of bedsores. Patients with a temperature below 102.5 should be given tepid baths with friction. Since he has been feeding his patients, Hare finds that he is giving them less alcohol than formerly, probably because the patient burns up food products in the body instead of burning up alcohol. He throws out the suggestion that alcohol may act as a stimulant on the functions which are connected with immunity and the ability of the body to resist infection.

41. **Vertigo.**—The entire subject of vertigo is discussed by Aldrich, and several cases are reported. He emphasizes the value of the hemadynamometer in making a differential diagnosis in certain forms of vertigo.

43. **Sodium Chlorid and Silver Nitrate.**—The use of a solution of sodium chlorid after the application of silver nitrate to any

part of the urethra has shown itself, in the hands of Griess, to be of great value. The indications and reasons for the employment of sodium chlorid are: 1, The silver salt can be used with greater comfort to the patient, as all excess silver is precipitated; 2, the desired effect from silver nitrate is accomplished quickly, therefore an excess should not remain in the urethra, as it not only causes unnecessary pain, but actual harm; 3, the caustic effect of the silver salt is eliminated to a great extent; 4, the stronger per cent. solutions of the silver salt, which are often necessary, can be used, for overaction or caustic effect need not be feared; 5, the application can be made more general; 6, clinical evidence shows that this method of application yields excellent results and that the proper per cent. solutions to really do good can be used. The application of the solution of sodium chlorid should be in a manner the same as is employed when the silver was injected, by means of a deep urethral syringe. Enough time should elapse after the application to allow the operator to remove the syringe, wash it out, and then proceed as he did with the first injection.

Physician and Surgeon, Detroit and Ann Arbor.

September.

45 *Intracranial Tumors in the Insane, with a Report on Two Cases. Irwin H. Nell.

46 The Study of Pathology. George Dock.

47 Remarks on Biliary and Hepatic Surgery. Hal C. Wyman.

45. Intracranial Tumors in the Insane.—Owing to the difficulty in securing a subjective history, and also to the resistance often offered by the patient to the necessary examinations, cases of brain tumors in the insane are quite frequently overlooked or remain unrecognized during life. Nell reports two cases of brain tumor, both patients being pronounced insane at the time of admission to the asylum. In one case the psychical condition was thought to be dependent on syphilitic brain disease; in the other case, epilepsy was believed to be the cause. A short time after admission to the asylum, a diagnosis of brain tumor was made in the first case, but its exact site, which proved to be basal, was undetermined. In the second case a large subcortical sarcoma, involving one entire hemisphere and extending to the opposite side, was recorded as an anomalous case of parietic dementia; but during the latter months of the patient's illness a brain tumor was suspected. Both cases had a clear history of syphilis, but at the autopsy neither of them showed the characteristic lesion of luetic brain disease. Nell considers the first case a particularly interesting one, as it demonstrates that an intracranial pressure can be directly responsible for not only the general symptoms of brain tumor, but also for "focal symptoms," which are commonly ascribed to localized lesions. The tumor was located about the center of the middle cerebral lobe, and was quite extensive. There was no infiltration of brain tissue, but simply absorption from pressure. The tumor had a definite capsule composed of very thin fibrous tissue. The interesting factors in the second case, a sarcoma of the entire left cerebral hemisphere, extending to the right basal ganglia, the right temporosphenoidal and about one-half of the frontal lobe, were the persistence of fixed and systematized delusions of persecution; the disturbance of speech; active and severe attacks of delirium, and symptoms indicating "focal disease."

University of Pennsylvania Medical Bulletin, Philadelphia.

September.

48 *The Heart and Circulation in Pregnancy and the Puerperium. Alfred Stenzel and W. B. Stanton.

49 *Pictorial Groups or Charts Used in the Course in Surgical Pathology, with a Brief Outline of the Course. Charles H. Frazier and George P. Muller.

50 On the Histological Behavior of the Cardiac Muscle in Two Examples of Organization of Myocardial Infarcts. Allen J. Smith.

51 *A Clinical Study of the Diazo Reaction. W. Taylor Cummins.

52 A Note on Laboratory Teaching in the University of Pennsylvania. Alfred Stenzel.

48. Circulatory System in Pregnancy and Puerperium.—Stenzel and Stanton have made a very careful study of the heart and circulatory system during pregnancy and the puerperal state in 60 cases, in order to determine what changes, if any, take place. They conclude that there is not, during pregnancy, any hypertrophy of the left ventricle, nor any special increase in its work. That the increase of dullness toward the

left is due to the upward displacement of the diaphragm and the consequent displacement of the heart in an upward and outward direction. That after labor the heart returns rapidly to its normal position. The extension of dullness toward the left in the second and third interspaces, the frequency of distinct pulsation and a systolic murmur in the same area, the authors believe to be due to distension of the conus arteriosus and the root of the pulmonary artery. They are convinced that during the later months of pregnancy there is some continuous dilatation of the right ventricle, though this is apparently of very moderate degree. In multiparae, separation of the recti materially lessens the tendency to displacement of the diaphragm and diminishes in a corresponding degree the displacement of the heart during pregnancy. After delivery this distention of the recti may occasion a downward displacement of the apex of the heart, and the contrast before and after labor may be quite as pronounced as in the primipara. Later, if the separation of the muscles is not considerable and the normal tone of the abdominal walls is regained, a restitution to the normal of the heart and its apex occurs. The investigations of the blood pressure made by the authors show that there is no material increase either before or after labor. During labor there may be a notable increase in the blood pressure, which may be explained by the holding of breath, the expulsive efforts, etc.

51. The Diazo Reaction.—Cummins has investigated the value of the Diazo reaction as an aid in diagnosis, and sums up his paper as follows: 1. The Diazo reaction is of importance in differentiating a relapse from a complication in typhoid fever. 2. It may be of assistance in separating measles from German measles. 3. It has great prognostic significance in pulmonary tuberculosis. It does not appear until late, and is usually noted in a rapid case. When it once appears it persists until death. The average duration of life after the appearance of the reaction is about six months. An unfavorable prognosis should be given in every patient presenting this reaction. 4. The Diazo reaction at a dilution of 1 to 40 is of some value in the diagnosis of typhoid fever, but on employing a dilution of 1 to 150 other conditions are eliminated (except a small percentage of tuberculous cases), and the test, therefore, is considerably enhanced in value.

Southern Medicine and Surgery, Chattanooga.

September.

53 *Some Remarks on the Diagnosis of Typhoid Fever. Greer Banghman.

54 Treatment of Typhoid Fever. Wm. S. Gordm.

55 Modification of Fracture Splints for Thigh Fractures. G. A. Baxter.

53. Diagnosis of Typhoid.—For the diagnosis of typhoid in the first week, Banghman says the practitioner will have to depend on: 1. The history of malaise, anorexia, chance of infection, headache, etc. 2. Temperature curve. 3. Pulse (out of proportion to the fever and sometimes dirotic). 4. Tympanitis; gurgling in the right iliac fossa; tenderness. 5. Rose spots at the end of the week. 6. Widal's reaction. 7. Blood examination, normal leucocytes, but increased mononuclears and decreased polymuclear count. 8. Diazo reaction. 9. Isolation of bacilli in feces. 10. Isolation of bacilli from blood and rose spots or splenic puncture, when practicable.

Journal of the Michigan State Medical Society, Detroit.

September.

56 *The Relation of the Appendix to Pelvic Diseases. Reuben Peterson.

57 Succinic Peroxid. Charles C. Yarbrough.

58 Cause and Treatment of Puerperal Eclampsia. A. N. Collins.

59 Eclampsia and Vaginal Cesarean Section. J. H. Carstens.

60 Pneumonia in Children. Loren Curtiss.

56.—See abstract in THE JOURNAL of September 10, title 37, page 756.

57. Succinic Peroxid.—According to Yarbrough, this is an organic peroxid derived from succinic acid. It is a fluffy, finely crystalline powder, soluble, colorless, stainless, odorless, non-poisonous, non-volatile and practically non-irritating. It does not coagulate albumin. It is also non-corrosive to animal tissues, non-explosive and non-hygroscopic. It is useful for the sterilization of the hands, local surface areas, instruments and

appliances, dressings, sponges, etc., taking the place of bichlorid, hydrogen peroxid and carbolic acid. It may also be used internally as a wash, gargle, injection, in the form of the powder, for insufflation and as a dusting powder.

59. **Eclampsia and Vaginal Cesarean Section.**—Severe continuous puerperal convulsions, says Carstens, are often fatal, or leave serious sequelae, hence require the most heroic treatment. Prompt delivery affords the best—in fact, the only—chance for success. Vaginal cesarean section enables the accoucheur to deliver promptly.

Pennsylvania Medical Journal, Pittsburg.

September.

- 61 Medical Organization. John B. Donaldson.
 62 *Case of Appendicitis with Fecal Fistula. W. S. Langfitt.
 63 Otitis Media. J. B. Follmer.
 64 Wounds and Their Treatment. Henry D. Michler.
 65 The Unique Position and Value of Mercury in Therapeutics. L. Newton Snively.
 66 Removal of the Crystalline Lens in High Myopia. Edward Stieren.
 67 Pathologic Anteflexion of the Uterus. John H. Givlyn.
 68 Mechanical Version of the Diagnosis of Valvular Lesions of the Heart. J. C. O'Day.
 69 Another View of Medical Progress. M. R. Evans.
 70 *Ecarache. G. Hudson Makuen.
 71 Typhoid Fever. R. Myers.

62. **Appendicitis.**—Langfitt reports a case of suppurative appendicitis in which, after operation, the condition of the patient became progressively worse because of obstinate constipation. Finally a fecal fistula established itself at the stump of the appendix, and much fecal material was discharged through it. The temperature on the following day was normal; the patient in fine condition, with the fistula discharging and the bowels moving freely. Ten days later temperature rose to 102, vomiting reappeared, with great pain and distension. Examination revealed the fistula to be closed. Langfitt made a second fecal fistula, and an enormous amount of fecal material was discharged through the new opening. On the following day vomiting ceased and pulse and temperature were normal, and remained so throughout convalescence. The immediately improved condition of the patient after the formation of each fistula is convincing evidence of its worth.

70. **Ecarache.**—Makuen discusses the causes of ecarache and the treatment, at the same time advising that every physician familiarize himself with the use of the head mirror and the aural speculum so as to enable him to diagnose diseases of the external auditory canal and the tympani. It is essential to detect middle ear complications in their incipency.

Northwest Medicine, Seattle.

September.

- 72 Some Practical Points in General Paresis. Walter T. Williamson.
 73 Report of a Case of Perforation of the Gall Bladder in Typhoid Fever. Park W. Willis.
 74 *Humanity and Common Sense vs. Idealism in Venereal Prophylaxis. G. S. Peterkin.

74. **Venereal Prophylaxis.**—The object of Peterkin's paper is to demonstrate that the best and most logical method of venereal prophylaxis is the education of the individual; that the educator must realize that every man must and will make his own morality; that the educator's line of argument, to be efficient, must deal with universal and necessary principles and be based on natural conditions, not idealisms; that from a standpoint of morality, there are many men in various degrees of moral evolution; that they evolve by degrees; that different arguments appeal to different degrees of evolution; that to appeal to all classes and any individual, one must possess a good knowledge of every side of the subject to be dealt with and the principles that govern its action. He advises that scientific facts should be stated in a systematic, concise, yet acceptable manner, so that men and women, knowing them, will see the necessity of protecting themselves, and in so doing will limit the spread of venereal disease. He suggests that these facts may be arranged in pamphlet form under the following heads: 1. Facts for all men. 2. Facts for some young men. 3. Statistics showing the dangers and monetary losses caused by venereal diseases. 4. Personal prophylaxis against venereal disease for men during sexual indulgence. 5. Personal prophylaxis against venereal disease for women during intercourse.

Southern California Practitioner, Los Angeles.

September.

- 75 *Stab Wound of the Heart; Report of a Case. Arthur M. Smith.
 76 *Ectopic Gestation; Report of a Case. Titian Coffey.
 77 (Chorea); a Thesis. S. R. Davis.
 78 *Trephining of Skull Twelve Years After Accident. Will S. Smith.

75. **Stab Wound of the Heart.**—Smith reports the case of a man, aged 22, who received a stab wound in the left breast, between the fourth and fifth ribs, two inches to the left of the sternum, the knife blade penetrating the right ventricle. When seen thirty minutes after the infliction of the wound the radial pulse was imperceptible; the heart sounds were barely audible. A curved incision, about six inches long, was made, beginning at the upper border of the fourth rib, extending through the stab wound to one inch to the right of the left border of the sternum. Two inches of the fourth and fifth ribs were resected, together with a portion of the sternum. The pericardium was opened, and the heart brought up into the field of operation. The laceration was ragged and parallel with the heart muscle. It was closed with a continuous silk suture. The pericardial cavity was washed with normal salt solution and the sac sutured with a continuous silk suture. Silkworm gut was used to unite the skin flaps, a gauze drain being inserted. Moist bichlorid dressings were applied, and over these a pad of absorbent cotton and a binder. During the operation, which lasted about fifty minutes, the patient was receiving normal salt solution in both thighs. The patient felt well and was doing nicely up to the time of death, which occurred seven days after operation. The cause of death was pericarditis. At the autopsy it was found that the laceration in the pericardium and in the heart wall had healed perfectly and there was not the slightest oozing. The sacs contained an apparently healthy fluid, but with adhesions from the sac to the heart. The posterior surface of the heart and left ventricle was covered by plastic inflammatory exudates. The heart wound was filled with healthy granulation tissue.

76. **Ectopic Gestation.**—The case reported by Coffey was operated on at the eighth month of pregnancy because the patient had ceased to feel life. The skin of the fetus was slightly macerated; the membranes were intact on the head and lifted over the scalp at the hair line like a cap. The patient gave a history of a severe pain and hemorrhage at the end of the first month of pregnancy, at which time, no doubt, the embryo was passed into the abdominal cavity, where it continued to develop among the intestines. Considerable difficulty was experienced in removing the placenta, but eventually the patient made a splendid recovery.

78. **Trephining Twelve Years After Accident.**—Smith's patient consulted him twelve years after sustaining a compound fracture of the skull, with depression of the inner table, because of a persistent, dull, aching pain on the left side of the head, which also affected the muscles of the neck and was referred downward to the left hand. A very strange symptom was that the patient could turn his head to the right side without turning his body, but when he tried to turn his head to the left side he would have to turn his body to the same side. The depression corresponded internally to a point about the middle third of the central convolution. The under surface of the bone was chiseled away to correspond with the size of the external opening; the underlying thickened portion of the dura was removed, and the wound closed with silkworm gut, a gauze drain being inserted for the first twenty-four hours. The operation was successful in every way. Worthy of note in this case is the action of aseptic ergot, which the patient received hypodermically twice a day after the operation. The ergot not only relieved the pain, but also produced a quiet, refreshing sleep.

Louisville Monthly Journal of Medicine and Surgery.

September.

- 79 Remittent Fever. Cassius D. Mansfield.
 80 Case of Splenic Leukemia Treated by the X-Rays. J. T. Dinn.
 81 *Internal Hemorrhage from Ectopic Gestation Without Rupture of the Sac. E. E. Montgomery.

81.—This article has appeared elsewhere. See THE JOURNAL of August 20, title 64, page 571.

Journal of the Kansas Medical Society, Lawrence.

September.

- 82 Care of Perineum During and After Confinement. S. B. Langworthy.
- 83 Topographical Anatomy of the Human Head as Shown by a Series of 11 Drawings of Cross Sections. Marie A. Greene.

Journal of Cutaneous Diseases, New York.

September.

- 84 Affections of the Mucous Membranes in Their Relation to Skin Diseases. John A. Fordyce.
- 85 Ibid. M. F. Engman.

Canadian Practitioner and Review, Toronto.

September.

- 86 Uncertainties of Diagnosis and the Necessity of Early and Vigorous Treatment of Diphtheria. T. F. McMahon.
- 87 Surgical Treatment of Gastric Ulcer. Frederick W. Marlow.
- 88 Financial Responsibility of the Medical Examiner for Life Insurance. Bruce L. Rorison.
- 89 Some Observations on the Nursing of Typhoid Fever. Elizabeth C. Gordon.

Iowa Medical Journal, Des Moines.

September 15.

- 90 Case of Prostatectomy. Wm. H. Corrigan.
- 91 Delirium. Gershom H. Hill.
- 92 Smallpox in Worth County in 1899, 1900 and 1904. J. Herbert Harvey.
- 93 Case of Intestinal Obstruction from a Meckel's Diverticulum. A. B. Poore.
- 94 My Theory About the Cause of Tumors. G. L. Stempel.
- 95 Observations on the Treatment of Puerperal Infection. Q. C. Fuller.
- 96 The Dosage in the Treatment with Iodium. J. Rudis Jicinsky.
- 97 Shall We Amend Our Therapeutics and Our Prognosis? A. M. Linn.

Ophthalmic Record, Chicago.

September.

- 98 Some Remarks About Glaucoma. Joseph A. White.
- 99 Lipoma of the External Rectus Muscle. Casey A. Wood.
- 100 Hysteria or Dissimulation. Arthur C. H. Friedman.
- 101 The Relation Between Presbyopia and the Range of Accommodation; a Simple and Convenient Formula. F. B. Eaton.

Kentucky Medical Journal, Louisville.

September.

- 102 In What Per Cent. Is the Regular Profession Responsible for Criminal Abortions, and What Is the Remedy? C. J. Auld.
- 103 Common Sense in Surgical Technic. Ap. Morgan Vance.
- 104 Present Epidemic of Pneumonia. R. D. Pratt.
- 105 Pneumonia, Its Mortality, Contagious Character and Prophylaxis. Louise Southgate.
- 106 Acute Ascending or Landry's Paralysis: Report of a Case in a Child of Two Years. Henry E. Tuley.
- 107 Why Properly Paid County Health Officers are Essential in Kentucky. J. N. McCormack.
- 108 Enterocolitis. C. P. Harville.

Canadian Journal of Medicine and Surgery, Toronto.

September.

- 109 Report of a Case of Bilateral, Congenital Dislocation of the Hip Treated by the Lorenz Bloodless Method—Brief Review of the Present Status of the Lorenz Method. H. P. H. Galloway.
- 110 The Diagnosis of Modified Smallpox (so-called). Charles A. Hodgett.
- 111 A Case of Gastrostichsis or Fissura Abdominalis. Joseph H. Peters.

American Medical Compend, Toledo, Ohio.

September.

- 112 Diagnosis of Pathologic Conditions at the Hip Joint. Thomas H. Manley.
- 113 Things of Specialism and of This Society That Make for Optimism. William M. Beach.
- 114 How to Curette. C. M. Harpster.
- 115 Early Diagnosis and Treatment of Diphtheria. W. D. Stewart.
- 116 Intestinal Parasites in Children. C. E. Monroe.

Journal of the Mississippi State Medical Association, Vicksburg.

September.

- 117 The Medical Treatment of Dysmenorrhœa. J. M. Alford.
- 118 Pelvic Abscess. W. H. Scudder.
- 119 Treatment of the Opium Habit by Hyoscin Hydrobromate. J. M. Catchings.
- 120 The Country Surgeon and His Nurse. J. T. B. Berry.
- 121 Remarks on Empyema. L. Sexton.
- 122 Better Hospital Facilities for Our Public Institutions, Jails, etc. J. H. Rhodes.
- 123 "Pain in the Bottom of the Belly." E. J. Johnson.
- 124 Dislocation of Spine—Report of Case. J. D. Donald.

Medical Standard, Chicago.

September.

- 125 Clinical Report of a Case of cholecystitis Calculosa with Cholecyectomy. Byron Robinson.
- 126 Empyema of the Maxillary Sinus; Etiology and Diagnosis. James M. Brown.
- 127 The Dark Ages of Medicine. E. J. Kempf.
- 128 Autointoxication and Its Treatment. Heinrich Stern.

Journal of Mental Pathology, New York.

Nos. 1, 5.

- 129 Case of Toxic Polymenitis Probably Due to Aniline Poisoning. Eugene Meier and E. Gemelli.
- 130 On the External Appearance of the Nervous Elements of the Cerebellar Cortex of Young Mammalia. M. J. Gonyewitch.

- 131 Contribution to the Study of Mental Impulses. N. Yaschide and P. Meunier.
- 132 Remarks on a Case of (Pre)oculous Attention to Esthetic Sensations. Raymond Meunier.
- 133 Suicidal and Homicidal Acts. Their Clinical Aspects and Medical Significance (Continued.) Louis G. Robino vitch.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The Lancet, London.

September 2.

- 1 *Arteriosclerosis. Thomas D. Savill.
- 2 Fever in Children Caused by the Ingestion of Certain Kinds of Carbohydrate Foods. Henry Davy.
- 3 *An Analysis of 150 Cases of Death from Bronchopneumonia. Percy Hardy.
- 4 A Plea for the More Extensive Use of Tuberculin as a Curative and Prophylactic Measure. Albert S. F. Gruenbaum.
- 5 A Case of Perforated Duodenal Ulcer; Operation; Recurrent Hemorrhage; Gastroenterostomy; Recovery. Herbert W. Allingham.
- 6 A Case of Hematopyrinuria Not Due to Sulphonal. G. L. Thornton.
- 7 *The Channels of Infection in Tuberculosis in Childhood. L. A. Kingsford.
- 8 *Some Points in the Prevention of Epidemic Diarrhea. J. T. C. Nash.
- 9 A Case of Nephritis Simulating Diabetes Insipidus. J. Brunton Clark.
- 10 Death Certification. Wm. Perry.
- 11 A Note on the Pathology of Lateral Curvature of the Spine. G. C. Steele Perkins.

1. Arteriosclerosis.—During the past seventeen years Savill has made a careful study of arteriosclerosis, especially in regard to arterial hypermyotrophy and the other morbid changes which occur in the muscular tunic of the arteries. He contends that the pathology of the different tunics of the arterial system should be studied separately, just as are the different coats of the heart. That advanced atheroma and a considerable degree of intimal and adventitial sclerosis may exist without serious consequences and be compatible with extreme old age, provided the muscular tunic is unaffected. The prime importance of the muscular tunic, relatively to the intima and adventitia, in that it constitutes the functionally active structure of the arterial system and the regulator mechanism of the whole body, should not be overlooked. There is no doubt that arterial hypermyotrophy, as a substantive generalized change in the arterial system, exists, and its importance must be recognized by reason of the potential evils in the way of circulatory derangements, circulatory accidents, nutritional disturbances, disturbance of the balance between the heart and artery and the degenerations which are apt to ensue. Arterial hypermyotrophy is the first step toward senile decay, and it is the main cause of senile or postural vertigo at any age. The combination of arterial hypermyotrophy and focal necrosis of the media is a most deadly one and may produce death by hemorrhage at a comparatively early age. The condition may result from chronic renal disease, but it has many other causes, all of which probably produce the condition of high arterial tension.

3. Death from Bronchopneumonia.—Hardy presents an analysis of 150 cases of death from bronchopneumonia in children under 13 years of age, and on which postmortem examinations were made. He endeavors to show that the feeding of the children by bottle instead of at the breast increases the mortality enormously. Out of 64 cases under 4 years of age in which the method of feeding was known, 32 were breast-fed and 22 were bottle-fed—that is, the deaths from bronchopneumonia were equal, but according to the author's computation, the ratio of mortality among bottle-fed and breast-fed children is as 69 to 9—that is, the mortality from bronchopneumonia is 7.7 times as great in bottle-fed as in breast-fed children. There were well-marked signs of rickets in 25 of the 150 cases, or 16.7 per cent. Of 95 cases between the ages of 6 months and 3 years, there were 21, or 22.1 per cent., while of the 59 cases between the ages of 1 and 3 years—the rickets period par excellence—there were no less than 15, or 25.4 per cent., showing well-marked signs of this disease. In 15 cases the disease occurred during, or followed immediately on, an attack of measles. Of these, 4 patients were under the age of 1

year, 5 were between 1 year and 2 years, 3 between 2 and 3 years, 2 between 3 and 4 years, and 1 between 6 and 7. Twelve cases occurred during an attack of diphtheria. The youngest patient was under 1 year and the oldest under 4. Whooping-cough was a contributory factor in 7 cases. Eight cases occurred during an attack of meningitis; 5 during epidemic cerebrospinal meningitis, and 2 during an attack of suppurative meningitis secondary to suppurative otitis media. There were 5 cases of suppurative otitis media, 3 of general pyemia, 3 were thought to be due to the administration of an anesthetic, 2 occurred during an attack of typhoid fever. Scalds and burns preceded the illness in two instances. In one case the bronchopneumonia followed the impaction of a coin in the esophagus, and in another it was secondary to erysipelas. Twenty-one cases were initiated by vomiting and diarrhea. The right lung was alone affected in 9 cases, the left also in 9 cases; both lungs in 132 cases. There were 6 cases of massive bronchopneumonia, 15 cases of suppurative bronchopneumonia, 4 associated with suppurative otitis media, 4 with empyema, 2 with peritonitis, and 3 were part of a general pyemia, while 1 occurred with acute suppurative periostitis. Fifteen cases were complicated by acute fibrinous pleurisy, 1 by a pleurisy with effusion, 16 by empyema.

7. Tuberculosis in Childhood.—With a view to determining the correctness of Koch's statement that tuberculous milk is not a source of danger to the human subject, Kingsford has analyzed the postmortem records of 339 cases of tuberculosis in children of all ages up to 14 years. Of this number, 162, or 48 per cent., occurred during the first two years of life, and 270, or 80 per cent., during the first five years, while there is a steady decline in the proportion among older children. Regarding middle-ear cases as infected by inhalation, the tonsil cases as an alimentary infection, and the remaining pharyngeal cases as doubtful, the inhalation accounted for 216 cases, or 63.7 per cent., and ingestion of the 65 cases, or 19.1 per cent., the remaining 17 per cent. being of doubtful origin. So far as can be judged from these methods of investigation, Kingsford concludes that the danger from inhalation far exceeds that from the ingestion of tuberculous material. With regard to the importance of tuberculous milk, however great the potential danger may be, the real danger is greatly exaggerated, probably owing to the children not drinking tuberculous milk of the virulence and in the quantity usually affirmed. Still, the fact that nearly 20 per cent. of the cases of tuberculosis among children are primarily alimentary, makes out a good *prima facie* case against tuberculous milk, and Kingsford believes it will be shown that one of the chief differences between the conditions of life among children at home and abroad which could have any effect in predisposing to primary abdominal tubercle exists in the greater frequency of tuberculous milk in England. Although attention should be directed toward the restriction of the sale of tuberculous milk, it is chiefly to the improvements in the conditions of life, such as cleanliness, ventilation, disinfection and better housing, that we must look for the diminution of tubercle among children.

8. Prevention of Epidemic Diarrhea.—Nash has had printed for distribution among the laity two pamphlets. One, among other matters, calls attention to the dangers of long tube bottles, poor condensed milk, miscalled infant foods, and gives simple directions for preparing milk for hand-fed infants according to age. The second pamphlet contains the following:

DIARRHEA.—This disease is very dangerous and rapidly fatal in young infants. It is, therefore, necessary to know how to prevent it rather than to hope to cure it. Several causes contribute to this disease. Any or some or all of these causes may operate in a particular instance. It is important to know what they are and to take the necessary precautions to prevent all, if possible. They are, in one word—dirty. In more than one word, they are: (1) unclean milk and other food; (2) unclean jugs and bottles; (3) unclean hands; (4) unclean surroundings; (5) unclean air (from overcrowding, etc.); (6) unclean flies; (7) unclean dust.

Diarrhea is more common and fatal in hot weather than in any other time. Why?

1. Because there are more flies, which settle on dirty refuse heaps, dirty closets, dirty napkins, etc., and then settle on the food or tumble into the baby's milk, or get into the open tin of condensed milk, or walk about the sugar.

2. Because there is more dust, which is blown in at the open window to milk and other food left exposed.

3. Because germs are really very small microscopic plants, which like nearly all other plants, grow best when the weather is warm. Fortunately boiling will destroy nearly all germs. Therefore, during the hot weather, to prevent young infants from getting diarrhea from milk, boil all milk directly it comes into the house. But this is not everything. If after milk is boiled it is put into a half-cleaned jug or cup or bottle, or is left exposed so that flies can settle on the margin or fall into it, it will rapidly become contaminated again. Therefore, after boiling, always keep the milk in clean vessels and covered over with a clean cover. The milk should also be kept as cool as possible. A good plan is to stand the covered milk jug in a basin of cold water. A mother or nurse should always wash and dry her hands just before preparing the baby's meal. A large number of people in a room contaminate the air of the room and impart to it properties which will rapidly spoil milk. Therefore, it is important not to allow several people to come into the kitchen or near the ladder.

Every precaution should be taken to prevent flies settling on food and to destroy flies in the house. All animal and vegetable waste should be burned as soon as possible. If put into the dustbin or left about in the kitchen or larder, they cause offensive smells and attract and breed flies. Cleanliness in every detail is the great preventive measure against diarrhea.

When a case of diarrhea occurs in a house great care should be taken to at once place soiled napkins, etc., in a disinfectant solution and to burn all infected articles as soon as practicable. If napkins, etc., are left exposed flies can settle on them and carry back infection to the baby or to other children in the same house or in neighboring houses.

British Medical Journal, London.

September 23.

- 12 Relation of Laryngology, Rhinology and Otolaryngology with other Arts and Sciences. Felix Semon.
- 13 Discussion on Chloroform Anesthesia. Victor Horsley, A. G. Vernon Harcourt, and others.
- 14 Histological Changes Occurring in Ununited Divided Nerves. Robert Kennedy.
- 15 Cells of the Spinal Ganglia and the Relationship of Their Histologic Structure to the Axonal Distribution. F. Griffith and W. B. Webster.
- 16 Further Investigations on Accommodation. Karl Grossmann.
- 17 So-called Sanson-Purkinje Reflex Image of the Anterior Lens Surface. Karl Grossmann.
- 18 Some Changes Observable in Liver Cells During Activity. E. W. Carlier.
- 19 Some Points in the Physiology of the Mammalian Heart. J. A. MacWilliam.

Intercolonial Medical Journal of Australasia, Melbourne.

August 29.

- 20 Some Aspects of the Mortality from Puerperal Sepsis. H. O. Cowen.
- 21 Sporadic Cretinism. A. J. Wood.
- 22 Alleged Artificial Restriction of Families. W. McLean.
- 23 *Union of Bowel, with Notes of Two Cases of Enterectomy. G. Syme.
- 24 *Two Intracranial Abscesses; with Sinus Phlebitis. P. S. Webster.
- 25 *Three Cases of Eye Injury. J. P. Ryan.

23. Enterectomy.—Syme says that the ideal intestinal union is one that will hold until cicatrization is complete and firm; one that will not allow contamination of the peritoneum by capillary oozing; that will not contract too much the lumen of the bowel or form too much of a diaphragm in its interior, and that can be performed rapidly. The Murphy button, when it is properly constructed, perfectly applied, and when it acts as it is intended, gives nearly this ideal result. Unfortunately, it is not always perfectly constructed and applied, and does not always act as it is intended. A case is described of carcinoma of the descending and pelvic colon, which infiltrated into an adjacent loop of jejunum. Enterectomy was done, the jejunum being united by suture and the colon by a Murphy button. The patient died about two weeks after operation, and at the autopsy the sutured anastomosis was found intact, but the button anastomosis was a slough with a circular hole, over the lateral aspect and upper edge of the button where the bowel wall was in contact with the abdominal wall. A second case cited was one of perforation of the uterus during curettage, with laceration of the bowel and the mesentery. Fifty-nine inches of small intestine were resected and end-to-end union by suture performed, continuous through all the coats, and then continuous Lambert. The patient made an uneventful recovery. Syme raises another objection to the Murphy button—that it may never be passed. A case is referred to where a portion of bowel was resected for carcinoma and an anastomosis done with the Murphy button. When the patient died of recurrence of the tumor twelve months later, the button was still in place. He advises against the use of all mechanical appliances toward intestinal approximation.

24. Intracranial Abscesses.—Webster cites a case of chronic suppuration in the left ear, followed by extradural abscess in the middle fossa, cerebellar abscess and sinus phlebitis. A

very extensive operation was performed, consisting of opening the mastoid cells, the middle fossa, cerebellum, sigmoid and lateral sinuses and the middle ear, with evacuation of a large quantity of pus. The patient made an almost uninterrupted recovery.

25. **Three Cases of Eye Injury.**—The first case reported by Ryan is one of infection of a corneal wound and threatened panophthalmitis six days after extraction of the cataract. He believes that an attack of influenza, which came on about the third or fourth day after the extraction, may have been a factor in the eye trouble. The patient recovered, with fair vision. The second case was one of monocular neuroretinitis in a boy of 10 years. There was no apparent cause for the condition. Ryan suggests that it may be due to a tumor of the optic nerve, and gives a bad prognosis. The third and last case was one of suture of an unhealed corneal incision nineteen days after extraction of a cataract, the material used being two fine silk sutures passed through the entire thickness of the sclera. The wound had healed within a week, when the sutures were removed.

Revue de Chirurgie, Paris.

Last indexed page 816.

26 (XXIV, No. 9.) *De l'intervention opératoire dans les néphrites et dans certaines affections médicales du rein (of kidney). A. Yvert (Dijon).

27 *Des sténoses tuberculeuses de l'intestin grêle chez l'enfant (of small intestine in children). L. Berard and H. Leriche (Lyon). (Commenced in No. 5.)

26. **Operative Treatment of Kidney Affections.**—Yvert discusses the results of surgical intervention in acute and in chronic nephritis, as well as in various other kidney affections. In acute nephritis the reports published to date indicate that nephrotomy is preferable, with nephrectomy later, if it proves inevitable. The former has a mortality record of 5 and the latter of 33 per cent. Decapsulation is still on trial. In case of pyonephrosis resulting from a concrement, nephrolithotomy, incising the convex margin of the kidney down to the seat of the stone, is the operation of election. He attributes to Pousson the merit of systematic operative treatment of chronic nephritis. Out of 9 cases of chronic nephritis treated with nephrotomy by himself or others, 5 of the patients were completely cured, 2 much improved and 2 died. In case of doubt as to which kidney is involved, the reno-renal reflex is an important guide, and an incision on each side would banish every doubt. Nephrectomy has been done in 5 cases of chronic nephritis, with 5 cures. In 2 cases the intervention was limited to capsulotomy with the actual canter, both cured. Decapsulation does not seem to offer many more advantages than simple nephrotomy, while it is a more serious operation. The future alone can decide whether it is preferable to nephrotomy; the evidence to date seems to be in favor of the latter. Rovsing's nephrolysis or destruction of adhesions after nephrotomy was successful in the 3 cases in which it was applied. It seems to be indicated when the adhesions are particularly extensive and thick. In case of essential nephrorrhagia, nephrotomy is indicated after failure of other measures, as Israel's experience has been so favorable with it. It is likewise indicated in case of rebellious nephralgia, and for the same reasons. In a desperate case of puerperal eclampsia, after failure of all other measures, Yvert would not hesitate to perform nephrotomy, bilateral if necessary, following Edebohl's certain way, but not to the extent of decapsulation. Pousson has performed nephrotomy in a case of rebellious anuria from hysteria, with the cure of the patient for a few months, but recurrence later. He operated only on suspicion of an actual affection of the kidneys, and cautions against similar surgical intervention in pure hysteria. On the whole, Yvert concludes that kidney affections are coming more and more into the realm of surgery. Operative treatment is indicated only after medical treatment has proved powerless, but under these circumstances it should not be abused, but should be resorted to without fear. Of all the modes of intervention proposed to date, the incision along the convex margin of the kidney, simple nephrotomy, seems to be the most effectual, while it is certainly the simplest and most inoffensive.

27. **Stenosis of Small Intestine in Children.**—Twelve cases are reviewed, including one personally observed, in which intestinal tuberculosis caused single or multiple stenosis of the small intestine. The symptoms are insidious and vague. They are noticed as diffuse pains in the abdomen; digestion is tedious and laborious; sometimes there is vomiting, and there may be alternations of constipation and diarrhea. Colic in sections, Hochenegg's "combined ileus," is characteristic when it occurs, but this is rare. The pains are sometimes accompanied by gurgling sounds. The vomit is exclusively of food. The stools may be bloody, or there may be all the signs of subacute occlusion. The abdomen is generally distended, especially in the flanks. Peristaltic waves reveal the painful efforts of the intestine against the obstacle within. Then the pain subsides and the abdomen becomes flatter, although local tympany may persist with gurgling sounds and dullness over the point. The stenosis in children is usually in process of evolution and not cicatricial stenosis, such as is more liable in adults. The stenosis is due to submucous infiltration in the course of enteroperitoneal tuberculosis. The symptoms of the tuberculous peritonitis may predominate. The general condition is bad, the children usually in such a precarious condition that one is tempted to defer the operation, although surgical intervention offers the only chance for recovery. The course of the affection is inevitably progressive. Enteroplasty is seldom indicated. Enterectomy should be done whenever practicable—that is, when the lesions are not extensive and the general health satisfactory. In other cases, the choice must be between exclusion and entero-anastomosis. The site of the stenosis will dictate the mode of intervention. In presence of very extensive foci, simple laparotomy remains the last resource to relieve the phenomena of inflammation, to cause the retrogression of the lesions, and possibly render a secondary resection practicable, while in more cases than one would suppose possible it may lead to the complete recovery of the child.

Berliner klinische Wochenschrift.

- 28 (XLI, No. 26.) Hyperalgæische Zonen bei Kopfschüssen (with bullet wounds of head). Wilms (Trendelenburg's clinic, Leipzig).
- 29 *Zur Behandlung der chronisch-rheumatischen und der gonorrhöischen Gelenkerkrankungen mittels der Biersehen Staumungs-Hyperämie (passive congestion for joint affections). A. Laqueur (Brieger's service, Berlin).
- 30 *Stomach Contents in the aged. H. Seidelin (Copenhagen).—Untersuchungen des Mageninhaltes bei älteren Individuen.
- 31 Fall von Hirn-Tumor nach Trauma; Operation (brain tumor). E. Lefmann.
- 32 *Ueber Prose der Aorta abdominalis. Stiffer.
- 33 (No. 87.) *Un nouveau cas de gale norvégienne ou croûteuse (Norwegian scabies). T. de Amiels (Naples).
- 34 *Hereditäre Ives in der 2. Generation. C. Boeck (Christiania).
- 35 Zur Klinik infantiler Syphilis (of Vienna).
- 36 *Cutaneous Manifestations liable to Accompany Chronic Appendicitis. H. Fournier (Paris).—Sur quelques manifestations cutanées qui peuvent accompagner les appendicites chroniques.
- 37 Sur un Érythème scarlatiniforme persistante avec atrophies consécutives en foyers miliaires. Variété nouvelle. H. Hallopeau (Paris).
- 38 *Some of My Opinions. Jonathan Hutchinson.
- 39 *Ueber infective und toxische hämatogene Dermatosen. J. Jadassohn (Berne).
- 40 Fall von sekundärer Syphilis mit schwerer Augenerkrankung (with severe eye affection). G. Pernet (London).
- 41 *Zur Licht-Behandlung (cesin-phototherapy). F. J. Pick and K. Asahl (Prague).
- 42 Les conditions du développement de la "syphilide pigmentaire" (Leuoderma syphiliticum). G. Thibierge (Paris).
- 43 *How and Where Should Children with Inherited Syphilis Be Treated? E. Wetander (Stockholm).—Wie und wo sollen wir hereditärsyphilitische Kinder behandeln?

29. **Passive Congestion in Treatment of Joint Affections.**—Laqueur has applied Bier's technic of passive congestion by elastic constriction in 40 cases of various joint affections. The patients could use the limb freely after the tourniquet was applied, and all experienced relief from the pain almost at once. The passive congestion also had marked influence in promoting dissolving and absorption. In long established cases this influence was felt less, but in every instance the relief from pain and the improvement in the function were noticeable. It proved a valuable measure not only in chronic articular rheumatism, but also in arthritis gonorrhöica, and its cheapness, simplicity and ready application justify its more general adoption in joint affections. Bier's technic was strictly followed. It was described in THE JOURNAL, XI, page 69.

30. **Stomach Content in the Aged.**—Seidelin tabulates the findings in 70 subjects, grouping them by the decades after 50. He was surprised to find that the stomach secretion can be retained to an advanced age, even when the subject exhibits signs of pronounced senility in other respects. On the other hand, quite a number presented achlorhydria, and a certain connection between this condition and existing arteriosclerosis seemed to be unmistakably evident. The symptom of achlorhydria in elderly persons, therefore, should not be regarded as important in the diagnosis of cancer or other affections.

32. **Ptois of Abdominal Aorta.**—Stifler describes the form of ptois accompanied by dilatation and the form in which the aorta is contracted. The latter is evidently the result of some inflammatory process, and is the key that solves certain puzzling cases of abdominal ptoses, as well as many vasomotor and secretory anomalies and the symptom-complex of what he calls "sympathicisms." One of the most frequent predisposing causes is defective correction of a wandering kidney by unsuitable bandages. Ptois of the abdominal aorta is often treated by attacking the symptoms rather than the cause. The therapeutic indications are in general the same as for enteroptosis, but require more delicate application of local hyriatic and electric measures, as also of the supports to be worn. The latter require special medical experience to fit them to the individual case. In his experience with ptoses in general, Stifler has observed about 15 per cent. in which the abdominal aorta was involved or alone affected. He describes a few typical cases. In one, both kidneys were abnormally movable and there was painful gastric pulsation and distress in moving. The dilated, abnormally movable aorta could be distinctly palpated below the umbilicus. One kidney was fastened in 1901 and the other a year later. When seen in 1904, the right kidney had worked partially loose and lay crosswise. The aorta was nearly as wide as two finger breadths, palpable to the left and below the umbilicus; there was a systolic vascular murmur, and the left renal artery was likewise pulsating and dilated. Pain upward to the heart was elicited by pressure on the dilated aorta, with pain radiating to the left costal arch and up to the left scapula. When fatigued or lying partially on the left side, there was the typical gastric beat, weakness and sensation of faintness, but the ability to move and work had improved since the operation on the kidneys. In another case described, the dilatation of the aorta coincided with cardioptois, and finally kidney symptoms occurred similar to those observed with true aneurism of the aorta. By repose, suitable supports and hyriatic procedures the cardioptois was cured; the dilatation of the aorta persisted for some time longer, but finally yielded also to treatment. Another patient had suffered from paralysis agitans for years and both kidneys had become abnormally movable, with probably secondary dilatation of the aorta. The kidney and aorta troubles were cured by appropriate bandages alone. A patient with the irritative form of aorta ptois exhibited a painful pulsation through the entire abdomen below the stomach, most pronounced after exertion, with consecutive heart agitation, frequent vomiting, obstipation and sometimes polyuria. This patient was subject to attacks of stomach migraine. The aorta could be palpated as a movable small cord to the right of the umbilicus, with pain on pressure, radiating upward to the heart and to the scapula on both sides. Pressure on the aorta above the umbilicus induced vomiting and violent, persisting pains, with "inexpressible nausea" for a day afterward. A systolic vascular murmur was evident over the aorta. The left kidney was low and lay crosswise and was sensitive both spontaneously and on pressure. In another case nervous diarrhea, tremor of the entire body, heart cramps and distressing stomach pulsation were all traceable to some irritation of the peritoneum or muscular diastasis resulting from the trauma of a preceding childbirth. The aorta was sensitive to pressure, contracted, movable, sinuous and with strong pulsation, its course lying to the left of the umbilicus. By repose, bandages and packs the patient was practically cured, although there is still pulsation in the aorta a week before and

after menstruation. The aorta can still be palpated to above the umbilicus, and it is irregularly thick. The patient still feels the need of an abdominal support, but is otherwise in apparent health.

33. **Norwegian Scabies.**—De Amicis thinks that the individual conditions must be the reason why this form of scabies differs so much from the ordinary forms. The contagion was unmistakably derived from a person suffering from the ordinary form in both the cases he observed. The subjects were rachitic and poorly nourished.

34. **Virulent Inherited Lues in the Second Generation.**—Boeck reviews his observation of 4 unmistakable cases, and remarks that the conditions in Christiania enable the family history of the 4 subjects to be accurately known. The affected members in each generation applied to the same hospital, and careful records were kept of each. He adds that in his thirty years of practice he has never known an instance in which inherited lues could be satisfactorily traced to the father. Some trace of the manifestations of syphilis will invariably be found in the mother on careful search. He has encountered only 2 cases in which there was a suspicion of inheritance from the father and they were in society people, and an examination of the mother was impossible. The virulent syphilitic taint in the 4 children described was undoubtedly derived from the inherited syphilis of the mothers, of which they themselves were ignorant. They were all over 20, but this long interval is not so very unusual. Boeck knows of a woman of 47 who bore a syphilitic child thirty-seven years after she had herself been infected at 10. The great theoretic interest of such cases is that they show not only that the virus of syphilis may persist for many years in an organism long after it has lost its apparently virulent properties and has ceased to be contagious under ordinary circumstances, but they also show that this virus, when transmitted to the child through the placenta, can continue in the child. When the child is born and ceases to be under the influence of the maternal organism and of its alexins, the virus resumes its highly virulent properties, and they persist until the child's organism has in turn had time to develop its own necessary antibodies, which then transform the virus again into a non-virulent form.

36. **Cutaneous Lesions of Chronic Appendicitis.**—Fournier proclaims that chronic appendicitis is much more common than is generally recognized, especially those inflammations which are chronic from the start, never presenting an acute attack, but merely a train of vague protean symptoms. He heartily indorses Lucas-Championniere's views in regard to the part played in its etiology by meat-eating and grippe and the lack of the old-fashioned purges. He knows of many persons who seem to live only for the pleasures of the table, and yet, by means of regular purges and enemas, they keep in good health and live to an advanced age. Meat-eating is liable to induce a general vasoconstricting action and, by the toxins which it engenders, to produce irritation of the intestines, causing spasmodic contraction of the intestine, with obstinate constipation. This installs an infectious condition which throws wide the gate for all kinds of complications, and from enterocolitis may lead to chronic appendicitis. The cutaneous manifestations of this condition have not been much studied hitherto, although Moty has called attention to the flush in the right cheek, rarely missing in febrile appendicitis, and resembling the congestion noted in pneumonia in the cheek of the affected side. Labial herpes is also frequent. In one case of chronic appendicitis he noticed sudation of the head and neck on the right side. This hypersecretion extended exactly to the median line and persisted during the ten years of the chronic appendicitis, vanishing after appendicectomy. He noticed it also in a case of acute appendicitis. Fournier's experience has been that a number of cases of purpura, eczema, pruritis, urticaria, prurigo and acne are due directly to chronic appendicitis. The colon bacillus was found in the purpuras of some of de Benedicti's patients, demonstrating the intestinal origin of the toxemia. The purpura in one of Fournier's patients never reappeared after appendicectomy. In another pa-

tient no possible cause for the prurigo could be detected until slight tenderness at McBurney's point was discovered. He was put on a vegetable diet and the prurigo vanished. He grew thinner during the six months he kept up this diet, but his skin was entirely free from the eruptions which had previously annoyed him. In another patient, anal pruritis and eczema around the lips always appeared when intestinal troubles were noted, but since the latter have been avoided there has been no recurrence of the former. A pruriginous acne in another patient is undoubtedly due to chronic appendicitis, and Rournier anticipates a cure so soon as the patient is willing to have the appendix removed. The cutaneous manifestations in these and other cases were the clue to the ignored inflammatory process in the intestines. Whenever a recurring, obstinate cutaneous affection is encountered, which can not be referred to any other cause, the appendix should be suspected. The patients can be operated on at once or they may be cured by instituting a suitable diet, etc. The inherited or acquired neuropathy which is generally the cause of the primary enteroneurosis frequently misleads the physicians into regarding these patients as merely hypochondriacs, which they really are in the true sense of the word. Their descriptions of their symptoms can be relied on, as they are usually excellent observers. Siredey has well emphasized this point in his study of the "formes frustes" of appendicitis: "Beware of dyspepsia refractory to rational dieting and not traceable to any definite cause. All the subjects may not be affected with appendicitis, but the majority are, and the appendix should in every instance be carefully scrutinized." The presence of a refractory dermatosis may be an aid in diagnosing, especially when associated with a dull or "bilious" complexion, freckles or "liver spots," predisposition to goose-flesh, itching and urticaria.

38. Some of Jonathan Hutchinson's Opinions.—Merely to cite a few, may be mentioned Hutchinson's contention that syphilis should rank as a specific fever, and that the most convenient mode of treating it is in the form of pills of hydr.: cum Creta, 1 to 2 grains for a dose. The course should be kept up for a year or two without interruption. During the last ten years very few of his patients have known any other symptoms than the indurated chancre and the bubo. He allows marriage after two full years from the chancre. He does not believe in the possibility of transmission of syphilis to the third generation, but accepts that of transmission of syphilis from the father without direct infection of the mother. When the father only is the source of the taint, it is seldom that any except the first-born suffer. The virus probably exists in the ovaries much longer than it does in the testes. A great many instances of second attacks of syphilis have come under his notice. He believes that yaws, framboesia, parangi and thaku are forms of syphilis. In his experience, the characteristic teeth are commonly associated with interstitial keratitis, but the subjects of phagedaenic ulcerations very often do not show the teeth and sometimes escape the keratitis. Almost all the affections which pass under the names of prurigo and purpura urticans, lichen urticatus, bullous and chronic urticaria in children, and some of those called strophulus, are due to insect bites, he thinks, and gives nearly a dozen convincing arguments to sustain this view. Urticaria pigmentosa is the result of bug bites in persons of peculiar idiosyncrasy. He is a firm believer in the curability of leprosy with a liberal supply of good food and absolute abstinence from fish, with chaulmoogra oil, internally and externally, as an adjuvant. The relapses of leprosy in Norway are probably the result of a return to a fish diet. He regards it as probable that the bacillus of leprosy and of tuberculosis are differentiated forms of the same organism. He further believes that gonorrhea in all stages is best treated by parasiticide injections, and that the long continued use of arsenic, externally or internally, increases the tissue proclivity to malignant growth. The latter is not due to parasitic infection, but to heritable proclivities on the part of the tissues, essentially the same for the various forms of malignant disease. Certain other mineral drugs may share with arsenic this property of tending to increase the proclivity to cancer.

39. Hematogenic Dermatoses.—Jadassohn relates a number of examples to demonstrate that acute and chronic infectious diseases, even including pyemia and gonorrhea, are liable to cause metastases in the skin. The resulting exanthemata are acute or chronic, as the case may be, varying with the nature of the morbid germ, the essence of the fundamental process, and with the number of the bacteria penetrating into the skin. These dermatoses display a marked tendency to dissemination and to symmetrical localization, and are polymorphous not only in different individuals, but in the course of the same disease. The efflorescence may range from the smallest roseola patch to a diffuse dermatitis, from a superficial papule to the nodules suggesting deep erythema nodosum, from insignificant superficial necrosis to deep-reaching gangrene. Hematogenic inflammation generally involves the veins rather than the arteries, and the bacteria settle in the smaller rather than in the large veins. They plug the veinules or penetrate from them into the surrounding tissues. When the large veins are involved the process is usually on the extremities, especially in the legs. The germs arriving by way of the blood cause milder lesions than those of exogenic origin, with few exceptions. Hematogenic cutaneous infections display a marked hemorrhagic tendency and also a tendency to moderate necrosis and softening. The article is continued.

41. Eosin Phototherapy.—Pick has had 22 patients treated at his clinic by exposure to concentrated sunlight after preliminary injections of eosin. The subjects included 12 with lupus, 5 with tinea, 1 with *ulcus rodens* and the others with excised patches of lupus. The results were eminently encouraging, as is seen from a few typical cases described at length.

43. How and Where Shall Children with Inherited Syphilis Be Treated?—Vejlander's question is answered by the results attained at the small asylum which has been built near Stockholm exclusively for the use of such children. They are kept from infecting others by their segregation here, while every condition is supplied to enable them to develop into healthy adults, with intermittent antisiphilic treatment as indicated. The institution is already overcrowded with 13 inmates; 22 have been under its care in all. It was founded by charitable enterprise, and the annual expenses average \$1,500.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

- 44 (XXX, No. 37.) *Zur Behandlung des chronischen Empyems der Highmors-Höhle. P. L. Friedrich (Greifswald).
 45 *Ueber die Einwanderung der Ankylostomum-Larven von der Haut aus (entrance through the skin). P. Schaudinn.
 46 *Ocular Symptoms with Paralysis of the Arm. F. Volhard (Giessen).—Ueber Augensymptome bei Armlähmungen.
 47 *Zur Frage der Hilfe für Gifftarbeiter (poisonous trades). H. Brae. Reply to L. Lewin.
 48 *Ueber abnorme Stuhlbeefunde bei Pancreas-Erkrankungen (abnormal stool findings). H. Cry and M. Alexander (Boas' clinic, Berlin). (Commenced in No. 36.)
 49 Amyotrophische Laterale Sklerose nach Trauma. O. Gless.
 50 Neue Salicyl-Präparate und neue Anwendungsformen der Salicyl-Säure. P. Müller (Dresden).
 51 Exhibit of German Imperial Council of Public Health at St. Louis.—Das Kaiserliche Gesundheitsamt auf der Weltausstellung in St. Louis.
 52 Nitrite im Urin. Steensma. Abstract.
 53 Theorie der Hysterie. van Erp Taalman Kip. Abstract.
 54 Plasmodium im Kreier-Gebiet. Krause. Abstract.
 55 Traumatic Neuroses Among Railroad Employes. Fürstner. Abstract.

44. Treatment of Chronic Empyema of the Maxillary Sinus.—Friedrich has treated 7 patients by the technic he describes, including a few cases of long standing fetid suppuration. All were rapidly cured. He opens up the sinus, not only enough to expose it amply, but also to establish a broad communication between it and the nose. He turns back the soft parts of the nostrils and makes a rectangular opening through the anterior bony wall, close to the floor of the maxillary sinus, and removes the wall between it and the nose for about 1 by 3 cm. It may be necessary to remove a small portion of the inferior turbinate. The nasal orifice of the lachrymal duct is not injured, but the sinus is widely exposed and all irregularities and suspicious points can be easily treated. The entire cavity is then tamponed, the end of the gauze brought out through the nose, and the incisions sutured. The tampon is removed after a few days; the sinus is rinsed out a few times and then

left to itself. The epithelium rapidly forms again from the remnants left after the partial excochleation of the cavity. One of his patients had had the empyema on one side for thirteen and on the other for eleven years, and had been constantly under the treatment of specialists, without relief. He has been radically cured during the nearly three years since this intervention, and is one of the most grateful patients that Friedrich has ever encountered in his surgical practice. The details of the incision are shown in a couple of illustrations.

45. Entrance of Ankylostoma Larvae Through the Skin.—A few years ago, Looss, of Cairo, announced that the larvæ of ankylostomata were able to penetrate into the circulation through the intact skin. Schaudinn's experiences and tests have fully confirmed this possibility, and at the recent International Congress of Zoology, Looss showed specimens demonstrating the mechanism by which the larvæ find their way from the intact skin into the intestines. They get into the superficial veins, then through the right heart into the capillaries in the lungs, thence into the alveoles, and then find their way through bronchi, trachea, throat, esophagus and stomach into the intestines. Some of the larvæ get into the lymphatics and thence into the veins. Schaudinn's experiments were made with monkeys, Looss' with dogs. The latter's attention was attracted to the subject by infection of his own person, which could be explained only by the assumption of percutaneous infection.

46. Eye Symptoms with Paralysis of the Arm.—Volhard analyzes 4 cases of paralysis. In 2 there was total paralysis of the right arm, accompanied by ocular symptoms which have a bearing on the prognosis. In all there was slight asymmetry of the eyes, myosis, inability to open the eyes wide and slight exophthalmus on the paralyzed side, but the movements of the eyes were unrestricted and the reaction of the contracted pupil to light and accommodation was retained. These same symptoms were observed also in the 2 other patients, although the paralysis was of a different nature. In one it was the result of a stab wound in the back of the neck, between the third and fourth cervical vertebrae, the entire right side becoming paralyzed below the lesion. The other patient had a carious affection of the gray matter in the region of the eighth cervical and first dorsal segment. Volhard explains the mechanism of the eye symptoms in each case. In the first 2, in which the paralysis was due to traumatic injury of the plexus, the eye symptoms indicated that the roots nearby had also been injured. This contraindicated surgical intervention, as the roots are not amenable to an operation. The prognosis is not rendered materially unfavorable by their involvement, as such a lesion may heal. The hyperextension of the arm causing the injury to the plexus should be spoken of rather as an overstretching of the nerve of the region.

47. Workers in Poisonous Chemicals.—Brat reviews the experiences in various manufactures in which the workmen are exposed to the action of poisonous substances. So much has been done to protect the workmen that the cases of poisoning have been very much reduced in number and severity. This is due to private initiative on the part of the proprietors and care on the part of the workmen. He does not think that legislation on the subject is necessary. Lewin replies to him that if private initiative is enough in certain instances, it can by no means be relied on in all. He hints that Brat's views on the subject may be influenced by the fact that he is physician to a certain industrial establishment, and reaffirms his own views, previously summarized in these columns, page 231.

48. Abnormal Stools in Pancreatic Affections.—A number of cases are described with the special features of the abnormal stools to decide the diagnostic importance of the latter for the assumption of a pancreatic affection. The passage of fluid fat, separate from the rest of the feces, and the lesser splitting of fat are strongly suggestive of an affection of the pancreas in a diabetic, provided the stools are formed and there is no icterus. These abnormal stools are not pathognomonic, as they may be the relics of some severe affection of the small intestine. Fat diarrhea is now considered suspicious of some

lesion in the small intestine even in adults. In one case described, as also in a certain proportion of diabetics, the stools showed abnormal reduction of the utilization of the food on a diet which is assimilated readily by a normal subject and by the overwhelming majority of diabetics. Whether this is due to some pancreatic affection can be decided only by post-mortem examination. Volhard thinks that it is possible, with a little practice, to detect an abnormal amount of undigested muscle fiber in the stools. Disturbances in the motor, absorbing and secretory functions in the domain of the small intestine (including the cases of missing pancreatic secretion) can induce an increased elimination of undigested muscle fiber. The article aims to show that it is necessary to examine the stools for the naked eye, microscopic and possibly chemical findings in case of suspicion of a pancreatic affection, but that the findings must be carefully weighed, as the clinical symptoms of a number of other affections are liable to simulate the stools of pancreatic disease.

Mitteilungen a. d. Grenzgebieten der Med. u. Chir., Jena.

Last indexed page 362.

- 56 (XIII, No. 3.) *Hyperglobulie und Milz-Tumor (of spleen). P. Preiss (Königsberg).
- 57 Meine Erfahrungen über Appendicitis. K. G. Lennander.
- 58 *Does Gelatin Influence Coagulation of Blood? H. Kaposi (Heidelberg).—Hat die Gelatine einen Einfluss auf die Blutgerinnung? Kritische und exp. Untersuchungen.
- 59 *Pathology of the Open Pneumo-Thorax and the Bases for Mode of Avoiding it. Sauerbruch (Breslau).—Zur Pathologie des offenen Pneumothorax und die Grundlagen meines Verfahrens zu seiner Ausschlachtung.
- 60 *Mode of Avoiding the Consequences of Pneumothorax by Means of Plus Pressure. L. Brauer (Heidelberg).—Die Ausschlachtung der Pneumothoraxfolgen mit Hilfe des Ueberdruckverfahrens.

56. Hyperglobulia and Enlargement of Spleen.—Preiss reports 2 cases of hyperglobulia with cyanosis, enlarged spleen and albuminuria. He explains the condition by assuming that the diseased spleen engenders some substance which passes into the blood and stimulates the bone marrow to excessive production of red corpuscles. The tuberculin test will determine the cases due to a tuberculous process.

58. Coagulating Power of Gelatin.—Kaposi demonstrated the coagulating properties of gelatin in respect to the blood by first inhibiting coagulation in animals by extract of leeches, and then injecting gelatin. The latter induced coagulation visible to the naked eye even under these conditions. He recommends Krause's technic for sterilizing the gelatin, as he found it invariably reliable, while its coagulating and other properties were not affected. The gelatin is heated by steam to 100 C. for half an hour on five successive days.

59 and 60. Sauerbruch's Air Chamber for Operations Within the Thorax.—The air chamber and the possibilities it offers for operations without fear of pneumothorax have been fully described in THE JOURNAL, XIII, pages 930 and 1191. This article is the complete report to date, containing also the writer's researches on the pathologic physiology of pneumothorax and on the physiology of normal lung action. In case of pneumothorax the collapse of the lung is the danger. The trouble arises from the fact that the collapsed lung receives too much blood and the intact one too little. The air chamber at present in use is large enough to hold the patient and three operators. A suction pump reduces the atmospheric pressure to minus 10 mm. Hg. The head of the patient protrudes from the air chamber, and the abdomen and legs are enclosed in a bag, which also communicates with the outer air, thus avoiding danger of venous congestion. Sauerbruch first thought of and finally rejected the plus pressure method advocated by Brauer as liable to prove dangerous for reasons which he enumerates. This method is the filling of the lungs through a tracheal canula with air under plus pressure. This technic is apparently simpler, as it obviates the necessity for the air chamber, but the conditions in the circulation which it induces are menacing, especially to a debilitated subject in need of surgical intervention.

[The Sauerbruch air chamber has established its usefulness in the clinic, having already passed the tentative stage. Mikulicz had operated on ten patients with its aid up to the middle of August. The article is fully illustrated, the curves of the

various experiments being likewise given. The periodical in which it appears is published by G. Fischer, Verlag von G. Fischer, Jena, Germany.—[Ed.]

Münchener medicinische Wochenschrift.

- 61 (Ll, No. 34) *Absorption of Albumins in Alimentary Canal of the Newborn. Ganghofer and J. Langer (Prague).—Resorption genuiner Eiweißkörper im Magen-darminnereit zugehöriger Tiere und Säuglinge.
- 62 *Portals of Entry for Tuberculosis. B. Fischer (Bonn).—Einführungspforten der Tub.
- 63 *Essence of Tuberculosis on Basis of Latest Researches. Wolff (Reiboldsgrün).—Wesen der Tub. auf Grund der neueren Forschungen und klinischen Erfahrungen.
- 64 Experimente zur Frage der fettigen Degeneration. A. Mutsch.
- 65 Experimentelles über Vagus-Funktion. H. Starck.
- 66 *Quantitative Test for Separate Albumins. A. Oswald (Zürich).—Eine einfache, klinisch verwertbare Methode, die verschiedenen Harnweissstoffe getrennt quantitativ zu bestimmen.
- 67 Fall von Paratyphus. Erne.
- 68 Zur Kasuistik der Mesotan-Exantheme. Korach.
- 69 2 gerichtlich-medizinisch wie chirurgisch interessante Fälle von Körperverletzung (personal injuries). B. Bayer.
- 70 Spring Force Syringe. A. Strauss (Harmen).—Eine neue Federdruck-Injektions-Spritze mit Abstell- und Regulier-Vorrichtung für Oele und Flüssigkeiten, speziell für Iodlipin.
- 71 Zum internationalen Kongress in St. Louis. Carl Beck.
- 72 Moderne sozial-aeratische Strömung (efforts toward organization of the profession, etc.). F. Siebert (Munich).

61. Absorption of Albumin by the Newborn.—The experimental and clinical research reported from Prague has established that albumin foreign to the body, introduced into the alimentary canal, is absorbed comparatively unmodified. It can be detected again in the blood by means of the biologic test. The age limit up to which time this is possible was the seventh day of life in the experiences reported. When a very large amount was introduced it could be detected in the blood even in somewhat older subjects. The experiments with puppies, kittens, rabbits, etc., were conclusive, and the eighth day was invariably the limit. In infants the age limit seems to be a trifle later. In case of a gastrointestinal affection, inducing lesions in the alimentary canal, the absorption can occur likewise at a later age. The research further established that albumin thus absorbed induced the production of an antibody. This suggests that the administration of foreign albumin to a normal newborn infant, or to an older infant suffering from some gastrointestinal trouble, is liable to do harm as it passes unmodified into the blood and starts the specific reaction on the part of the organism. The experimental parental administration of foreign albumin always entailed emaciation in the young and generally also illness, frequently fatal.

62. Portals of Entry for Tuberculosis.—Among the arguments presented by Fischer to prove the fallacy of von Behring's recent announcements is the fact that pulmonary tuberculosis is as common in Japan as in Europe, and yet, for religious reasons, the children are never given cow's milk, but are always nursed by their mothers or wet nurses. In one point, however, von Behring's views deserve the widest attention and acceptance. This is that the war against tuberculosis must begin with the infant. The child must be removed from a tuberculous environment, its food must be germ-free, and its body must be rendered so robust that it will come out victorious in the almost unavoidable conflict with tuberculous infection later.

63. Essence of Tuberculosis.—Wolff's experience at the great sanatorium at Reiboldsgrün, and his deductions from what has been written and learned in regard to tuberculosis, have convinced him that it is essentially a chronic, constitutional, infectious disease, with hematogenic dissemination of the infection to all organs. A single infection—which usually occurs in childhood—suffices for the later development of phthisis, but a second infection of an already infected subject remains a superficial affection, without further consequences.

66. Quantitative Test for Various Albumins in Urine.—Oswald recommends the technic described as a simple beside quantitative test for fibrinogen, euglobulin, pseudo-euglobulin and albumin in the urine. It is a combination of the method of fractional precipitation with neutral salts and the Esbach albuminometer. Four of the albuminometers are used, and in A the total albumins are determined with the Esbach reagent as

usual. In B a saturated solution of ammonium sulphate is added to the urine in the proportion of 2.5 to 7.2 urine. This will precipitate the fibrinogen. In C the proportion must be 3.6 to 6.4 urine—the euglobulin fraction. In D the proportion must be 5 to 5 urine to precipitate the pseudoglobulin. The albuminometer B gives the proportion of fibrinogen or fibrinoglobulin; C minus B gives the proportion of euglobulin in the urine; D minus C gives the proportion of pseudoglobulin, and A minus D gives the albumin. He tabulates the findings in 5 cases, the total albumin ranging from 4 to 12 per thousand; no fibrinogen; the euglobulin, from 2.5 to 2.5; the pseudoglobulin, from .5 to 1.5, and the albumin, from 3 to 11.5. All were cases of acute or chronic nephritis, one scarlatinal. In the latter, the figures were respectively: 10, 0, 2.5, 1.5 and 6 per thousand.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

LECTURES TO GENERAL PRACTITIONERS ON THE DISEASES OF THE STOMACH AND INTESTINES. With an account of their Relations to Other Diseases and of the Most Recent Methods Applicable to the Diagnosis and Treatment of Them in General; also "The Gastro-intestinal Clinic," in which All Such Diseases are Separately Considered. By Boardman Reed, M.D., Professor of the Department of Gastro-Intestinal Hygiene and Climatology in the Department of Medicine of Temple College, Philadelphia. Illustrated. Cloth. Pp. 1021. Price, \$5.00 net. New York: E. B. Treat & Co. 1904.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., Professor of Skin, Genito-urinary and Venereal Diseases, Rush Medical College, Chicago, and Frank Hugh Montgomery, M.D., Associate Professor of Skin, Genito-urinary and Venereal Diseases, Rush Medical College, Chicago. Seventh and Revised Edition. Illustrated with 107 Engravings and 34 Plates in Colors and Monochrome. Cloth. Pp. 938. Price, \$4.50. Philadelphia and New York: Lea Brothers & Co. 1904.

DISEASES OF THE NOSE, THROAT AND EAR, and Their Accessory Cavities. By Seth Scott Bishop, M.D., D.C.L., LL.D., Honorary President of the Faculty and Professor of Diseases of the Nose, Throat and Ear in the Illinois Medical College. Third Edition. Thoroughly Revised, Rearranged and Enlarged. Illustrated with 94 Colored Lithographs and 230 Additional Illustrations. Cloth. Pp. 564. Price, \$4.00 net. Philadelphia: F. A. Davis Co.

TEXT-BOOK OF NERVOUS DISEASES AND PSYCHIATRY. For the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., Professor of Nervous Diseases and (ad interim) of Mental Diseases in Cornell University Medical College. Sixth Revised and Enlarged Edition. Illustrated with 24 Engravings and 3 Plates in Black and Colors. Cloth. Pp. 690. Price, \$4.00. New York: Wm. Wood & Co. 1904.

HAND-BOOK OF THE ANATOMY AND DISEASES OF THE EYE AND EAR. For Students and Practitioners. By D. B. St. John Roosa, M.D., LL.D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School, and A. Edward Davis, A.M., M.D., Professor of Diseases of the Eye in the New York Post-graduate Medical School. Cloth. Pp. 300. Price, \$1.00 net. Philadelphia: F. A. Davis Co.

THE URINE AND CLINICAL CHEMISTRY OF THE GASTRIC CONTENTS, THE COMMON POISONS AND MILK. By J. W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Forty-one Illustrations. Seventh Edition. Revised and Enlarged. Cloth. Pp. 172. Price, \$1.00 net. Philadelphia: F. Blakiston's Son & Co. 1904.

THE NERVOUS AFFECTIONS OF THE HEART, Being the Morison Lectures Delivered Before the Royal College of Physicians of Edinburgh in 1902 and 1903. By George Alexander Gibson, M.D., D.Sc., F.R.C.P. Ed., F.R.S.E., Honorary Member of the Medical-Chirurgical Society of Newcastle. Cloth. Pp. 93. Edinburgh and London: Young J. Pentland. 1904.

DIET AND FOOD CONSIDERED IN RELATION TO STRENGTH AND POWER OF ENDURANCE, TRAINING AND ATHLETICS. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P., Physician to the Metropoli Hospital and the Royal Hospital for Children and Women. Fifth Edition. With Seven Illustrations. Cloth. Pp. 128. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

MANUAL OF PHYSIOLOGICAL AND CLINICAL CHEMISTRY. By Elias H. Bartley, B.S., M.D., Ph.G., Professor of Chemistry, Toxicology and Pediatrics in the Long Island College Hospital. Second Edition. Revised and Enlarged. With 47 Illustrations. Cloth. Pp. 188. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

ZEITSCHRIFT FÜR OPHTHALMOLOGISCHE CHIRURGIE EINSCHLIESSLICH DER HELYGRAPHIE UND MASSAGE. Herausgegeben von Dr. Albert Hoffa, Geh. Medicinalrath, o. Professor an der Universität Berlin. Band XIII. Heft 1. Mit 34 in den Text gedruckten abbildungen. Paper. Pp. 230. Stuttgart: Verlag von Ferdinand Enke. 1904.

ENLARGEMENT OF THE PROSTATE. ITS TREATMENT AND RADICAL CURE. By C. Mansell Moullin, M.D. Oxon., F.R.C.S., Senior Surgeon and Lecturer on Surgery at the London Hospital. Third Edition. Cloth. Pp. 204. Price, \$1.75 net. Philadelphia: P. Blakiston's Son & Co. 1904.

PUBLICATIONS FROM THE LABORATORIES OF THE JEFFERSON MEDICAL COLLEGE HOSPITAL. Vol. I. Paper. Philadelphia. 1904.

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Original Articles.

LAMINECTOMY.

A FURTHER CONTRIBUTION.*

JOHN C. MUNRO, M.D.

BOSTON.

Five years ago, at the Columbus session of this Association, I reported 18 cases of laminectomy for various conditions. To these I can add twelve more operations, including two sections of the posterior cervical roots, five acute crushes, myeloma of the spine, a fracture of the odontoid process, etc. There is very little that is new that I can offer to-day, but there are, however, one or two suggestions that have come to me in studying my cases that I believe point to the possibility of the existence of certain phenomena seen at operations, that have not been and probably can not be demonstrated in the laboratory nor on the cadaver. These observations, if accurately made, may help to settle the question of operative benefit *per se*, that has been so bitterly fought on the one side by the neurologist and on the other side by the surgeon. I still believe that a simple technic, as emphasized in my first paper, has much to do with the comparative harmlessness of the operation.

FRACTURE-DISLOCATIONS.

If we collect the various scattered cases that have been reported within the last few years, favorable results following operation come more and more into evidence. It is useless at this time to go into a discussion of the question as to the possibility of equally good results in corresponding cases treated conservatively. The partisans on both sides are still too unyielding in their views. Being a partisan on the side of interference, I merely wish to present, as fairly as I can, the question as it appears to me personally. Fractures in the lower dorsal and in the lumbar regions are especially open to surgical interference, because of the relative harmlessness of laminectomy and because there is no valid reason for not subjecting the elements of the cauda equina to the same operative relief as in the case of any peripheral nerve. In the cervical fractures, however, there is much greater risk to life, whether operation is done or not. In watching quite a considerable number of injuries at this level, in the last few years, not subject to operation. I have been impressed with the fact that they die a day or so earlier and that they suffer no less than similar patients who have had a laminectomy. In several instances it has been possi-

ble to watch the progress of two patients—one operated on, the other not—as nearly similar in injury, age and physical conditions as is possible, using one as a control experiment, as it were. This impression has not a scientific basis; it is merely the general impression of a partisan observing the cases in hopes of being convinced that he advocates interference unnecessarily.

In studying the cases of cervical and high dorsal injuries treated without operation at the Boston City Hospital within the last ten years, I found that, of 30 patients, only one lived and partially regained his functions; 24 died within eight days of injury. The remainder, not including the one recovery, lived from three weeks to five months. In that same period I have seen, at the same hospital, at least three practically complete recoveries where a laminectomy was done. I have included the high dorsal injuries with the cervical because clinically the progress appears to be exactly the same. When we get below the mid-dorsal region, however, the story is a far different one.

Lloyd, in 1901, and various authors since that time, have reported recoveries after operation where the indications pointed to complete crushing of the upper cord. In addition, I have knowledge of a few more in the practice of my colleagues that help to confirm my views that, if the patient otherwise is able to undergo operation, it is better in the long run to offer him that chance; but the surgeon and the patient should realize all the time that at the very best the outlook is extremely poor.

Lloyd places great stress on withholding interference where shock is an element of danger, and I emphatically believe he is right. Some of these cases, as soon as they react from shock, show improvement in their cord symptoms, and should be let alone; but with a halt in the progress or a retrogression, operation should be done at once. His dictum that patients with a complete obstruction of the cord should be let alone ought to be modified, because these symptoms are occasionally misleading. This is shown in the recent report of two cases by Mixer and Chase. In one "there were present all of the clinical symptoms on which authorities had previously based their opinion that operation was contraindicated because it suggested total transverse lesion with a crush of the cord beyond repair." Nevertheless, there was marked and steady improvement following operation for eleven months, when death from septic nephritis took place.

A most interesting series of sections of the cord showed that "normal sensory and motor axons exist at the seat of the lesion, though their functions were interrupted at the time of injury, which suggested total destruction of the cord." Their second case, in a similar way, exhibited all the symptoms of complete transverse crush, yet he recovered sufficiently to return

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest, Willard, Charles A. Powers and J. E. Moore.

to his business. Walton, in 1902, stated that "though we may value the classification of Kocher, Bastian, Thorburn and others, the terms complete and incomplete lesions should not imply that the symptoms of the former are necessarily incapable of amelioration." All of my patients with acute crush of the cervical cord have died, whether operated on or not, but the recovery that followed operation in two of my chronic cases indicates that there is something effected by removal of pressure not produced by the bony parts, by which the functions of the cord are restored; and it is not wild reasoning to conclude that if laminectomy can accomplish so much good after prolonged pressure, whatever its nature may be, it may accomplish as much good, relatively, when done within the first few days after injury.

In the first of these cases the local cervical symptoms having persisted for a year in spite of conservative treatment, disappeared gradually after laminectomy. The second case, under hospital treatment for nine weeks, for paralysis from the arms downward, without any benefit, steadily improved after operation until he is now practically well. All that was found in this case was a collection of fluid under a distinct arachnoid membrane. A similar condition was found in a case of syringomyelia reported in my first paper, and yet the removal of this insignificant pressure produced marked amelioration in the pressure symptoms. If to these we add the total disappearance of a paraplegia following the removal of myeloma insignificant in its bulk, soft, not penetrating the dura, I am inclined to think that there is a something that produces grave paralysis that is demonstrated clinically, appears totally inadequate, and for which we have no corresponding experimental nor postmortem explanation.

My two cases of section of the posterior cervical roots for severe brachial neuritis, both followed slowly by a Brown-Séquard paralysis, have taught me that in future the operation would be better performed in two stages. At the first sitting all the work down to exposing the dura could be done. A few days later, when the danger of even slight oozing would be over, the dura could be opened in a dry field, the roots divided and ligated if necessary and the dura closed. In cervical laminectomies there is always more hemorrhage than at lower levels and certain types of oozing are impossible to control without prolonged packing. The consequences of that oozing or the adhesions of the pia consequent on packing is later paralysis, which may or may not disappear.

These few meager conclusions are all that I feel justified at present in deducing from my own observation. More experimental work is demanded in this line of cases, but what I believe is equally important is that a corresponding amount of work in clinical observation is necessary, no matter how discouraging and hopeless it is by its very nature.

CASES OF ACUTE FRACTURE-DISLOCATIONS.

CASE 1.—Man, aged 36, was seen at the Somerville Hospital in consultation with Dr. Buffum and Dr. J. J. Thomas, in May, 1902.

History.—Two days before I saw him he had been struck in the head by a bale of leather, bending it acutely forward. He was not rendered unconscious, but suffered pain in the neck. At first he had fair motion in the legs and was able to control his bladder. The hand grasp was fair and the knee jerks were present. The day following he was obliged to be catheterized and the motion of the legs diminished. He suffered great pain on motion of the head, in his neck and between the scapulae.

Examination.—There was flexion and extension of the wrist and fingers, extension of the forearm and partial flexion of the thigh. Respiration was diaphragmatic. Knee jerks were normal. No ankle clonus. Babinski reflex of both sides. Pain and touch sensations were slightly diminished up to the third rib and along the ulnar side of the hand and forearm. There was no zone of hyperaesthesia. The neck was slightly tender over the lower cervical vertebrae, but there was no abnormal bony prominence. Diagnosis of probable temporary dislocation of the cervical and the dorsal spine.

Operation and Result.—At operation, under ether, the seventh, sixth, and part of the fifth cervical laminae were removed. The dura was tense, not pulsating, translucent and thin. It was not opened. There appeared to be no local bony compression and the wound was closed, with temporary drain. On the following day his temperature rose and there was slight delirium, from which he recovered, and the mental condition became normal. No improvement in his physical condition followed, however, and he died some weeks later after progressive wasting from bedsores.

CASE 2.—Woman, aged 18, was aroused by fire in her house, jumped from the window, falling three stories, and was brought to the Boston City Hospital at once. At entrance she was unconscious and in profound shock, with a pulse of 180.

Examination.—There were scalp wounds, but no fracture of the skull could be determined. The abdomen was tympanitic and lax, and sensation as tested by a pin was apparently normal throughout. Under stimulation the patient slowly regained consciousness and about twenty-four hours after injury there was found complete paralysis of both legs and abdomen, with absence of sensation in the right leg and diminished sensation in the left thigh, increasing to absence of sensation below the knee. Sensation was practically absent on the abdomen and back up to a line at the level of the xiphoid cartilage, above which the sensation and motion were normal. Urine was passed involuntarily. Deep and superficial reflexes of the legs and abdomen absent. No ankle clonus. Complete loss of pain and temperature was also found.

Operation.—Under ether a laminectomy was done, the fifth dorsal spine being found loose and the fifth lamina on the right driven forward against the peridural fat. The fourth to the seventh laminae, inclusive, were removed. The peridural fat was found infiltrated with blood, bulging slightly and containing a few clots; and though there was a persistent hemorrhage from some hidden vessel in the peridural tissue, it did not seem to be sufficient to account for the cord lesion. The dura was opened and an excessive quantity of clear serum escaped. No pressure elsewhere on the cord could be found. The peridural space was packed with gauze to control hemorrhage and the wound closed, allowing for temporary wicks. The patient stood the operation without shock.

Result.—No improvement in the paralysis followed for about a week. Then she developed beginning sensation in the lower extremities. The temperature was irregular all this time, varying from normal to 103; the pulse remained persistently at about 120. Two weeks after operation she complained of pain in the right side and a slight pleurisy was found. The wound healed kindly, but a bed sore, in the lower lumbar region, developed and increased gradually in size. A month after operation vomiting began, the bedsores increased, cystitis developed, and two and a half months after operation she died, without any improvement in her condition.

CASE 3.—Man, aged 44, fell about ten feet, striking his head and shoulder on the pavement, and was paralyzed in his lower extremities at once.

Examination.—He was taken to the Boston City Hospital relief station and anesthesia below the level of the nipples was found, with knee jerks present on both sides. Ankle clonus and plantar reflexes were absent. The abdomen was distended and tympanitic. A day later he was transferred to the main hospital. The knee jerks had disappeared, and paralysis of the sphincters came on. At first the temperature was elevated. At the end of two weeks his condition remained the

same as regards his anesthesia and paralysis, but he was steadily losing ground and operation was advised.

Operation.—A laminectomy was done under ether and the sixth and seventh cervical laminae were removed. In the muscles were evidences of old hemorrhage and laceration. No fracture was found in the spine. The dura was opened and a small amount of fluid escaped. Pushing up against the dura was a firm arachnoidal membrane, beneath which there was a large amount of clear fluid. This was opened and drained. The cord itself appeared normal. The wound was closed with a temporary rubber tissue drain. There was practically no shock. The temperature rose on the afternoon after the operation, but rapidly fell to normal, and there was considerable escape of fluid from the wound.

Result.—He developed the ability to flex and extend the forearms slightly, which before operation were completely paralyzed, but had no control of the hands. A beginning bed-sore developed at the base of the spine about three weeks after operation. The operation wound healed by primary union, but the bedsores steadily increased, and his general condition grew worse. He developed incontinence of urine and feces, mild delirium supervened, and about five weeks after operation he died.

CASE 4.—Man, aged 22, fell from a team, striking on the top of his head, and broke his neck.

Examination.—He was brought to the Boston City Hospital with total paralysis of the upper and lower extremities and anesthesia below the second rib. Reflexes were absent. In front of the neck, on deep pressure, a projection of the displaced body of a vertebra could be felt. The head could be rotated and was not held in the position of a simple dislocation. He was conscious.

Operation.—Under ether a laminectomy was performed. A wide space was found between the fifth and sixth cervical laminae, admitting the finger easily to the dura. The fifth lamina was removed; the fourth lamina, found to be pressing on the cord posteriorly, was removed also. Above or below this no compression could be determined by exploration. An attempt to reduce the dislocation of the vertebral body was made, but was unsuccessful, the deformity probably being due to a crush as well as a dislocation. There was no extra-dural bleeding and there appeared to be no indications for opening the dura. The wound was closed, allowing for a capillary drain. There was no shock.

Result.—A few hours afterward the patient, who had been comfortable, was suddenly seized with pains, the head was drawn back, and he became unable to swallow. The pulse rose to about 130, but gradually grew weaker and slower, although the temperature rose to 107 degrees. He became unconscious and died about twelve hours after operation.

CASE 5.—Man, aged 33, entered the Carney Hospital in November, 1903, after falling downstairs, striking the side of his head and neck.

Examination.—He was unconscious for a few moments and was instantly paralyzed in his arms and legs. He vomited a few times and required the catheter for the first few days. There was flaccid paralysis of both upper extremities and paresis of both lower extremities. Dr. Bullard examined him and found the right pupil larger than the left, sensation stronger on the outer and dorsal surface of the arm and forearm than along the inner surface. On the right forearm the posterior surface seemed duller than the anterior; on the left, sensation was essentially the same. On the top of the shoulders sensation was stronger. All sensation, however, seemed diminished, but his answers were not fully reliable. Triceps reflex negative. Left patella reflex present. Right patella reflex slight. No ankle clonus. A diagnosis of crushed cord was made. He became delirious (evidently alcoholic) and nothing was done for eight days after entrance, until he had recovered from the delirium. Examination of the eyes by Dr. Kilburn showed the right pupil larger than the left under all circumstances. The pupillary reflexes were excellent and nothing pathological was found in the fundus.

Operation.—At operation by Dr. Bottomley the fifth, sixth

and seventh cervical spinous processes were removed with their laminae; the dura was found distended with clear fluid, which escaped in considerable quantity. Over the cord, at the level of the fourth and fifth vertebrae, was a thin blood clot, adherent and several days old. The wound was closed, allowing for a rubber tissue drain to the subdural space. Patient recovered well from the operation, but soon developed bedsores and passed bloody urine for several days. Nine days later the temperature suddenly rose, vomiting began, and he gradually failed, and died twelve days after operation.

No autopsy was obtained.

FRACTURE OF THE ODONTOID PROCESS.

CASE 6.—Man, aged 42, entered the Carney Hospital in April, 1904.

History.—Two years ago the patient fell from a staging, landing on the top of his head. Ever since the accident he had been compelled to hold his head flexed, with the chin resting on his chest, being unable to rotate it actively or passively without pain.

Examination.—He had lost the power of extending his head voluntarily, although there was no paralysis of the muscles. Over the second cervical spine there was marked prominence. There had been no paralysis, and a year before I saw him the left posterior neck was explored by the orthopedic department, with negative results. He was then fitted to a form of chin support which held the head in normal position. As soon as this was removed the head immediately fell forward and the patient was unable to extend it voluntarily. For about a year he had complained of pain in his left shoulder, arm and leg, varying in severity. He was not so strong as formerly in his arms and legs, and he had been unable to work on account of the impairment of his head motion. He entered the hospital seeking operation and we hoped that possibly some relief might be obtained.

Operation.—Under ether an incision was made down to the spinous process of the axis. This was apparently normal, as were also the third and fourth spines and laminae. The vertical distance from the tip of the second spinous process to the posterior tubercle of the atlas appeared normal. The atlas rotated with the occiput through a normal arc. Extension and flexion of the occiput on the atlas were normal. By directly pushing the head backward the atlas moved with the occiput without change of their mutual relations, but the atlas slid backward on the axis so that its posterior tubercle lay in the same plane as the second spinous process or, in other words, the atlas slid backward and forward on the axis for at least one-half an inch, their vertical relations remaining normal. It seemed clear that this could be accounted for only by a fracture of the odontoid process at its base, allowing the structures above to move forward and backward within the limits of the anterior and posterior ligaments between the occiput, atlas and axis. Although rotation without ether was limited, under ether it was free in both directions. It did not seem possible that the normal position of the bones could be restored and maintained by any operative procedure, so the wound was closed in layers and the patient returned to the ward. He recovered quickly and was discharged in ten days, wearing the chin support and claiming that the pain in his shoulder was not so severe as before operation.

SUBACUTE FRACTURE-DISLOCATION.

CASE 7.—Boy, aged 14, entered the Boston City Hospital in August, 1902.

History.—Nine weeks before the patient, an acrobat, while turning a back somersault from a man's shoulder, fell, landing on the back of his neck. He arose immediately to his knees, but was unable to rise any farther. He was then carried to the anteroom and since then had been unable to walk. He recalled that he was unable, positively, to move the lower extremities on the day following the injury, but that he could use his hands awkwardly. Three days after the injury he went to a hospital in Virginia, where electricity was applied to his arms and legs. Since the accident he had remained in bed, the forearms and hands becoming atrophied. His appetite

had been good and he had been able to control his rectum. For six weeks he had incontinence of the bladder, and for a short time after the accident he had had pain in the neck.

Examination.—At entrance to the City Hospital he lay completely relaxed. Pain, tactile, hot and cold sense, and stereognostic sense were normal in his upper and lower extremities. The pupils were normal, knee jerks lively, and the cremasteric reflex was present. The motions of the head and neck were complete. Flexion and extension of the forearm were strong, but there was atrophy and weakness of both the flexors and the extensors of the fingers. Extension of the wrist was incomplete, the hand grasp was weak, and the muscles of the thumb, especially, were atrophied. In the thighs there was complete paralysis, at times flaccid, at other times spastic. There was slight prominence of the seventh cervical vertebra.

Operation.—At operation the seventh cervical and first dorsal laminae were removed. The dura was translucent, not pulsating, and on being opened a small quantity of fluid escaped. Pressing against the dura was an arachnoid sac, with much serum under pressure. The arachnoid was attached to the dura and laterally to the cord and nerve roots, so that in freeing it fresh bleeding took place. It was freed as far as a probe could reach, and opened. Both membranes were left open and drained by a small rubber wick carried out at the lower angle of the superficial wound, which was closed. The wound healed by primary union after a few days' drainage of serum.

Result.—His general condition improved, but he did not regain control of his legs at once. Three weeks after operation he began to see improvement in his arms, and was discharged four weeks after operation, relieved. After his return home the paralysis of the lower extremities disappeared, he steadily gained, and when seen nine months after operation he was at work, able to run, walk, and use his hands almost normally, exhibiting only a slight atrophy of the back of the forearm.

CHRONIC CERVICAL PACHYMENINGITIS.

CASE 8.—Man, aged 40, entered the Carney Hospital in March, 1904.

History.—Twenty years ago he had had syphilis, for which he was treated successfully at the time. Sixteen months ago he noticed a slight weakness of the left arm, which gradually increased until he lost control of the left hand and arm. The right hand began to grow weak two months ago and the patient complained of severe pain in the back of his neck and the base of his head, which was especially marked on walking, relief being obtained by lying down.

Examination.—There was no ataxia, but some pain in his feet and toes. Dr. Bullard's examination showed that the pupils were equal, reacting normally. The external orbital muscles were normal. There was slight unsteadiness of the right eye on convergence. No tremors of the tongue. Numbness below the occiput, stiffness of the muscles of the posterior neck, especially on the right side. Pains shooting up the right neck to the right ear. Occasionally very difficult swallowing. The right side of the neck posteriorly appeared flattened. The right shoulder was slightly lower than the left; the sides of the chest were about equal. Passive motion of both arms normal. Both triceps reacted normally. Some diminution of the sense of touch and pain in the left arm; some atrophy of the left upper extremity, most marked in the left hand, but the interossei were not affected. Atrophy of the thenar and hypothenar eminences. Left arm smaller than the right. Knee jerks active. No clonus. Babinski absent. Left arm 1 cm. smaller than right. A little later some diminution of sensation was found over the left deltoid and the upper two-thirds of the anterior and outer surfaces of the left arm; there was, possibly, slight diminution of pain. Still later, a week before operation, there was involuntary twitching of the left posterior muscles of the neck, more marked on the left than on the right. Atrophy of the right shoulder more marked. Triceps reflex in the left arm better than in the right. There was diminished sensation over the left deltoid. He complained of a dead pain from the left shoulder down the left arm. The pains in the right posterior part of the neck were increased on walking, but disappeared immediately when lying down.

Operation.—At operation by Dr. Bottomley the fifth and sixth cervical laminae were removed. The dura bulged and was evidently under considerable pressure. On incision a clear fluid spurted out, several ounces escaping. The probe passed downward met with no obstruction, but on being passed upward met with fairly firm adhesions, which were broken up by the probe. There was free hemorrhage from the veins of the dura, controlled by hot wicks. The dura was partially closed with catgut and the wound closed, allowing for a temporary drain.

Result.—By the end of two weeks the grasp of the right hand began to improve and in another two weeks the patient went home, with still more marked improvement and with beginning improvement in the left hand. Since that time he has steadily been gaining.

SECTION OF POSTERIOR ROOTS FOR PARALYSIS. TWO CASES.

THREE OPERATIONS.

CASE 8.—Man, aged 55, has been reported in detail by Dr. Morton Prince,¹ and from his account I will condense a few details that concern us surgically.

History.—The patient, struck by a train, received a Colles fracture of the left wrist and developed a complete paralysis of nearly the whole left arm; the paralysis, typical of a neuritis of the brachial plexus, had persisted for over a year. The most diseased fibers were apparently from the fifth, sixth and seventh cervical segments, while those from the eighth cervical and first dorsal were partially implicated. He suffered most intensely from pain located chiefly in the thumb and forefinger.

Treatment.—He was under treatment in the clinic for nervous diseases of the Boston City Hospital for a long time, and for the relief of the pain, which was intense, three different operations were undertaken at various times; that is, the radial was stretched in the forearm without relief; later he underwent some other operation at another hospital, the nature of which could not be learned; later still, fifteen months after the accident, I explored the brachial plexus in the axilla and found that all the nerves looked normal, except the ulnar, from about three inches from its origin downward. It had lost its striated, opaque look, was translucent in the center and somewhat crinkled. There was thickening about the humerus, apparently from cicatricial tissue of the soft parts. The plexus was thoroughly freed from the scar tissue and the wound closed.

Operation.—He derived no benefit from this operation and, at Dr. Prince's suggestion, in October, 1899, a laminectomy was done under ether. A long incision was required because of a thick, fat neck. There was much bleeding in the first part of the operation, requiring tedious hemostasis. The sixth, fifth, fourth, and part of the third cervical laminae were removed. On opening the dura at the lower angle some vessels of the subdural space were injured and caused troublesome venous bleeding that could be controlled only by packing under the lamina. So far as could be determined, the left posterior roots of the seventh, sixth and fifth nerves were found and freely cut close to the cord. The dura was then sutured, but not completely closed, and the wound closed except for a wick, which was placed down to the subdural space to control oozing. The operation was long and tedious, but the patient had comparatively little shock. The wound closed aseptically, and from the moment of coming out of ether the patient was free from pain in all the previously affected areas.

Result.—After he began to get about, however, it was noticed that he exhibited a limp and weakness of the left leg, and examination showed a moderate Brown-Séquard paralysis. Dr. Prince, at the time of operation, feared the possibility of a clot forming within the dura and called my attention to it at the time, and it is probable that the paralysis was due to pressure from this source. Gradually the patient developed severe pain posteriorly in the neck and at the time of discharge from the hospital, three months after operation, he still suffered from severe pain, though in a different region from that

originally affected; the cause of the pain in the neck, according to Dr. Prince, being undoubtedly due to a neuritis following injury to some nerve at the time of operation or during healing. Although the arm itself was free from pain, it was useless, and the patient was anxious to have it removed. This was promised if he was unable to make use of it at the end of a year. Five months after operation Dr. Prince examined him and found great improvement in his condition and that the operation had relieved his pain, for which it was undertaken. At the same time the neck pain had also disappeared, but he complained of pains about the shoulder, due, probably, to the weight of the paralyzed arm dragging on the capsule. The Brown-Séquard paralysis had improved very much, although the left leg was still weaker than the right. He still desired to have the arm amputated. Dr. Prince has made an interesting and able study of the areas of the anesthesia, for which reference to the original article must be made. About a year after operation the patient, probably dissatisfied with his general condition, committed suicide. No autopsy was obtained.

CASE 9.—Man, aged 29.

History.—In 1898 his right arm was burned between two hot rollers and amputated at once at the Massachusetts General Hospital. Nine months later he entered the City Hospital for painful stump. At various times neuromata were removed from the median and from the ulna nerves. The median, ulna and internal cutaneous nerves were injected with osmic acid and in May, 1900, portions of these nerves were removed. A year later there was reamputation of the stump and severing of the nerves high up. From none of these operations did he derive relief. The patient was markedly hysterical and probably unreliable in his statements throughout. A marked hyperesthesia was found over the scapula, shoulder and anterior portion of the deltoid and the stump, where he could not bear the slightest touch on the skin. In spite of his marked general neurotic condition he was advised to have the posterior nerve roots cut to relieve his pain.

Operation.—In February, 1902, under ether, the laminae of the fifth to the seventh cervical vertebrae, inclusive, were removed. On opening the dura much clear fluid escaped. As well as could be determined by previous careful measurements the sixth, seventh and eighth cervical posterior roots were cut. There was very slight bleeding from the stumps for a few moments. The dura was not sutured. The upper angle of the wound was packed with gauze tape, as there was a slight persistent oozing of blood from this point that could not be otherwise controlled. The wound was closed throughout, allowing for the wick and for a small rubber tissue drain to the subdural space at the lower angle.

Result.—Apparently pain in the stump diminished to a considerable extent, as it could be handled when the patient was asleep without arousing him although he winced if it was touched when awake. He complained of pain in his neck and head after operation but there was no satisfactory explanation therefor. The wound closed except for a superficial stitch abscess due, probably, to the through-and-through silkworm-gut sutures. On their removal healing progressed satisfactorily. A month after operation the patient showed some delusions and at one time was so noisy that he was transferred to a lower ward. This passed away gradually and his general condition improved except as regards his neurotic symptoms, and two months after operation he was discharged, with very slight hyperesthesia of the stump, to be treated by the neurologic out-patient department. Several of the neurologists who examined him considered that the trouble was "cerebral" rather than confined to the nerve tracts.

Subsequent History.—Three months or more after operation a paraplegia of the lower extremities developed gradually, and since July, 1902, he had not been able to stand, and at times complained of difficulty in micturition. He also complained that pain in the right upper extremity had returned.

Examination by Dr. W. N. Bullard, neurologist to the Carney Hospital, showed a total paraplegia of the lower extremities, with rigidity in extension, but with normal sensation to touch and pain. In addition there was a spinal epilepsy of

the lower extremities, a knee clonus on the right, but on the left it could not be obtained on account of the rigidity. Ankle clonus and Babinski present on both sides; cremasteric reflex on the right, not obtained on the left. No numbness was obtained over the back or chest. There was hyperesthesia to light touch on the right upper extremity, but the sensation of pain was normal.

Second Operation and Result.—At the second operation at the Carney Hospital, 1904, an incision was carried down through the scar, which was found adherent to the cord posteriorly, not involving the left roots, but slightly involving the region of the right roots. The adherent tissue was easily freed from the cord, but posteriorly there was no evidence of any spinal fluid until the level below the former operation was reached. The left posterior roots appeared normal. The cord itself appeared of normal size and consistency, but without evidences of any pial vessels. In the lower third of the wound were fibers of probably the first dorsal root, which had not been cut at the preceding operation. Above this the root stumps were atrophied, lying flat, adherent to the cord, except one small fiber, which apparently had not been cut or else had reunited. This fiber and the intact root below it were severed and the stumps trimmed down to a level with the cord. The remains of the dura were then freed laterally from the cord above and below and some fine silver foil placed against the cord, over which the dura was sutured with catgut. The wound was sutured in layers and a cocoon dressing applied.

After operation the patient was sitting up early and the wound united *per primam*.

Examination ten days later showed that the pain in the upper extremity had diminished, that there was diminution of sensation to pain from the fourth to the sixth space in the right nipple line, no hemianesthesia on the right and abdominal sensation normal. The paraplegia remained as before operation, though some voluntary motion of the toe was reported. No hyperesthesia of the stump was found. Slight diminution of sensation all down the right back and thigh was found, but as it varied at different times, it probably was functional.

MYELOMA OF THE SPINE.

CASE 10.—Man, aged 39, was seen with Dr. Hunting of Quincy, in consultation with Dr. J. J. Thomas, in December, 1900. It was reported before the American Neurological Association by Dr. Thomas in June, 1901, and from his article I shall quote freely.

History.—The patient, a lawyer, without any previous history of importance, in August, 1900, was seized by severe pain in the shoulders, which confined him to bed for four or five days. Since that time there had been more or less pain, but not confining him to his bed. Beginning with October of the same year, he noticed slight uncertainty in the use of his legs, and once, while stooping, fell on the floor. This was more noticeable in the dark than in the light. He had noticed numbness in the feet and tightness about the abdomen, together with difficulty in holding his urine after the desire to micturate had come on, and at times there was difficulty in starting the urine.

Examination.—The pain in the back was aggravated on motion and diminished with rest. Sensation to touch and pain was diminished below the level of the spine of the eighth dorsal vertebra on the eighth rib.

Treatment and Result.—The diagnosis of pressure on the cord, probably from tumor, was made and he was placed on anti-syphilitic treatment and a plaster jacket was applied. A month later the gait had become slightly ataxic, with incoordination. The knee jerks increased, the other reflexes varying at different times. Pain and temperature sense became diminished and the patient complained of an increase in the uncertainty in his gait. A month later the gait was slightly spastic and ataxic. The pupils at this time reacted rather sluggishly to light and the left was slightly the larger. There was a slight swelling on the left fifth rib, which had been noticed before, but it was not tender.

Operation.—Operation was advised and done on December 20

at the Quincy Hospital. On the day of operation the urine, which had previously been normal, was suddenly found to give a heavy precipitate, with heat, disappearing partially on boiling the urine. This was thought to be albumose and its presence was confirmed later. At operation the first, second, third and fourth dorsal laminae were removed. The lamina of the fourth on the left side was thin and bluish, with the cortex destroyed on the upper posterior surface over a small area. The medulla of the spinous process and the lamina was filled with a soft reddish material and on being traced to the left it was found extending anteriorly through an opening alongside the head of the rib, admitting a finger, the rib itself not being eroded. This tract continued to the left side of the vertebral body, where the bone was loose and rough, easily bleeding and evidently infiltrated with a new growth. In all probability some of the same growth lay anterior to the lamina, pressing on the dura, but otherwise without infiltrating it. The dura looked healthy and was not tense. Through the unopened dura the cord felt normal. There was no evidence that the growth had pushed anteriorly to the posterior mediastinum. As much growth as possible was curetted out, the cavity in the vertebral body packed with iodoform gauze and the wound closed, allowing for the gauze drain. The patient stood the operation well and the pulse was excellent at the close.

Result.—Following operation the patient developed a complete paraplegia, with retention of urine. This gradually improved and the wound healed well. Two weeks later, when seen by Dr. Thomas, all movements of the legs and feet were performed normally and with good strength, and there was marked gain in sensation. Heat, cold, pain and touch were perceived fairly well almost everywhere, though in various small areas the improvement was not so great as in general. He could control the bladder for the most part. Careful analysis of the blood, urine and growth was made—for which the reader is referred to Dr. Thomas' original article—the urine showing albumose and examination of the tissue showing myeloma. Dr. Hunting then placed the patient on bone marrow and Coley's toxin and by March he was attending to his business and was feeling as well as ever in his life. At various times myelomata appeared in one rib and another, but there were no more symptoms of cord pressure.

Dr. Thomas has carefully examined the literature of these cases, which will not be considered in this article.

On June 1, 1904, Dr. Hunting wrote me as follows: "About one month after operation I began treatment with bone marrow and Coley's serum, increasing up to 15 minims, dependent on the reaction produced. I gave it at first three times a week, then twice, and during the summer I stopped it altogether while the patient was away in the country. For the last two years he has had about 7 minims of the serum once a week. At first the injections caused fever, delirium and pain at the point of myelomatous swelling. Of late, however, only pain and a feeling of malaise is produced, which passes off in about a day. He has had a good many points of pain, swelling and tenderness on different ribs, with three or four subcutaneous fractures. There is quite a marked kyphosis at the fourth dorsal vertebra, due, probably, to collapse of the vertebra and lack of support from the ligaments of the spine. He has refused to wear a jacket, as it presses on the tender points in the ribs. He has had several twists and falls, a severe bronchitis, and recently a mild pneumonia. He has attended to his business except when temporarily laid up, has a good appetite and digestion and sleeps well, his urine varies in quantity, but is always increased and contains from a trace to $\frac{1}{2}$ per cent. of albumin, albumose and globulin. His present condition is fair. He attends to business, but is easily tired, occasionally but not often complains of weakness and numbness of the legs and feet. Most of his pains are apparently due to intercostal neuralgia or to collapse of the vertebrae."

DISCUSSION.

DR. F. B. LUND, Boston—Dr. Munro has rightly stated that these cases are among the most discouraging that a surgeon has to treat. There can be very little question but that in

many cases falls from heights form a large proportion of the causes. There are some cases in which the cord is pressed open where the symptoms do not differ from those of a crushing of the cord itself. Many of the Army surgeons advocate letting these injuries alone. It is difficult to get at the laminae and elevate them without damaging the cord. I have seen a burly ice man who had fallen from a great height brought to the hospital with sufficient pressure on the spine to probably cause death from shock. By properly constructed forceps the operation may be done with moderate shock, and in cases in which the patients come into the hospital in a state of shock it is well to wait a certain length of time. I have seen a case where the cauda equina was pressed on, and removal of the lamina against which the cauda equina was pressing enabled the patient to walk out of the hospital. I have had no fatalities from similar cases, but know in some that I did no good. If one does not remove the bone nor attempt to see how badly the man has been hurt, one has not done his duty to the patient nor given him a chance for recovery.

DR. HARVEY CUSHING, Baltimore—Cases of hematomyelia must be carefully selected from those of fracture.

RUPTURE OF MESENTERIC GLANDS DURING TYPHOID FEVER

SIMULATING INTESTINAL PERFORATION; REPORT OF A CASE WITH OPERATION AND RECOVERY.*

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The profession has long recognized that among the various lesions which may produce a peritonitis in the course of typhoid fever, rupture of the mesenteric glands is one, and yet in the many text-books which have been consulted there is not a reference given to a specific reported case. Nothnagel's "System" and Osler's "Practice," for example, fail to give a single instance of a mesenteric gland producing peritonitis; but each mentions it as a possible cause of such a complication in enteric fever. Keen's records references under this heading, but all of them prove to be cases of obscure peritonitis of unknown origin, where the reporter has only suggested the possibility of a ruptured mesenteric gland being the cause. It would, therefore, seem that such an occurrence is very uncommon, and a search through the recent literature on the subject tends to confirm this view, for I can find but one recorded case, and another unpublished record from the Episcopal Hospital notes. These two cases terminated fatally. I therefore propose in this article to review the theories advanced for enlargement of the mesenteric glands during enteric fever, and to discuss the probable causes which lead to perforation of the mesentery with a resulting peritonitis.

ANATOMY.

The mesenteric glands constitute one of the most important glandular centers in the human system.² Their number varies from 130 to 150, and they may be divided into three more or less distinct groups, which vary in importance and significance.

1. The primary group comprises some small glands placed in the course of the terminal arterioles springing from the last anastomotic arch of the vessels. This

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

1. Surgical Complications and Sequela of Typhoid Fever.
2. Foriere, Cuneo and Delamere: The Lymphatics. English translation by Cecil H. Leaf.

group may be considered as a simple interrupting glandular nodule which has no morphologic fixity.

2. A second group comprises the glands placed in the course of the primary branches of the superior mesenteric artery, and at the level of the first anastomotic arch formed by these vessels. These glands, which are larger than the preceding, are the true regional glands of the ileum, and it is the enlargement of this group which concerns us most in typhoid fever.

3. A third group is found around the trunk of the superior mesenteric artery, and more particularly around the commencement of this vessel. This group does not properly belong to the jejunoleum, as it receives in addition the efferents of the regional glands of the cecum, ascending and transverse colon, duodenum, and even the afferents of certain glands connected with the stomach.

The second group of glands are especially numerous in that portion of the mesentery which corresponds to the jejunum. There is a progressive diminution in their number in each given segment of the mesentery until the terminal segment of the ileum is reached. Here, in this terminal segment and in the ileocolic region of the mesentery, the glands reappear in numbers and form an important mass around the ileocolic artery. It is this group of ileocolic glands which generally shows the greatest change and enlargement in typhoid fever. The collecting trunks for these glands form two systems relatively independent of each other, one of which is attached to the mucous layer and the other to the muscular coat of the bowel.

PATHOLOGY.

The changes that take place in the mesenteric glands are intimately connected with the lesions of the intestine.³ They are as constantly enlarged as the lymphatic structures of the intestines, and exhibit the same characters of medullary infiltration. In general, the localization of the process in the glands corresponds to that customary for the intestinal lesion, so that the glands in the lower part of the ileum, cecum and adjacent regions of the colon are most frequently involved, and in the greatest degree. Under exceptional circumstances profoundly involved portions of the intestine may exhibit slight glandular involvement, while, on the other hand, a slightly developed intestinal lesion is sometimes associated with disproportionate glandular hyperplasia. The involvement of the mesenteric glands is practically simultaneous with the infiltration of the lymphatic structures of the intestine. The glands become prominent as early as the first week, and attain their maximum size at the height of the disease. They may vary from the size of a pea to that of a walnut or an egg; they are tensely elastic, grayish-red or bluish-red in color, globular, smooth, or of a somewhat nodular surface. On section the projecting glandular structure is more markedly reddened in the cortical than in the medullary portions, the latter at times presenting a grayish-red, or in the center even a yellowish-red appearance.

Ribbert⁴ claims that the primary swelling in the intestine and mesenteric lymph nodes is due to the typhoid bacillus getting into the lymph sinuses and causing an acute inflammatory exudation of serum and leucocytes into the outer portion of the lymph nodules and the adjoining tissue. After a certain time the exudation disappears and is followed by an intense prolifera-

tion and desquamation of the endothelial cells lining the reticulum of the lymph spaces. These cells are occasionally phagocytic; the real lymphoid nodules, according to him, play no part in the process. Later necrosis and softening of the newly formed tissue occur, and repair by granulation tissue follows.

Mallory,⁵ on the other hand, does not believe that the presence of the typhoid bacillus in the lymph sinuses is essential, and that the proliferation of the cells is due to a diffusible toxin present in the blood and organs. This toxin is produced by the typhoid bacillus in the intestinal tract, and as a result of its absorption it stimulates the endothelial cells to active proliferation. He calls attention to the fact that the lymph sinuses are always more affected than the nodules and cords of the lymphoid cells. They become widely dilated and filled with large phagocytic cells, containing mainly lymphoid and plasma cells, but also occasionally red blood globules. These large cells are derived in part, if not entirely, from the endothelium lining the loose reticulum of the sinuses. In the lymphoid tissue between the sinuses a proliferation of the large cells lining the reticulum takes place, just as in the intestine. Sometimes it is most marked centrally; sometimes diffusely or peripherally. These phagocytic cells invade the coats of the smaller blood vessels, penetrating to the intima, where they degenerate and cause occlusion of the veins and capillaries by forming fibrinous thrombi. Necrosis in the lymph nodes takes place in the same manner as in the intestine through thrombosis of the blood vessels. When it occurs it is always most marked and most extensive in the lymph sinuses. Sometimes the typhoid process extends outside the lymph nodes into the adjoining fatty tissue, and these areas may also become necrotic. In many cases the lymph nodes do not undergo necrosis, but instead resolution takes place. The cells rapidly show signs of degeneration and disappear. Apparently resolution can occur even when fairly extensive necrosis exists in the lymph sinuses. Mallory, therefore, believes that histologically the typhoid process is proliferative and stands in close relationship to tuberculosis, but that the lesions are diffuse and bear no intimate relation to the typhoid bacillus, while the tuberculous process is focal and stands in the closest relation to the tubercle bacillus.

The postmortem examinations made at the Pennsylvania Hospital by Dr. W. T. Longcope are interesting in this connection. During the last three hospital years—from May, 1901, to May, 1904—1,958 cases of typhoid fever were under treatment in the institution. Of this number, 158 died, a mortality of 8.07 per cent. Of the 158 cases that died, 65 came to the postmortem table. In many of these cases the ileocolic group of mesenteric glands were enlarged to the size of walnuts, soft in consistency and of a reddish-gray color. The capsule was thickened, tense and firm, and in no instance showed signs of degeneration. To the naked eye the glands presented no signs of necrosis, although the microscopic sections showed minute necroses usually to be present. The mesenteric tissue outside of the glandular structures showed little or no sign of inflammatory products. In the majority of instances the typhoid bacillus was present in the glands in large numbers and in pure culture. No one of these 65 cases showed the slightest evidence of softening of the capsule of the glands, nor any tendency toward perforation.

3. Nothnagel's Encyclopedia, volume on Typhoid Fever, p. 100.
4. Lehrbuch der pathologischen Histologie.

5. Histological Study of Typhoid Fever. Jour. Experimental Med., vol. III, p. 611.

We may, therefore, conclude that whatever the cause of the pathologic changes in the glandular tissue, whether due to a diffusible toxin secreted by the typhoid bacillus in the intestinal tract, or to the presence of the bacillus in the glandular structures, we have present as constant elements of the disease: 1, Active proliferation of the cells with great enlargement of the gland; 2, thrombosis of the veins with the production of minute areas of necrosis and softening which ultimately end in resolution; 3, thickening and strengthening of the glandular capsule.

CAUSES OF PERFORATION.

To produce perforation of the gland we must, therefore, look for some causes other than those just mentioned; something, perhaps, of an accidental nature which may very occasionally take place. In this connection I would suggest two possible causes from a theoretic standpoint alone, as I have no clinical evidence to bear them out.

First.—Through extension of the typhoid process outside of the glandular capsule the coats of some of the larger veins or arteries may be infiltrated by the phagocytic cells, producing occlusion of the vessels and interfering with the blood supply to the glandular capsule. Under such circumstances we would naturally expect necrosis of the capsule to follow, with perforation and liberation of the contents of the gland.

Second.—The accidental presence of staphylococci or streptococci in the glandular tissue which have gained entrance through the eroded mucous membrane of the bowel. If such pus-producing organisms should gain entrance to a gland already filled with minute necroses, it is easy to believe that they would soon gain a firm foothold, rapidly multiply and liquefy the glandular tissues, with ultimate perforation of the capsule.

Pennsylvania Hospital, Case 2175.

History.—M. D., Hungarian, aged 22, was admitted to the Pennsylvania Hospital Oct. 14, 1903, under the service of Dr. J. A. Scott. The patient did not speak English. He had been sick for eight days with fever, diarrhea, prostration and pain in the head and abdomen.

Examination.—On admission he was found to be a well-nourished man. The conjunctivæ were slightly injected; tongue moist, coated, tremulous; chest negative except for a few râles at the base of the right lung, posteriorly; abdomen soft; spleen enlarged and palpable; urine negative; leucocytes 5,700; Widal reaction suggestive; temperature ranging from 101 to 104 degrees; pulse 86 to 100; respirations 24 to 28.

October 18. Twelfth Day.—Typical rose spots appeared over the back and abdomen. Tubing, which had been ordered, was discontinued, owing to the marked cyanosis produced in the patient. Blood culture gave pure cultures of typhoid bacillus.

October 23. Seventeenth Day.—Continuation of the typical symptoms of a moderate attack of typhoid fever. Leucocytes 4,300.

November 4. Twenty-ninth Day.—Abdomen painful and distended; relieved by enema. Temperature on a lower level, ranging from 100 to 102.

November 8. Thirty-third Day.—Abdomen again very much distended and painful. Leucocytes 3,500; pain and distension not relieved by enema.

November 9. Thirty-fourth Day.—During the night there was a sudden rise in temperature to 104.3/5, but by morning the temperature had dropped to normal; distension had increased; slight rigidity of the right rectus muscle; considerable tenderness; liver dullness almost obliterated; abdominal pain complained of only on coughing. Two leucocyte counts a few hours apart were made, each one showing 3,500 white cells. Pulse and respiration unchanged. No sign of collapse.

A consultation was held and it was decided to await developments.

November 10. Thirty-fifth Day, 5 a. m.—Patient complained of sudden, very severe abdominal pain. Temperature subnormal; pulse and respiration not increased; distension, tenderness and rigidity about the same as on previous day. 10:30 a. m., leucocyte count 5,400; condition about the same, pain continuing; operation decided on.

Operation.—11 a. m. Ether administered. Three-inch incision through the outer border of the right rectus; a small amount of ascitic fluid without odor escaped. Localized peritonitis present. The lower portion of the ileum much inflamed, covered in places with patches of lymph, with some deep ulcers, one of which looked as though it was about to perforate. These suspicious areas were folded in with Lembert sutures. The mesentery at the junction of the ileum and cecum was much thickened and inflamed and the ileocecal glands were much enlarged, one of them having broken down and perforated through the peritoneal coat. In the immediate neighborhood of this gland the mesentery was very thick and infiltrated with inflammatory products. A portion of the broken-down and extruded gland was found free in the peritoneal cavity. The gland was curetted and the remaining cavity in the mesentery packed with a strip of gauze. The abdominal cavity was then flushed with sterile salt solution and the area surrounding the perforated gland walled off from the remaining part of the peritoneal cavity with gauze. The abdominal wound was not sutured.

Recovery.—For three days the temperature ranged from 99 to 100, then dropped to normal and subnormal for a week, when there was again a slight elevation of temperature for five days. On November 19 the last of the gauze packing was removed, and by November 30 the wound was practically closed. The convalescence was uneventful.

Pathologic Report of Specimen and Cultures by Dr. W. T. Longcope.—Section through a small mass of the tissue showed a necrotic tissue suggesting lymph gland with indefinite lymph sinuses filled with necrotic cells, blood vessels and reticulum in which lie necrotic cells. In some places there was nothing but a pinkish necrotic material. About the periphery there were a few clumps of poorly preserved lymphoid cells, together with many large, partially necrotic phagocytic epithelioid cells.

Sections stained in polychrome methylene blue showed enormous numbers of small bacilli, but no cocci were found.

Diagnosis: Necrotic typhoid lymph gland.

Cover-slips made at time of operation from intestinal exudate showed a few poorly staining bacilli, often vacuolated, with moderate numbers of leucocytes and fibrin. Bacilli did not stain by Gram's method. Culture from peritoneal fluid and exudate from intestinal surface showed no growth after 48 hours at 36.5 C. Cultures from fibrin showed no growth after 24 hours' test. At the end of 48 hours they were overgrown by *B. subtilis*. No cultures were made from the glandular tissue.

We may consider in this case two distinct causes for the production of the local peritonitis: 1, A highly inflamed segment of the ileum, showing deep ulceration and patches of lymph, but no perforation of the bowel; and, 2, a softened, ruptured ileocecal gland with extrusion of its contents into the peritoneal cavity. The patches of lymph removed from the ulcerated area of the bowel proved sterile; cultures from the peritoneal fluid also remained sterile, but the cover-glass smears from the peritoneal fluid about the mesentery showed a few vacuolated bacilli. We may fairly conclude that bacilli had not penetrated to the peritoneum through the intestinal coat, and that those extruded from the gland had not gained as yet a foothold, but were inhibited in their growth by the peritoneal secretions. The ruptured gland showed large masses of bacilli, and it would seem probable that these would soon have overcome the resisting power of the peritoneum, with the

production of a general peritonitis. It is to be regretted that cultures were not made from the glandular tissue removed.

Two similar observations recorded by others are briefly as follows:

CASE 1.—H. C. D. (Episcopal Hospital Records; unpublished). Male, aged 25 years; operation Sept. 14, 1899, on the sixteenth day of the disease, 36 hours after a supposed perforation. Exploratory incision showed no marks of peritonitis; intestines very much distended; no perforation found; drainage; death in three days.

Autopsy.—Ruptured and suppurating mesenteric gland; no perforation of intestine.

CASE 2.—J. C. M.^o Male, 27 years old. Early in the disease he had slight tenderness in the upper abdomen, but no further signs developed until the day of operation, when mild delirium began. At 7:30 a. m. pulse rose to 120, the face looked pinched and white, and he became semi-conscious. At 8:45 a. m. he collapsed, with a rapid pulse. The left side of the abdomen became more distended than the right, but no spasm or rigidity was noted. He grew worse, and Dr. Munro saw him in consultation a few hours later, when he obtained the following additional history: About five hours before operation he had collapse, with increasing pulse, tender and painful abdomen and increasing delirium. He found spasm not definitely localized, though the pain had started in the left iliac fossa. The patient was in a very poor condition and operation was advised as a last resort.

Operation.—Ether; median incision; slight excess of fluid; no pus; no suppuration; swollen glands; too ill for careful examination; death in about 12 hours.

Autopsy.—This showed two swollen glands, softened and purulent, which had ruptured and caused a local peritonitis with adhesions of the adjacent gut.

STATISTICS.

We may judge of the rare occurrence of perforation of the mesenteric glands in typhoid fever in two ways: 1, The very few cases that are reported in literature, and 2, from the statistics of the Pennsylvania Hospital, where on an average more than 600 cases of typhoid fever are under treatment each year. The case reported above is the first one we can find any record of in the hospital. As previously stated, during the past three years 1,958 cases of typhoid fever were under treatment in the institution, of which 158 died, and in 65 of these a post-mortem examination was made. In this number we had ocular proof of 29 cases of perforation of the bowel, either on the operating table or on the post-mortem table, but there were in addition several cases that had all the clinical symptoms of perforation, in which operation or a post-mortem examination was refused. We can readily see, then, that compared with perforation of the bowel, perforation of a mesenteric gland is extremely rare.

CONCLUSIONS.

1. Swelling of the mesenteric glands is a constant lesion of typhoid fever.
2. That such enlargement is due principally to a proliferation of the endothelial cells lining the lymph sinuses.
3. That these cells by penetrating the walls of the capillaries and smaller veins produce thrombosis, with resulting minute necroses.
4. That such necrosis ends in resolution.
5. That perforation of the capsule of the gland is dependent on some causes other than the presence of the typhoid bacillus and thrombosis of the smaller glandular vessels.

6. That perforation is probably due either to the presence of the staphylococcus or streptococcus in the gland, or to thrombosis of larger vessels of the mesentery outside of the gland.

DISCUSSION.

DR. L. J. HAMMOND, Philadelphia.—The five cases in literature sufficiently analogous to this one enable us to draw conclusions as to the cause or mode of invasion of the infection. From these five cases we learn that only two of them had lesions of the bowel sufficiently extensive to justify the belief that the infection took place through this source, while the additional grave complications were sufficiently great to overshadow the intestines as the focus of infection. In three cases there was associated splenic abscess, liver abscess, thrombus of the superior mesenteric vein and septicemia. At the autopsies in three cases the intestinal ulcers were not sufficiently extensive to justify the probability of infection from this source. It is doubtless a fact that the second group of glands, already described, convey the infection from the spleen, as occurred in one of the cases in this group, thus leaving out the intestinal tract as a factor *per se* in the production of this type of infection in the larger percentage of the cases. There are 29 other cases recorded of abscess where no perforation of the peritoneal coat had as yet taken place, liberating the pus in the peritoneal cavity; the glands were, however, so distended with pus that it was natural to assume the fluid would have soon been free in the peritoneal cavity. An analysis of these cases shows that the involvement of the glands need not necessarily correspond in proximity to the usual position of the lesions in the intestinal tract. We also learn that the gland is in all probability not involved simultaneously with the intestinal tract, but on the contrary the records show very clearly that the suppurative process takes place much later. Most of the cases show that seldom earlier than the thirtieth day were there symptoms such as rigor or chill, accompanied by increased pulse, elevation of temperature, and a lump discovered in this region. A distinct lump, at first hard, later soft and fluctuating, was present in all the cases in various positions, but in every instance to the right of the hypogastrium. In none of the cases did the evidence of the glandular involvement appear earlier than this. This complication may be looked for during the early convalescence, but in one case the evidence in the shape of tumor in the right iliac fossa did not appear until four and a half months after apparent recovery. As to the theories advanced concerning the channels of infection, it seems quite probable, in view of the study of the history of these cases, that the correct theory is that the infection takes place during the endothelial cell proliferation and is due to the products of typhoid process rather than to a direct bacillus infection. This theory is confirmed by the fact that in but one of these cases was the typhoid bacillus found in the pus. The hyperplasia of the lymphatic gland is, while generally found, not a constant symptom of typhoid fever. I have found, in a record of 72 autopsies on typhoid subjects, 3 cases where there was no enlargement of the mesenteric glands discoverable.

DR. L. L. McARTHUR, Chicago.—I have had one case, which occurred three months ago. The patient was in the seventh week of typhoid and had been showing for a week evidences of a localized peritonitis. Examination of the patient revealed what I thought was a retrocecal appendiceal inflammation, with pus formation. It was possible to readily open the abscess without opening the general peritoneal cavity. Twenty-four days after opening the abscess, and with the local symptoms all gone, the patient died of pneumonia. At the post-mortem a broken-down gland situated near the ileocecal junction was found as the source of the pus. The appendix was normal.

DR. D. N. EISENDRATH, Chicago.—I desire to add another case which is similar to the one which Dr. Le Conte has just reported. The patient entered the medical service of Michael Reese Hospital with all the typical symptoms of typhoid. The Widal test was positive, and the course of the disease sustained the diagnosis. Suddenly, during the third week, the patient began to complain of pain in the right half of the abdo-

men: the temperature became subnormal, with symptoms of collapse, and rigidity of the abdomen. A diagnosis was made of intestinal perforation, and laparotomy was performed, but no perforation was found. The patient continued to have the same symptoms for thirty hours, and died. The autopsy showed the typical typhoid lesions in the small intestine, but no perforation. One of the mesenteric glands, enlarged to the size of a walnut, contained pus and had ruptured. There is scarcely a doubt in my mind that this case belongs to the class that has been described by Dr. Le Conte as a rupture of the mesen. cren. gland in typhoid.

Dr. C. E. THOMPSON, Seranton, Pa.—I recall a case of typhoid which in the sixth week developed a pain over the kidney on the left side. Examination showed a thickening, and under cocaine I evacuated six ounces of pus. In a few days pain developed on the opposite side and the temperature went up. I made an incision under cocaine on this side and evacuated eight ounces of pus. The patient then went on to a recovery.

A CASE OF RETROPERITONEAL FIBROLIPOMA.*

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The following case of a retroperitoneal fibrolipoma is so typical of this rare form of abdominal tumor, at the present time receiving in general but indefinite recognition and differentiation, that it seems to justify a detailed presentation. On account of the necessity for anticipating the malignant degeneration to which all such connective tissue tumors are more or less prone, as well as preventing the serious involvement of various organs even by a benign overgrowth, an early diagnosis is of great importance. This, in view of the frequent paucity of symptoms and obscure local signs, is difficult and but infrequently made before the condition has rendered an operation impossible or extremely hazardous.

In 1897 Adami¹ gave the immediate mortality from operation of the twenty-six instances he was able to collect at 53.9 per cent. One recurrence increased the mortality to 57.7 per cent. I have collected in addition to these three successful cases, one abandoned at operation and one death without operation. This mortality from an almost benign growth is higher than that obtained by many operators for carcinoma of the breast, and it is to be hoped that further attention to this affection and systematic detailed reports of all cases will give the condition a better prognosis from surgical intervention.

Broca's² case, reported in 1850, seems to be the first definitely recognized instance of this disease. Terrillon,³ in 1886, collected the fifteen cases published up to that time with one of his own. Terrier and Guillemin,⁴ in 1892, reviewed Terrillon's work and added two cases of their own. Several other cases which they report at the same time are of omental or doubtful origin. Josephson and Vestberg,⁵ in 1895, published an excellent article, collecting twenty-nine cases with one of their own. They divide these growths histologically into fibro-myxolipoma and myxolipoma.

Adami,¹ in 1896, published the best article that has been written on the subject, collecting forty-two cases including two of his own, with a very full bibliography. One of his cases weighed forty-one and the other forty-one and a half pounds.

His most important contribution to the subject is a classification of these retroperitoneal lipomas according to origin: 1, those definitely perirenal; 2, doubtful; 3, mesenteric, thus calling attention to the two distinct points of origin, perirenal and mesenteric fat. This division should certainly, as he suggests, "be of service in calling the attention of future observers to the need for more exact descriptions of the position of the tumor when first recognized, and relationship at operation or autopsy."

Of the forty-two cases about twenty-four were considered of perirenal origin; my own belongs to this class likewise. I have been able to collect five cases, which with my own bring the total to forty-eight so far reported.

Horn,⁶ in 1894, reports four cases which are not mentioned by Adami. Two are probably of mesenteric origin and two doubtful. Horn's own case, that of a woman 53 years of age, was successfully operated on by Fritsch, the tumor, a myxolipoma, weighed seventeen pounds.

In Laurenhaus' case, a retroperitoneal lipoma weighing thirteen and a half pounds was successfully removed by Olshausen from a woman of 42 years. The kidney and spleen were in normal position; the ascending colon covered the growth. Koefoed abandoned his case after exploratory laparotomy, on account of the extent of the mass. The growth was a myxolipoma of the mesentery. Horn⁶ also mentions a case which Professor Kirstner operated on successfully. Mudd⁷ reported a case in 1889 in which a retroperitoneal lipoma weighing sixty-six pounds was found at autopsy. The abdomen was very pendulous, extending on to the thighs.

Thus it is seen that this condition is one of great rarity, the present case being but the forty-eighth so far reported, and as the fully developed condition presents a striking picture, it is not likely that many cases which have come under observation have been lost.

It is to be deprecated that these growths should be confused and regarded in the same category as retroperitoneal sarcoma. Only three of the cases, those of Waldeyer,⁸ Adami¹ and Stewart, have shown any tendency to sarcomatous degeneration and but one case, Tillman's,⁹ has ever recurred after removal. They are definitely benign tumors and deserve distinct recognition from other retroperitoneal growths. Their structure is primarily adipose tissue with varying amount of the fibrous structure and frequently some myxomatous tissue, so that they may be denominated lipomata, fibrolipomata or myxo-fibro-lipomata, according to their individual character. Occasionally they may show cartilaginous or bony formation, as in the case of Dreschfeld.¹⁰ According to Adami, where sarcomatous embryonic tissue is found in these large slow-growing tumors, it must be considered as a relatively recent alteration in the structure, which began as an overgrowth of highly developed tissue. It can not be regarded as a primary sarcoma with fatty changes.

About one-third of the cases originate in the perirenal

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

1. Adami: On Retro-peritoneal and Perirenal Lipomata. *Montreal M. J.*, 1896, 7, xxv, 529-533, 1 pl., 620-633.

2. Broca: *Bul. Soc. d'Anat.*, 1850, p. 137.

3. Terrillon: *Arch. Gen. de Med.*, 1886, p. 257.

4. Terrier and Guillemin: Note sur les lipomes retro-peritoneaux. *Rev. de Chir., Par.*, 1892, xlii, 747-753.

5. Josephson and Vestberg: *Hygien.*, Stockholm, livi, 1895, p. 390.

6. Horn: Ueber Retro-peritoneum Myxo-Lipoma. *Breslan, 1894*

7. Mudd: Retro-peritoneal Fatty Tumor. *Weekly Med. Rev.*

8. Waldeyer and Freund: *Virch. Arch.*, xxxli, 1865, p. 542.

9. Tillman: *Hygien.*, 1891, I, S. 277 (Abs. in J. and V.).

10. Dreschfeld: *Path. Trans.*, xxii, 1880, p. 257.

fat and in their growth either push the kidney to one side or flatten and partially imbed it, as occurred in the case I report. The rest originate in the subperitoneal fat, for the most part near the origin of the mesenteric folds, and in growing separate the folds and come to lie below the intestine, which stretches across it. Thus practically all of these tumors will have a loop of the intestine running over them: the perirenal growths, either the ascending or descending colon, and the mesenteric, either colon or small intestine, according to origin. Omental or ligamentous fatty tumors are not included.

ETIOLOGY.

Of this nothing is known. They are about 30 per cent. more common in women than in men, and the large majority occur between the ages of 30 and 60.

SYMPTOMS.

These are particularly striking by their absence in many cases. It is really remarkable how such an enormous growth can take place in the immediate neighborhood of so many important organs and remain almost unnoticed by the patient. The first symptoms are usually of a dragging sense of fullness, not often amounting to actual pain. This may be associated with slight gastric irritability not usually inducing actual vomiting until a late stage.

Gradually the effects of pressure become more and more pronounced, the gastric symptoms may increase in severity, as in Madelung's¹¹ case, and may produce marked emaciation. Obstruction to the veins may induce edema or a compensatory circulation. Obstruction to the intestines, as in one of Roux's¹² cases, may produce recurrent attacks of vomiting and colic, or chronic constipation, flatulence and gurgling. Pressure on the diaphragm causes dyspnea, and the hepatic or common duct may be occluded with the production of jaundice. Albuminuria, although present in my case, has been but seldom found. Still later, pressure on the lumbar plexus may cause pain down one or both legs. There is usually no tenderness.

DIAGNOSIS.

This has been but rarely made previous to operation or autopsy. The frequent mistake is through diagnosing cyst from the semifluctuant sensation imparted by the fat. So definite may be this impression that the diagnosis of cyst has been persisted in even after several negative aspirations. A dry puncture into a fluctuating tumor should always suggest lipoma. Mesenteric cysts are to be distinguished by Augagneur's triad of symptoms: great mobility, situation in middle line, and zone of tympany in front. Echinococcus cysts move with inspiration, may give the so-called "hydatid thrill" of Briangon, and have dullness continuous with that of the liver, which is increased above.

Ovarian cyst should be determined by vaginal palpation of the appendages, and are uniformly dull on percussion anteriorly.

Ascites should not often enter the possible diagnoses of these cases, though the mistake has been made.

Hydronephrosis or pronephrosis usually shows marked tenderness, presents urinary changes, and may be revealed by cystoscopic examination or ureteral catheterization. Distended gall bladder has no intestine anteriorly, descends on inspiration, has a suggestive history, is continuous with liver and is not felt in the flank.

Sarcoma is distinguished by more rapid growth and greater constitutional disturbances and by firmer consistence.

Retroperitoneal cysts would evidently make extremely difficult differential diagnosis. They are rare. Emmet,¹³ in 1895, could only collect nine cases, including one of his own. According to Obalinski, they are probably of fetal origin, as remnants of the Wolffian or Müllerian ducts. They are in general more rounded and regular in outline; more movable and more tense.

A diagnosis of cyst of the pancreas may, as in my case, be strongly suggested from location.

TREATMENT.

This is necessarily operative and, unfortunately, the procedure has usually become very dangerous by the time assistance is sought or interference consented to.

The dangers are threefold: 1, destroying the blood supply to the overlying length of intestine crossing the tumor, with resulting gangrene; 2, shock from operating for the necessary length of time in the exposed abdomen; 3, tearing the vena cava in separating it from the growth. In order to avoid the first danger, Adami advises operating through a lateral incision and accomplishing the removal from below the intestines and peritoneum. Though this is theoretically the ideal route,



Fig. 1.—Retroperitoneal fibrolipoma.

from my experience in this one case I should consider the attempt extremely hazardous. Even with exposure from above, I found it very difficult to clear the vena cava and secure other large vessels. This, I believe, would have been impossible by the lateral route.

Vander Veer¹⁴ advises incision in linea semilunaris, and suggests separating peritoneum from internal border of tumor and then attaching it to the internal border of the abdominal wound, so making the field extraperitoneal. This scheme, which is so valuable in prolonged gynecologic operations, such as the complete operation for cancer of the cervix, as advised by Sampson, would scarcely be applicable in the case of a large mass nearly filling the abdomen, and in earlier cases the ease with which they peel out would scarcely justify the time necessarily consumed by such a procedure.

A median incision probably gives the best exposure and light, and greater ease in manipulation. After packing off the intestine as much as possible to the side, the peritoneum covering the growth is then divided and reflected, great care being taken to preserve the mesenteric blood supply and to injure the peritoneum as little as possible. No general rule can be laid down for proceeding after the tumor is reached, as the method of removal in each case will depend entirely on the extent and location of the growth and the organs involved. If the

13. Emmet: Retro-per. Cysts, Tr. Am. Gyn. Soc., Philadelphia, 1895, xx, 479-493.

14. Vander Veer: Retro-periton. Tumors, Tr. Am. Surg. Assn., Philadelphia, 1891, ix, 375-391.

11. Madelung: Berlin. Klin. Woch., 1881, 75-93.

12. Roux: Semaine Méd., 1893, p. 159.

mesenteric attachment and blood supply of the crossing loop of intestine be destroyed, immediate resection is the only course left to prevent gangrene. This has been the most frequent cause of fatal termination. Great care has to be exercised in freeing the vena cava. If the kidney and ureter are embraced in the growth, they are removed with the tumor, after ligating vessels and the ureter, and after positive recognition of the presence of a second and normal kidney.

After complete removal the large cavity had best be drained through the flank, and the posterior peritoneum then united over it, rendering the artificial cavity and drainage extraperitoneal and restoring the abdomen *in toto*.

The successful operators so far are as follows: Fritsch, Küstner, Ohlschlaussen, Alsborg,¹⁵ Buckner,¹⁶ Bruntzel,¹⁷ Belkowsky,¹⁸ Lundin,¹⁹ Hedborn, Lauwers,²⁰ Madelung,²¹ Monod,²² Pean,²³ Pernice,²³ and Roux.¹² Alsborg¹⁵ removed seven inches of transverse colon; Madelung, eight inches small intestine; Lundin, eight inches transverse colon, and Roux, four feet of small intestine. Usually there is no evidence of inflammation, the peritoneum is smooth and clean, and the tumor peels out with comparative ease.

My specimen, which belongs to the perirenal variety of retroperitoneal lipomata, was successfully removed in one and a half hours. I report it in full.

Patient.—White woman, unmarried, age 35; was admitted to the Memorial Hospital April 7, 1904, complaining of indefinite dragging pains in abdomen and of being "run down."

Family History.—Negative as to similar affection.

Personal History.—Always very healthy; usual diseases of childhood; had typhoid fever twelve years ago. No pneumonia, malaria nor acute articular rheumatism. Appetite good; bowels constipated; six years ago, discharge from right ear which continued for two years. Menses began at 14, always regular; severe dysmenorrhea throughout flow. Has not menstruated for two months. Occasional slight leucorrhœal discharge. Urinary findings negative; no blood, no pus, no pain, no increased frequency of micturition previous to present illness. Her normal weight is 164 pounds.

Present Illness.—For at least two years she has had more or less "indigestion," with occasional attacks of vomiting. During this time there was no pain. Eleven months ago a fullness or tumor was noticed in upper portion of abdomen, and symptoms gradually increased in severity with the growth of the tumor. Some nausea and aching pain were experienced, most marked after eating, and the vomiting attacks became more frequent, especially at night. Considerable flatulence with gurgling and eructation was experienced. Decided loss in weight was apparent and has amounted to forty pounds in past eleven months. A dry, irritating cough has troubled her for some months and night sweats have been constant for past two months. For the past few weeks there has been dyspnea on slight exertion and considerable general weakness, also frequency of micturition and some dyspnea. Constipation is more pronounced. Stools, normal color. No jaundice. No edema.

Physical Examination.—Patient looked weak and poorly nourished. Lips and mucous membrane pale, tongue coated. Pulse 100 to a minute; regular in force and rhythm.

Thorax: Expanded fairly well and equally. Percussion resonant throughout. Breath sounds clear except an occasional moist rale behind.

Heart: Apex in fourth interspace, just inside nipple line. Area of cardiac dullness not increased. Sounds clear. Second aortic slightly accentuated.

Abdomen: On inspection a prominence was noticeable in upper portion of abdomen, rather to right side. This apparently did not descend on deep inspiration. Umbilical fold was almost obliterated. Liver dullness began above at lower border of fifth rib in front and three fingers' breadth below angle of scapula behind. Below, liver dullness was continuous with that of the tumor, which everywhere presented absolute flatness.

The edge of the liver could be made out distinct from tumor, one finger's breadth below costal origin and was felt to descend on inspiration in contrast to underlying fixed tumor. The mass was felt to occupy practically the whole right side of the abdomen from just below the ensiform cartilage to the pelvic margin. The outline was smooth and presented evidence of at least two lobules. Pressure in the flank gave decided forward impulse to mass. The consistence of the tumor imparted an indefinite though suggestive sense of fluctuation. Per vaginam the tumor could be felt extending over rim of pelvis. The pelvic organs were apparently normal.

Urine: Clear, yellow, specific gravity 1,020. Trace of albumin, no sugar, no casts.

Blood Examination: On admission, leucocytes, 10,400; red blood corpuscles, 4,000,000; hemoglobin, 37 per cent. By morning of operation hemoglobin had risen to 49 per cent.

Operation.—Anesthesia, nitrous oxid, ether sequence. Median incision from ensiform cartilage to symphysis. On retracting the abdominal walls the enormous mass was seen to fill the entire right side, extending up under diaphragm and below pelvic brim, and by its elongated, somewhat crescentic shape, suggested a gigantic kidney. All the intestines, including the ascending and transverse colon, were crowded beyond the median line into the left side, thus accounting for the uninterrupted flatness on percussion. After carefully walling off the intestine into the left half of the abdomen with gauze, the peritoneum was divided along the whole length of the tumor and reflected, first on the left side, then on the right. No difficulty was experienced, as the membrane was smooth and stripped off easily. This now exposed the kidney lying flattened in front of the tumor and half buried in it.

The substance of the mass was seen to be quite similar to ordinary perirenal fat. As it was deemed impossible to save the kidney the ureter was followed to the bladder and then ligated and divided and the renal vessels then similarly disposed of.

The enucleation of the mass with the kidney was then begun. In order to facilitate the procedure it was necessary to divide the mass horizontally above the kidney and the two portions were removed separately. In greater part the tumor came away without trouble, though now and then a portion would be bound down by firm adhesions. The most painstaking dissection was necessary to free the vena cava, which was completely buried in the mass, from its bifurcation to its exit in the diaphragm. The upper portion was traced to the head of the pancreas, to which organ it seemed attached. The liver, gall bladder with ducts and spleen, were normal.

The enucleation left an enormous cavity and an anatomic dissection of the abdominal vessels. An incision was made in the flank, through which a gauze strip drained the cavity posteriorly; the posterior fold of peritoneum was then closed over the drain, restoring the abdominal cavity entire. The peritoneum was closed with continuous catgut suture and the abdominal walls closed with interrupted through-and-through silk worm suture. The operation, which was well borne, lasted one and a half hours.

The drain was removed on the sixth day and an uneventful afebrile convalescence was completed by discharge from the hospital on the thirty-second day after operation.

On the third day after operation the leucocytes were 6,900; red blood cells, 3,800,000; hemoglobin, 50 per cent.

15. Alsborg: Deutsche med. Woch., 1887, p. 994.

16. Buckner: Amer. Jour. of Med. Sci., xxiv, 1852, p. 3258.

17. Bruntzel: Berlin. klin. Woch., Dec. 4, 1892, p. 49.

18. Belkowsky: Rev. Med. de la Luak, Wellington, 1893, p. 431.

19. Lundin and Hedborn: Upsala Lakare Forenings for Handl., xxx, 1895, No. 2.

20. Lauwers: Bul. de l'Acad. de Med., Belge, 1891, p. 311.

21. Monod: Revue de Chirurg., xii, 1892, p. 1047.

22. Pean: Bul. de Therap., Nov. 15, 1885, p. 420; Aug. des Hospit., No. 38, 1886.

23. Pernice: Deutsche med. Woch., 1884, p. 850.

Albumin could not be detected in the urine after the fourth day. The pulse, which averaged 88 to 100 before operation, varied afterwards between 64 and 80.

For the following pathologic report I am indebted to Dr. Eugene Opie, of the Johns Hopkins Hospital.

Macroscopic Examination.—The specimen forms an immense tumor mass, divided into several parts. The largest mass is of great size, measuring 31.5x17.5x19 cm., and weighing 3,920 gm. It has a smooth, lobulated surface and exhibits no evidence of having invaded any adjacent structure. It is covered over about one-third of its surface by a smooth membrane, doubtless the peritoneum, which can be readily removed. Examination demonstrates that the entire mass is made of large rounded lobules, varying much in size and shape, the larger being 10 to 15 cm. across. Such lobules are in large part separated by loose areolar tissue, which is readily broken, thus isolating masses which remain attached to one another only by a small basal part. The surface of these lobules is smooth except for the presence of rounded indentations here and there. The substance of the tumor varies much in consistence, being everywhere firm, but in some places hard and tough. The color is in some parts bright yellow and resembles ordinary fat, save that it has a grayish tint and is far firmer in consistence. Those parts of the tumor which are firmest in consistence have a gray color, and on section one sees a distinctly fibrillated appearance, striations of gray color alternating with tissue of translucent appearance. Such tissue though tough is very elastic; it is of gray fibrous appearance and contains poorly defined areas of variable size where the bright translucent yellow appearance of fat is marked. One kidney, which is apparently normal, is attached by its ureter to the peritoneum covering the tumor.

A second mass (measuring 23.5x10x12 cm., and weighing 990 gm.) is wholly composed of dense bright yellow tissue resembling fat, but is of somewhat grayish tint, and is far harder in consistence than normal fat. A very small part of this mass has the tough, fibrous character above described. An adrenal gland, which appears normal, is attached to the mass.

In addition to the above are three smaller masses, weighing together 595 gm., the largest, measuring 12.6x10x6.8 cm., represents an isolated lobule of the tumor. It is irregularly oval in shape and has a smooth surface with occasional rounded indentations. On section this tissue has a dense fibrous appearance save for small areas, about 0.5 cm. across, having the color and consistence of fat. To a smoother small mass of fat-like tumor tissue is adherent adrenal tissue. There is no appearance of invasion and cortical and medullary substances are definable.

Microscopic Examination.—Sections for microscopic examination were made from various parts of the tumor. The tumor substance consists of two kinds of tissue combined, in correspondence with the varying character of the gross appearance in varying amounts. In places it consists almost wholly of ordinary fat cells and resembles fat except that the lobulation is much more irregular than is usual. In other sections, corresponding to those parts in which the tumor substance is toughest, a fibrillated tissue containing many cells is present. In most parts of the tumor both fibrous and adipose tissues occur side by side, numerous fat cells being situated in a fibrous stroma.

This fibrous tissue is loose in texture, containing delicate bands of white fibers together with fluid material which separates both cells and fibers and gives the tissue an edematous appearance. Cells of several types are numerous. Fibroblasts are abundant. Lymphoid cells often form collections of considerable size and nearby are plasma cells. Very numerous are somewhat larger cells with abundant protoplasm and a round or oval nucleus. These cells contain vacuoles in varying number; at times a single vacuole displaces the nucleus. Such cells, which pass by transitions into fully formed fat cells, represent the latter in process of multiplication. In addition to the above, varying much in number in different parts, occur very large multi-nucleated cells—giant cells. They are usually irregular in shape, at times round or oval, at times spindle

shaped. Six or more nuclei may be present in a cell. Often, however, separation of nuclei is incomplete, so that the appearance of a budding nucleus is produced. At times transitional forms suggest that these giant cells are derived from young fat cells.

The tumor is a fibrolipoma doubtless arising from the retroperitoneal tissue. Though it has reached an immense size, it must be regarded as a benign tumor, there being no tendency to invade adjacent structures.

APPENDIX (October, 1904): By one of the strange coincidences which are so frequently met in dealing with medical anomalies, I was called on to treat a second case of retroperitoneal fibrolipoma two months after the one described above. This second case is probably one of mesenteric origin, illustrating the other of the two classes into which Adami divides retroperitoneal lipomas.

The patient, a white woman, aged 47, married. Previous family history negative.

History.—The swelling was first noticed in the right side of the abdomen about six years ago. It continued to increase gradually until the period of admission to the hospital. Until within the past twelve months there was but slight pain, and that of a dragging character, in the upper right side. During the past two years the growth has been more rapid, and within the past twelve months there has been considerable inconvenience from the size of the tumor, much sharp pain, frequent vomiting and labored breathing.

Examination.—Physical examination shows an enormously distended abdomen which, extending above, gives a somewhat barrel shape to the thorax. The superficial veins of the abdomen are greatly extended; percussion note over the tumor is flat. The general character and semiautomatic sensation imparted by the tumor suggested an ovarian cyst as the most probable diagnosis.

Operation.—At operation the tumor weighed 28½ pounds, and was successfully removed through a median incision extending from the ensiform cartilage to the pubis. On opening the abdomen the tumor presented, covered with many adhesions and firmly fixed to the posterior pelvic and the abdominal walls, particularly on the right side. A trocar inserted deeply failed to bring fluid. The tumor lay behind the peritoneum, apparently having its origin under the right broad ligament. Peritoneal flaps were reflected, vessels being clamped as met. The tumor was finally peeled out by blunt dissection and removed *in toto*. The patient did well for forty-eight hours, and then developed symptoms of extreme exhaustion, with atony and obstruction of the bowels. She sank rapidly and died on the third day.

Autopsy.—The following is a pathologic report by Dr. Jos. C. Bloodgood of the Johns Hopkins Hospital:

Diagnosis: Retroperitoneal; angio-fibro-lipoma.

Gross pathology: The tumor is fairly well encapsulated and lobulated. It measures 29x20x12 cm. Weight, 9,850 gr. (about 14 pounds). The tumor has a distinct capsule, and when separated from the tumor we find between the capsule and the tissue beneath a loose "cobweb" connective tissue. The tumor is composed grossly of three distinct parts. There is a large encapsulated fibroma, surrounded by a zone of fat. At one place it has the appearance of an ordinary lipoma, in which the connective tissue stroma in places has increased. The tissue in one place is characterized chiefly by hollow spaces suggesting venous blood canals. In places this tissue is blood stained. The tissue between the blood spaces has not a distinct white fibrous appearance nor a yellow fat appearance, but looks like very condensed adipose tissue with a good deal of connective tissue stroma. The central zone of the tumor is a mixture of the three areas just described. The gross appearance of the tumor, therefore, suggests the diagnosis—angio-fibro-lipoma.

Microscopic Study.—Naked eye appearance typical of fibroma. The tissue is composed of dense fibrous tissue taking the eosin stain. Very few nuclei taking the hematoxylin stain

are seen. There are quite a number of spaces; these spaces have no distinct wall and contain no blood. Special stain not made. Typical adipose tissue, considerable increase of the connective tissue stroma. Each space has apparently a distinct lining like the intima of a vein. The tissue between is composed of fat and very cellular connective tissue. Unfortunately, the original preparation of the huge tumor was incomplete, and the cells take the stain so poorly that it is quite impossible to study in detail their morphology and arrangement. In the smaller spaces there is a suggestion of blood corpuscles. The connective tissue about the blood vessels is far in excess of the adipose tissue, and so far as one can make out resembles a fibro-spindle-celled fibroma—the so-called cellular fibroma. In the sections studied I can see no evidence of epithelial tissue or any suggestion of kidney tissue, nor is there anything in the last section to indicate the possibility of an adrenal; nor is there anything in this section to suggest the possibility of a sarcoma.

THE FAMILY PHYSICIAN

AS A FACTOR IN THE SOLUTION OF THE TUBERCULOSIS PROBLEM.*

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NEW YORK.

In choosing this subject as a contribution to the Section on Practice of Medicine of our great Association. I have borne in mind that this Section is composed mainly of general practitioners; that is to say, family physicians. Before outlining what can and should be done by the family physician as a factor in the solution of the tuberculosis problem, you will permit me to give you my conception of what the family physician should be and what he should represent in a civilized country and in this enlightened century.

Of late there has been in the minds of the laity and even among the profession a tendency to depreciate the value and the standing of the general practitioner. In the profession this tendency has been particularly pronounced among its younger members; the result is that the number of family physicians relative to the number of specialists and also relative to the number of population has materially decreased. In an address which I delivered a few years ago before the American Academy of Medicine on the subject, "The Family Physician of the Past, Present and Future," I endeavored to explain the reasons for this decrease in number of family practitioners and the decrease in the esteem in which so important a position is held by the community. Permit me to quote from my address what I then said concerning the causes of this situation: No individuals, no one class of persons, but rather scientific events and our present social conditions are responsible for the scarcity of family physicians, and the disinclination of many even well-to-do families to attach to themselves a general practitioner in this capacity. The discoveries of bacteriology and the advances in sanitary science, the wonderful strides made in surgery, the multiplication of specialties, and last, but not least, the multiplicity of different systems of medicine, such

as homeopathy, eclecticism, etc., not to mention Christian scientists, faith-healers, osteopaths, somnopath, and other paths, are responsible for the passing away of the older type of family physicians.

The family physician of the present is rarely held in just esteem. In some families he is called in simply to decide what specialist should be consulted; in others he is allowed to attend to minor ailments, while in serious cases the specialist is often called in without the family physician being consulted. Again, individual members of one family often manifest a preference for this or that system of medicine. Having myself had for a preceptor one of that old type of physicians who could not bear the idea that there should be any but the one regular school of medicine, and to whom the designation allopath was as distasteful as homeopath, I had imbibed his dislike, his distrust and his disdain for any system of medicine but the regular. Shortly after graduation I was fortunate enough to become the physician to a well-to-do and cultured family. I had been successful in attending the head of the family, and I flattered myself to have gained thereby the confidence of all the members. Soon, however, I found out that I was never called in when any of the children were sick. I endeavored to comfort myself with the belief that it was probably my youth which was the cause, and that these good people did not care to trust the precious lives of their children to so young a physician. A subsequent event, however, taught me that it was not discrimination against me, but rather discrimination against the school of medicine in which I had been reared and to which I was so proud to belong. One day I met a homeopathic physician coming out of the house of this family, and later I received the explanation from the father which was to the effect that his wife would never allow her children to be treated by any physician not belonging to the homeopathic school. My idealistic conception of a family physician received a severe shock, and since then it has received a good many more. I know now of a family where the husband goes to a physician of the regular school, the wife to an osteopath, the two daughters to a homeopathic lady physician, and the mother-in-law to a Christian scientist.

Such is the status of the family physician to-day, and such the situation as it has confronted many a young practitioner and confronts many a middle-aged and old family practitioner to-day. Yet if we could only impress on the community at large, and more particularly its intelligent members, the great importance of having a family physician, his position would again rise to that height and esteem which it enjoyed of yore. Again, could the family only be made to understand how much sickness, suffering and sorrow might be avoided by having a family physician who visits and watches over those entrusted to his care, whether there is any member of the family ill or not, the people would soon learn that it is just as much and even more in the power of the family physician to save lives by the prevention of disease than it is by heroic surgical operations.

Coming nearer to our subject, "The family physician as a factor in the solution of the tuberculosis problem," I will point out the invaluable services which the family physician can render as a teacher, hygienist and prophylactiker—if you will pardon the German expression. Pulmonary tuberculosis, discovered early and treated early, has from 60 to 75 per cent. of chances of cure; the later the disease is discovered the fewer are the chances of cure, and the more is there a likelihood

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

of a chronic invalidism with a fatal termination after a few years of suffering and loss of earning capacity. If the sufferer is the head and breadwinner of the family, the suffering is often not confined to the invalid alone, and privation and discomfort follow in the train of this chronic and costly disease, and thus it affects the other members of the family.

Let it be once understood that it is not only in the interest of the physical, moral and mental welfare of a family to have a conscientious physician for its regular visitor and guide, but that there must inevitably follow a financial and economic gain by such a procedure, and the family physician will become an indispensable personage of every well-to-do household.

The family physician should not only be indispensable in the families of the rich and well-to-do, but he should be the same to the families of the poor. The municipality which will inaugurate such true and practical philanthropy as to assign a competent physician as family practitioner to a number of families not able to pay for one, will be the ideal municipality of the future. In a few years it will be able to prove that it is cheaper to prevent disease than to treat it.

The tuberculosis problem, in which I have been interested for a number of years, has taught me many things which are applicable to general medicine, to the duties and vocation of the family physician, and to the solution of the social position of the general practitioner of to-day. The one positive conclusion I have arrived at, through what I believe to be an earnest, unbiased and careful study of the subject, is that the tuberculosis problem will and can never be solved without the help of the family practitioner, and that consumption as a disease of the masses will never be successfully combated until the day in which every family has its family physician. No matter how strict the sanitary regulations which boards of health may issue, no matter how many sanatoria and special hospitals for the consumptive poor we may have, we must look to the family physician for the bulk of the work in fighting the "great white plague," or to use the graphic expression of that master of masters in medicine, Professor Osler of Baltimore: "In the warfare against tuberculosis the man behind the gun is the general practitioner; the battle can not be won unless he takes an active, aggressive and accurate part."

We must look to the family physician for the discovery of the early and curable cases. The stooping shoulders, the badly developed or deformed chest, the pale appearance, the slightly hacking cough, a marked irritability, a loss in weight, a lack of appetite, the glistening eye, pasty skin, the bright color of the cheeks, a frequent rise of temperature in the afternoon, a dislike to pleasures or to duties which were formerly easy to perform, should put the family practitioner on his guard, and indicate that the individual having these attributes, signs and symptoms is a subject for a most careful physical examination.

The bacteriologic examination in individuals with such early symptoms, even if repeatedly made, is but rarely positive, for there is not enough disintegration to show the presence of the bacilli. A careful examination will be helpful, and in this history should include the possible inheritance of a predisposition. The determination whether the suspected patient is the first, second, seventh, eighth or ninth born, and in the latter case the often hereditary physiologic poverty; the possible sources of infection, the contact with consumptive individuals, all should be taken into consideration.

The physical signs of early pulmonary tuberculosis, such as voice fremitus transmitted along the affected side, which is often observed as a subjective symptom by the patient himself and brought in evidence by a humming sound, dullness on percussion, decreased respiratory murmur, rough breathing, rales of small magnitude, a blowing sound in the subclavical or pulmonary artery, bronchial breathing, all these are symptoms too well known to need to be dwelled on longer. When these symptoms are found, in part or all, one can be reasonably certain that he is in the presence of a beginning pulmonary consumption. The fluoroscope will often confirm what the ear has discovered. I can not discuss here the question whether or not the tuberculin test is justified; as for myself I am willing to be placed on record as disapproving its use categorically. In the presence of a case where the careful bacteriologic and physical examination and the x-ray leave me in doubt, I would treat the suspected case dietetically and hygienically for a few weeks; in other words, would treat him as if he were an early case. I am sure that I would never do any harm by pursuing this method, and I am not sure I would not do harm if I injected tuberculin. It is here that the family practitioner can do the greatest good. Whether the case is suspected or confirmed, we must look to him for the carrying out of the sanitary regulations; without him, for rich and poor, and particularly for the poor, there will be a constant supply of new tuberculosis cases, created daily in the insanitary tenements of the poor.

What has been said of tuberculosis is certainly applicable to nearly all other diseases. Most ailments increase in severity where nothing is done to check their progress. Many diseases have their etiology in ignorance, and here again you will have to pardon me if I use for illustration that most characteristic disease of the masses, namely, tuberculosis. Malnutrition of the poor we are apt to attribute to want of food. Those of us, however, who have some experience in the tenement-house life of large cities will know that there is relatively more waste of food substances in the houses of the poor than in the houses of the well-to-do. It is often nothing but ignorance on the part of the willing but untrained housewife of the laborer which makes his food expensive but not nutritious. The poor girl from the shop or factory, when she marries, does not know the art of choosing the right food and preparing it appetizingly and tastefully. The result is often not only malnutrition of husband, wife and children, but alas! also discontent, love for stimulating liquors, crime and disease. In a wealthy family, if a child or grown person grows thin in spite of plenty of food, the family physician would be consulted, and not infrequently would discover the cause of malnutrition to be the fact that the food given to the patient was not the proper kind, and with a change in the right direction the patient would improve. The poor alone have no one to turn to for advice; they only go to the dispensary when really sick; they have not time nor are they observant enough to discover slight ailments, such as an impaired digestion and lack of assimilation, conditions which are the true forerunners of consumption and other grave diseases. Again, those familiar with the life of the ordinary workingman will know how he and his family often shrink from the thought of entering a hospital. These men will make all possible sacrifices in order to keep the sick member of the family at home and provide such medical attendance for him as they are able to procure. But timely and regular attendance is rather

the exception than the rule among poor families where there is a consumptive or any other kind of invalid. These poor people will first try all kinds of quack remedies, and ask their druggist for advice, or, attracted by some glaring advertisement of a sure cure, fall into the hands of some unscrupulous charlatan.

Think of the world of good the family physician can do to the family of the honest laboring man by preventing these people from falling into the hands of the numerous quack concerns which thrive on the ignorance of the poor. If the money could be counted which is annually spent for patent medicine by the average family of working people, the sum would be larger than would be necessary to pay a reasonable honorarium for a family physician and the little medicine which he would probably think necessary to prescribe. The family physician to the honest toilers would prevent so much disease and save to the members of families who might be breadwinners so many days of idleness, that they would be financial gainers in the end.

The monetary loss coming to a family from the use of patent medicines is trifling when compared with the serious results this senseless self-drugging leads to. Let me give you a few instances: A certain malt whiskey, not exactly advertised as a patent medicine, but brought before the public in glaring advertisements, and in some instances with the picture of a venerable clergyman endorsing the use of this "medicine," is recommended as a well-nigh infallible remedy in consumption. As medical men, we all know that while whiskey may be useful in a few rare instances as a temporary adjuvant in the dietetic or symptomatic treatment of tuberculosis, it never replaces food, and when taken continuously will almost invariably result disastrously. The alcoholic drink referred to is the so-called "Duffy's malt whiskey." While the claims of the manufacturers and its endorsers that "it cures coughs, colds, most forms of grip, consumption, bronchitis, pneumonia, catarrhs, dyspepsia, and all kinds of stomach troubles," and that "it never fails to build up a worn-out system, to soothe the tired nerves, to bring perfect health to the whole being," must awaken surprise if not suspicion in every person of average intelligence, this product has at least the merit of being in the market under its proper name. Far more dangerous are some of the products known as patent medicines, which are swallowed by the gallon by the public as innocent remedies, and not only by men, but also by women and children. From personal experience I know that many of these drugs, containing as much as 40 per cent. of alcohol, are taken in teaspoonful and tablespoonful doses from three to six times a day by persons who are avowed temperance people and strongly opposed to taking intoxicating liquors in the ordinary form.

Permit me to give you here a little array of these widely advertised medicines, patent medicines, nerve tonics, bitters, etc., and state at the same time the percentage of alcohol that each contains, as ascertained by an investigation made by order of the State Board of Health of Massachusetts. I have arranged this list according to the percentage of alcohol (by volume). The original compilation appeared in the report on Food and Drug Inspection for the year ending Sept. 30, 1902, kindly sent to me by Dr. S. W. Abbott, the secretary of the board:

Hof's Extract of Malt and Iron.....	5.24
Copp's White Mountain Bitters, "not an alcoholic beverage".....	6.00
Pierce's Indian Restorative Bitters.....	6.10
Warner's Vinegar Bitters, "contains no spirit".....	6.10
Hop Tonic.....	7.00

"Beet Tonic".....	7.00
Dr. Kilmer's Swamp Root.....	7.32
Radway's Resolvent.....	7.90
Corbett's Shaker Sarsaparilla.....	8.80
Thurston's Old Continental Bitters.....	11.40
Hop Bitters.....	12.00
Second Clinical Bitters.....	13.10
Howe's Arabian Tonic, "not a rum drink".....	13.20
Allen's Sarsaparilla.....	13.50
Brown's Sarsaparilla.....	13.50
Dana's Sarsaparilla.....	13.50
Wheat Bitters.....	13.60
Dr. Peter's Kurko.....	14.00
Kingsley's Iron Tonic.....	14.90
Pulmonine.....	16.00
Good's Bitters.....	16.10
Baxter's Mandrake Bitters.....	16.50
Mensman's Peptonized Beef Tonic.....	16.50
Moses Atwood's Jaundice Bitters.....	17.10
Greene's Nervura.....	17.20
Carter's Scotch Bitters.....	17.60
Langley's Bitters.....	18.10
Dr. William's Vegetable Jaundice Bitters.....	18.50
Good's Sarsaparilla.....	18.80
Wheeler's Tonic Sherry Wine Bitters.....	18.80
Vinol, Wine of Cod Liver Oil.....	18.88
Schenck's Seaweed Tonic, "entirely harmless".....	19.50
Jackson's Golden Seal Tonic.....	19.60
Brown's Iron Bitters.....	19.70
Faith Whitcomb's Nerve Bitters.....	20.30
Kaufman's Sulphur Bitters, "contains no alcohol" (as a matter of fact it contains 20.50 per cent. of alcohol and no sulphur).....	20.50
Lydia Pinkham's Vegetable Compound.....	20.61
Hooker's Wigwam Tonic.....	20.70
Paine's Celery Compound.....	21.00
Flint's Quaker Bitters.....	21.00
Shony's German Bitters.....	21.50
Thayer's Compound Extract of Sarsaparilla.....	21.50
Warren's Bilious Bitters.....	21.50
Gardner's Physical Extract.....	21.90
Puritana.....	22.00
Hartshorn's Bitters.....	22.20
L. T. Atwood's Jaundice Bitters.....	22.30
Liverpool's Mexican Tonic Bitters.....	22.40
Leitch's Compound Cocoa Beans Tonic.....	23.20
Burdock Blood Bitters.....	25.20
Hooftland's German Bitters, "entirely vegetable and free from alcoholic stimulant".....	25.60
Ayer's Sarsaparilla.....	26.20
Colden's Liquid Beef Tonic, "recommended for treatment of alcohol habit".....	26.50
Colton's Bitters.....	27.10
Z. Hertz's Sarsaparilla.....	27.90
Whiskol, "a non-intoxicating stimulant, whiskey without its sting".....	28.20
Penna.....	28.59
Jobb's Sarsaparilla Bitters.....	29.00
Atwood's Quinlin Tonic Bitters.....	29.20
Hooftland's German Tonic.....	29.30
Drake's Plantation Bitters.....	33.20
Rush's Bitters.....	35.40
Warner's Sarsaparilla Bitters.....	35.70
Parker's Tonic, "purely vegetable," recommended for inebriates.....	41.60
Boker's Stomach Bitters.....	42.06
Hosette's Stomach Bitters.....	42.30
Richardson's Concentrated Sherry Wine Bitters.....	47.50

The dose recommended on the labels of the foregoing preparations varied from a teaspoonful to a wine-glassful, and the frequency also varied from one to four times a day, "increased as needed."

I often wonder if some of our distinguished statesmen, clergymen and otherwise highly intelligent citizens, who are in the habit of giving their endorsement to such remedies, have ever thought of the fearful responsibility they incur when recommending a remedy, the composition of which is as foreign to them as the chemical formula of phenyl-dimethyl-iso-pyrasolene (antipyrin). Many of the above enumerated remedies I have seen used by consumptives who, as we all know, are so very apt to ascribe their sufferings to stomach or nervous derangements, and eagerly try any thing which they imagine will give them temporary relief. In such cases it is the strong mind and the authority of the family practitioner who alone can stop the pernicious habit of self-drugging.

I know from experience in my own practice how the continued use of even a mild cocaine solution will make cocaine fiends. A typical case was recently related to me by a friend, the proprietor of a leading journal. It shows the danger in the advertised local catarrhal remedies, containing as active principle the hydrochlorate of cocaine. A young boy in my friend's office was advised by his own father, an employe of the same paper, to use

a certain widely advertised sure cure for his nasal catarrh. The directions given for the use of this remedy were to apply it by the aid of a spray to the mucous membrane of the nose. When the father thought the boy had used the costly remedy long enough the boy had already become addicted to the use of cocain. Since the father no longer bought the remedy and the young man's means did not suffice to pay for the costly drug, the boy became a thief. When finally caught and taken into the private office by his employer, a complete confession revealed the cause of his downfall. The "sure-cure" remedy for his slight nasal catarrh had made him a cocain fiend, and as it is with all habits of this kind, his moral and ethical conception had decreased in the ratio of the increase of the craving for the drug. Fortunately for the boy, the father handed him over to a conscientious physician, under whose close observation a complete recovery resulted. Yet we all know that only the smaller number of cases of men and women addicted to alcohol, cocain, morphin or chloral, acquired by the continued use of these drugs, pure or in the guise of patent medicines, have such a fortunate ending as the case just quoted. I endorse most heartily what Mr. Bok has to say in this respect in a recent issue of the *Ladies' Home Journal*: "It is not by any means putting the matter too strongly to say that the patent-medicine habit is one of the gravest curses, with the most dangerous results, that is inflicted on our American national life."

Of the incalculable harm which the many advertised absolutely sure consumptive cures do among the poor and ignorant sufferers from pulmonary tuberculosis, I could tell you heartrending stories. The so-called Koch concern, for example, the dealers in "Kochine" or in "inhalation tuberculin," will ask the poor sufferer, under promise of cure, to pay a certain sum in advance. He will, of course, not receive any benefit from the treatment, but on re-examination by the "professor" he is assured that his lungs are better and the result is another advance payment; and this re-examination and finding the lungs better is continued until there is no more money. What happens then? The patient is told that in view of his improvement and for reasons of pity, the "professor" will continue the treatment without payment, but in lieu of this, the patient must sign a certificate saying that he has been thoroughly cured of his disease through the medicine of the "great and good professor," although two prominent physicians had pronounced his case to be a hopeless case of true consumption. Thus these concerns get their testimonials. They will shrink from nothing to beguile the public.

They have used, and still use, the name of that great scientist and benefactor, Prof. Robert Koch of Berlin, as though he were associated with them in their business and treatment. They advertise his picture beside that of an individual with a similar name, and head their advertisements with "Professor Robert Koch's Cure." While the medical profession at large is, of course, aware of this evident fraud, the public does not seem to be, and in order to be able officially to deny any such connection, I wrote some time ago to Prof. Robert Koch of Berlin, Germany. The professor's answer was a lengthy one and full of indignation, and I will give you only the substance of it. He says that the alleged "lung cure" of Dr. Edward Koch, or under whatever name this system of treatment may be presented to the American public, is a very base fraud, and that he, Geheimrath Prof. Dr. Robert Koch, has no relations whatever with Dr. Edward Koch, with any other indi-

vidual who may be connected with this concern, nor with any of its methods of treatment; neither has he ever had any relations with the same. He hopes that an end will soon be put to the manipulations of these base and fraudulent concerns, and adds: "This is to be particularly desired in the interest of the many poor consumptives who have been deceived by the use of my (Prof. Robert Koch's) name in connection with the so-called "Koch's Consumption and Asthma Cure."

For reasons best known to themselves, even some of our best known and reputable newspapers continue to publish advertisements of the Koch's consumption cure concerns, and few are willing to lend a hand to the exposure of these frauds.

What a power of good could the family physician be in protecting poor ignorant consumptives from the fearful harm which is done to them through such dangerous charlatanism.

I desire to touch on one more point regarding the prevention of consumption. It is a delicate point, I confess, but I feel keenly on the subject, and have no hesitation in this audience of physicians to express my opinion frankly. The family physician, who should not only be the medical adviser but also the friend of the family, will be listened to more readily than any other person when there is a question of marriage to an individual of doubtful physical integrity; in other words, it is the family physician and friend more than any other person who will be able to prevent the marriage to a consumptive or between consumptives. If tuberculosis develops in husband or wife after marriage, it will be again the family physician's duty to point out to both that, although tuberculosis is not hereditary directly, there is a great likelihood that a strong predisposition may be transmitted from the consumptive parent. Such a couple should also be made to understand that pregnancy in a consumptive mother ameliorates her physical condition only temporarily, and after childbirth there is often noticed an exacerbation of the pulmonary trouble. Wherever there are consumptive parents I am willing to take the responsibility before the law and my Creator for advising them not to procreate the race.

A last word on the importance of the family physician and the valuable service he can render to the consumptive poor if he is fortunate enough to practice among the well-to-do. While much gratitude toward the physician is not invariably a virtue to be met with among the rich, it is not so infrequent as the pessimists in our ranks like to make it out. Some rich patients are truly grateful; they will not only pay the physician handsomely, but will make him their adviser and friend. The grateful, well-to-do patient will often ask his physician what institution, what hospital, what kind of patients most need the help of the philanthropist. What golden opportunity is here offered to the family physician to help toward the solution of the tuberculosis problem by telling his noble-hearted patient a little of the life of the tenement dwellers which he learned to know when, as a young physician, he practiced in those regions. No one better than he knows how to describe the suffering of the consumptive poor, lacking not only the ordinary comforts so essential to the successful hygienic and dietetic treatment of consumption, but often lacking the barest necessities. The family physician, more than any one else, can point out to his wealthy patient the surest and most direct path to relieve the woes of the needy and suffering, and if the physician is a true friend of him who wishes to leave his wealth so

as to be productive of the most good, he will show such a man that his money could not be better invested than in the creation of more sanatoria and special hospitals, seaside sanatoria for children, agricultural colonies, better tenements, more parks and playgrounds, all tending toward the solution of the tuberculosis problem.

16 West Ninety-fifth Street.

PROBLEMS FOR THE TUBERCULOUS CONVALESCENT.*

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DENVER.

For many centuries, and, in fact, until the last decade, tuberculosis was generally believed to be an incurable disease. An unceasing warfare against the disease, however, has gradually added to our knowledge of its causes and nature until its terrors have been lessened, and its victims are no longer overshadowed by a prognosis destitute of hope.

The autopsy records of the great medical centers have furnished abundant evidence of pre-existing tuberculous lesions that had long since healed, or had assumed latent states, while death eventually resulted from other causes. A review of vital statistics shows a high and increasing percentage of recoveries.

These facts have established more hopeful views concerning tuberculosis, which cause it now to be recognized as one of the readily curable diseases.

Notwithstanding that year by year we are forming a clear conception of the influences which bring about the tuberculous state, and, on the other hand, that we have gained a clearer understanding of the necessary steps to overcome this condition when established, the mortality rate for tuberculosis continues higher than for any other disease known to humanity. To lessen this appalling mortality rate, efforts must be directed toward means of prevention as well as methods of cure. To diminish the number who become tuberculous is, indeed, an important phase of the tuberculosis problem, for tuberculosis is distinctly a preventable disease.

For the present, however, our attention will be directed especially to the problems pertaining to recovery. Granting that tuberculosis is a curable disease, it may be of interest to ascertain the cause, or causes, of the existing high death rate. Many important lessons may, therefore, be learned from a study of the mortality records of tuberculosis. A study of these records reveals the fact that a large percentage of mankind possesses by inheritance, or acquires from their mode of life and the nature of their environment, a type of weakened tissues which furnishes a fertile soil for the tubercle bacillus.

These persons offer little or no resistance to tubercle bacillus when it finds a lodging in the weakened tissues of such persons. As a result, these patients are, in a large measure, hopeless from the beginning of infection. For such patients, treatment should have been prescribed for their ancestors many generations before, with a view of producing a progeny with stronger resisting power.

There remains, however, a large percentage of fatal cases that might have been cured or improved had conditions been more favorable during the course of the disease.

In considering the factors which are most potent in favoring recovery, an early diagnosis should rank first in importance. It is only recently that the significance of the early symptoms of tuberculosis have been correctly interpreted. Heretofore a slight cough, a loss of appetite, sleeplessness, loss of weight and strength, were interpreted as a mild but general impairment of health. Even to-day the significance of such a series of symptoms is often passed over by the laity without attracting special attention.

It is also a lamentable fact that many physicians have yet to learn the supreme significance of the early but insidious symptoms of a beginning tuberculosis. The gravity of the case, therefore, is too frequently overlooked until serious tissue loss has developed.

When these subtle but significant early warnings are not recognized, important opportunities for treatment are lost, and the possibility of arresting the disease is greatly diminished. Hence the responsibility for the lack of an early diagnosis should be traced to its legitimate source. The placing of responsibilities which involve such serious risks, and on which lives may rest, requires the consideration of questions of a domestic and sociologic nature that are by no means easy of solution. The existing social and domestic customs make it possible, under varying conditions, to place the responsibility of a neglected diagnosis on the patient, the family of the patient, the family physician, or the public.

It becomes extremely important, therefore, to place the responsibility of a recognition of the true nature of the trouble during the early stage of infection. Who is at fault if the patient fails to consult a physician for what he considers an insignificant or temporary trouble? Who is at fault if the general public is not informed concerning the importance of an early diagnosis? Who is responsible if the disease is not recognized until it has advanced beyond the stage when hope of recovery may be expected?

The subject resolves itself into a need for a general campaign of education with a view of impressing on the public the necessity of an early diagnosis, and on physicians themselves the necessity of greater skill in recognizing the long list of early symptoms which forms a picture that can scarcely be mistaken, if once thoroughly recognized. The ultimate responsibility for the accomplishment of these results rests with the public and devolves on the state to take the initiative.

It is an undeniable fact that many curable patients die. A failure to recover may be ascribed to two causes—a lack of effort or an irrational effort.

In the light of past experience it is my opinion that the problems presented to the tuberculous convalescent are equally important, and often more difficult of solution than those presented when the disease is first detected. After months and years of effort and expense, many patients fail to overcome the disease because of a lack of proper knowledge of a few fundamental laws of convalescence.

If it is permissible to use an analogy in the discussion of a medical subject, the struggle of a tuberculous patient may be likened to a nation defending its life or its honor. Similar questions are presented for solution, and identical conditions are to be met. War between nations and war against disease are often declared with little warning. When such occurs, the defenses are frequently found in a weak condition, the finances at low ebb, and the strongholds in a neglected state. The na-

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tion that fails to prepare for war in time of peace will be able to make but a feeble resistance when danger is threatened. An army sent to the front is certain of defeat unless plans for furnishing supplies have been carefully formulated. The inevitable result is well known if the line of communication is broken and the supplies cut off. Such a catastrophe means an indefinite siege, with indescribable deprivation and suffering. On the other hand, the equipment and supplies may be inexhaustible, and yet if the commanding officer lacks judgment he may lead his brave men into dangers that mean inevitable defeat.

Those who have observed the army of tuberculous patients who are traversing every highway and byway of this disease-infected globe, have witnessed object lessons not easily forgotten. Many a patient for a time makes a good fight, and for lack of conservative judgment or on account of overconfidence, what seemed to be a certain victory is turned to a sudden defeat. In warfare against disease, as in warfare between nations, the nature of the campaign should be well studied before rushing to meet the enemy. The course pursued should depend on the resources at hand. Good judgment and cunning strategy are essential.

Before a campaign is undertaken, an attempt should be made to estimate the approximate cost; every effort should be made to procure the necessary funds; the field for operation should be selected with a view of securing the most favorable conditions and the strongest defenses; the source and nature of the supplies should be well considered, and a commander chosen to direct the forces whose experience and judgment are above reproach. When these precautions are not taken, defeat is inevitable. How many tuberculous patients plan a campaign with skill and judgment? Too frequently they leave all judgment at home. They take with them a good supply of bravery, but few or no supplies; they frequently choose a battlefield with no natural defenses, and are often unskilled in proper methods of utilizing their available defenses. Frequently, with little or no knowledge of the strategy of their common foe, they attempt to command their own forces, and for some rash act of foolish bravery or lack of judgment what might have been a victory terminates in disappointment and defeat.

I recall the case of a young man of fine business training, recently employed as cashier of a large business concern in one of our eastern cities. From daily handling large amounts of infected currency, he himself became infected. His family was of moderate means and he its chief support. Each day that he continued to hold his lucrative position, after the nature of his disease had been determined, lessened his chances of recovery. To give up his position meant a heavy drain on his savings, as well as the cutting off of his only source of income. An important question was before him for definite decision. He tendered his resignation, and with his small savings sought a more favorable climate. An out-of-door life for one year found him well on the road to recovery. His trouble had been reduced to a quiescent state. His weight and strength had increased, and his old ambition began to develop. He began to long for the familiar scenes of home. On the other hand, his finances were exhausted. When he was really ill, he was brave. But he had almost won the battle, and he was brave no longer. He had arrived at a critical point. Another decision was required. He finally decided to return to his old home, against the advice of his physician and friends. He once more as-

sumed his former duties, and once more was self-supporting. But before he was aware of the fact the old trouble developed anew, and the labors and hardships of a long convalescence were soon at an end. He had mistaken a convalescence for a cure and returned too soon to the environment and conditions that had once threatened his life, with a bravery that was destitute of judgment.

The brief statement of the foregoing case illustrates a few of the practical problems that are presented to the tuberculous patient. These problems require the exercise of shrewd judgment and a final and definite decision, and the nature of the decision frequently seals the fate of the patient. To continue in the environment in which the disease developed is fatal to most patients; a return to the same environment when hope has revived, but before the disease is cured, is equally dangerous.

Patients who are forced to face these problems seldom realize the significance of the decision which they are required to render. The exuberance of feeling which accompanies a pronounced convalescence is deceptive and often leads to excesses and relapses. The necessity of becoming bread-earners often forces a convalescent too soon to undertake an employment, or to enter an environment that is unhealthful.

Problems such as these tax the skill and judgment of both physician and patient to their limit. And as long as the bread-earning problem remains so closely allied to the problems of tuberculosis the difficulty of solution will remain very great.

As has already been indicated, there are cases which are diagnosed almost immediately on the appearance of clinical evidence indicating the existence of an active tuberculous condition, and although immediate steps are taken to correct the trouble, yet at no time can they be said to be classed as convalescents.

On the other hand, it is difficult to find a case, if discovered early, that does not, at some period during the course of the disease, and often at frequent intervals, show strong evidence of being classed as convalescent. These periods of apparent convalescence, unfortunately, are of short duration. The smallest disturbing factor is sufficient to terminate such a convalescence, without any apparent cause except on the ground of a new infection starting in tissues already too weak to resist further invasion.

It is rare, indeed, to find a case pass through a successful convalescence without some form of complication or relapse. The very conditions which lay the foundation for tuberculosis tend to prevent recovery, tend to delay convalescence, and tend to bring about a relapse after convalescence seems to be well established.

One of the chief duties of a physician to his tuberculous patients is that too often neglected duty of repeatedly presenting to the patient the essential rules for wholesome living. Many who are required to care for the tuberculous are content with having outlined the essential rules for healthful living, expecting patients to remember them and to put them into daily practice. I have more than once been surprised, after having spent not a little time and effort in presenting concise rules to govern their daily routine, to find that, in a great majority of cases, they had completely disregarded such advice. One becomes more and more impressed with the fact that too little attention is given to the consideration of the private life of the patient. The physician too seldom sees the patient in the environment of home. Unless a relapse occurs in the form of a hemorrhage, or

some complication making it necessary to call the physician, the patient usually calls at his office. I have, therefore, frequently found occasion to call at the home of patients when they were not expecting me, for the purpose of ascertaining how nearly they had been carrying out the instructions that had been given them. Such a visit will reveal the nature of the home environment and often explain why convalescence has not been more pronounced.

FACTORS AFFECTING CONVALESCENCE.

The important factors affecting convalescence are: 1. An early diagnosis. 2. An early abandonment of the habits of life, or the environment, by which the patient was surrounded during the development of the disease. 3. The immediate adoption and continued enforcement of rigid rules for healthful living.

The difficulties presented to the tuberculous convalescent in securing remunerative employment is a most important retarding factor. The establishment of remunerative industries in connection with the well-endowed sanatoria may do much toward overcoming the "bread" problem for the great middle class afflicted with tuberculosis.

TREATMENT DURING CONVALESCENCE.

The treatment of convalescence should be directed, first, with the view of correcting temporary symptoms; second, with the object of aiding body nutrition. It may be stated with emphasis that any form of treatment which tends to impair the digestion or assimilation of food, not only can do no good, but on the contrary does absolute harm.

Out-of-door life is pre-eminently the treatment for tuberculosis. Without open-air life convalescence is impossible. The climate which admits of the longest period of uninterrupted open-air life is best suited to the tuberculous patient. That region which admits of the greatest amount of outdoor life, with least discomfort, is the ideal climate. A cool, dry atmosphere is not only more agreeable but less enervating to patients than a hot, dry atmosphere. A tent, or tent-cottage, furnishing a good ventilation without exposing the patient to a draught, one capable of being adjusted to suit all conditions of the weather and all seasons of the year, furnishes the most rational mode of outdoor life, provides all the comforts that a patient requires, and is much less expensive than the indoor treatment.

A few practical points should be carefully noted in connection with the care during the convalescent stage:

Pure air and sunshine can avail but little if the patient is not provided with an abundance of suitable food.

The wisest advice to patients will avail nothing if they are not sufficiently impressed with the importance of proper living to put into practical operation the advice given them. Too often the rigid discipline is lacking in the home. It is chiefly in this respect that the sanatorium treatment surpasses the home treatment of tuberculosis.

CONCLUSIONS.

To know when health is restored to the tuberculous patient is both important and difficult. It is a well-known fact that foci of infection lie concealed in a latent state long after all subjective symptoms have disappeared. Tubercle bacilli may have disappeared from the sputum, or may never have appeared there, and yet there may be and often are concealed foci, active or inactive, which are by no means easy to detect.

To form a correct estimate of convalescence, one must form a composite picture of all the available clinical

evidence. If there is a gradual gain in weight extending over a comparatively long period; if the gain in weight is accompanied by a gain of strength; if the gain of weight and strength are permanent; further, if the cough, sputum and bacilli diminish, and finally disappear, and if this condition is maintained for a comparatively long period, a cure may be considered as practically established.

Finally, if it is evident from the clinical symptoms, physical signs or personal history, that the case was ever truly tuberculous, the conservative physician will use great caution in giving advice which will make it possible to lead his patient too near a danger.

It is safe to state that a person who has had tuberculosis, and who has been sufficiently fortunate to arrive at the advanced stage of convalescence, or even if he had been discharged as "cured," should always exercise care and should never venture too close or remain too long in the environment in which the trouble originally developed.

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THE DIFFERENTIAL LEUCOCYTE COUNT AS AN AID TO THE DIAGNOSIS OF FEVERS.*

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The factors influencing the movements of leucocytes are but imperfectly understood, hence a system of diagnosis based on a variation of the colorless elements in the peripheral blood is not without some hazard, yet it must be admitted that practically all we know of the physiology of the blood has been worked out in the clinical and pathologic laboratory. Stimulated by the reports to the Royal Society and observations of other workers in malarial districts, and feeling guilty of some negligence in this field in the past, I made random observations for some years which led to a systematic investigation of some 200 blood spreads with a view to ascertaining the diagnostic value of the malarial leucocyte variation.

Malarial blood has been found to vary within very wide limits, and the colorless cells show a percentage so nearly like that of typhoid fever, from which we have to differentiate most often, that it did not seem a very promising field, and I so stated at our meeting a year ago, yet, after eliminating the chief sources of error and using the clinical signs as collateral evidence, we can frequently make a positive diagnosis without searching for parasites or waiting for the appearance of the Widal reaction. This method is not to replace, but to supplement, other diagnostic methods.

It is the purpose of this paper to prove that the malarial leucocyte variation does not persist long after all the infection is eradicated, and that it should settle the controversy as to whether it is too sensitive to be used in a malarial district—in other words, that it is not to be thrown aside as of too general occurrence to be worth anything as a test.

In considering any leucocyte variation, it is necessary to have a reasonable idea as to whether this is due to the increase of the one variety or the diminution of another. Is the increase or diminution absolute or relative? What factors other than the disease in question influence it, and to what extent? The accompanying rather

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cumbersome table is adduced as a guarantee, so to speak, as well as to enable any one to criticise the conclusions drawn. The idea that it might be of use as a test that could be made on dried films away from the bedside and in the absence of facilities for culture methods, and that blood films might be exploited in other ways than generally in vogue, is what attracted me in advance of the actual work.

I believe that the enormous increase in large mononuclear cells, especially the very large macrophages, is because phagocytosis is a distinct and easily recognizable phenomenon in malarial infection and is responsible for the occasion of the hibernation of the plasmodia in the interior. We can find pigmented mononuclears after all the parasites have disappeared from the peripheral circulation, but the relative increase of mononuclears persists even longer, and, what is of more importance, is present more uniformly.

An inspection of the tables will show that in malarial infection the large lymphocytes generally nearly equal and frequently outnumber the small, with a total relative increase of lymphocytes and proportionate decrease of polynuclears, except in the beginning of a paroxysm up to about the fastigium, and frequently still later, when there may be a decided absolute and relative increase in polynuclears. Frequently, even here, however, the white cells behave as they do during the afebrile stage. Sometimes there is a marked polynuclear increase without the high fever, but, so far as observed, this is not the case in recent infection, and we generally ascribe this to the effect of quinin, especially in what is called the post-malarial condition.¹ It has so far not been otherwise observed unless a complication exists. I am inclined to regard a polynuclear increase, except under the above conditions, as positive evidence of some other disease, excluding malaria if the large lymphocytes are not in excess of the small. In my table this state of affairs has been found to be due to sepsis, cancer, syphilis with active manifestation, hemorrhage, peritonitis, rheumatism and pneumonia. We would also expect to find it in epidemic meningitis, but no such case has presented itself.

We find, then, that when we have a differential leucocyte count of over 75 per cent. of polynuclears in a presumably malarial patient, in which the large lymphocytes outnumber the small, and during the fever stage, we have a condition which might not be due to the *Plasmodium malariae*; but if due to it, we have a blood in which the parasites would be easily found. If we have a leucocyte count showing upward of 15 large lymphocytes and less than 60 polynuclears, in the absence of an adenopathy and prior to the third week of a fever, neither the presence of the malarial organism nor the absence of a Widal reaction is needed for a diagnosis. In influenza, measles, syphilis, tuberculosis and in typhoid fever after the disease is well established, the count sometimes approaches that of malaria. The leucocyte count is of especial value in determining when the infection has been eradicated in chronic cases, and here it frequently is the only means of diagnosis at our command. In latent malaria, and cachexia, especially when there is no fever, it is the rule to find only 50 per cent. polynuclears, the large lymphocytes being frequently the most numerous element.

In typhoid fever, according to the tables of Thayer, who records nearly 200 counts, the large lymphocytes also increase; but they do not, in my experience, reach

the great size and number found in malaria, and what is more practical, the diagnosis of typhoid fever should be well established after the second week, when this leucocyte confusion is most marked. When the onset of a typhoid is complicated by the lighting up of a latent malaria, the malarial feature overshadows the typhoid; but even here, if in the absence of baths, quinin therapy or other disturbing factor, the polynuclears rise and fall markedly with the fever, typhoid is very probably absent, and the therapeutic test eliminates both the fever and leucocyte variation due to the malaria.

When the diagnosis lies between malaria, typhoid or sepsis, the differential count more certainly decides the question than the absolute leucocyte count or the Widal reaction; the latter is especially fallacious in these cases. (See Table 3, Cases 2, 7, 14 and 31.) In one of these cases (14) there was a pseudo-reaction with Widal, and there appeared to be only a question of typhoid or malaria, but the differential leucocyte count at once excluded both and pointed the way to the diagnosis of malignant endocarditis. In another case, of which the record was accidentally lost, we had to differentiate between a typhoidal pneumonia, pulmonary typhoid, or a mixed infection, when the enormous polynuclear increase, the presence of only 2 per cent. of large lymphocytes positively excluded both typhoid and malaria, although there was marked tympany and abdominal pain. Subsequent events proved that it was a pure lobar pneumonia.

Syphilitic cases seem to show sensitiveness of the leucocyte proportion to the character of the lesion; in adenopathy the large lymphocytes increase, and in bone and skin lesions the eosinophiles appear increased, and when suppuration occurs we have the increase of the total number of white cells, with great preponderance of the polynuclears.

A number of counts in tubercular cases had to be thrown out because the data accompanying the films did not admit of proper classification as to fever, adenopathy, sepsis, etc.

I beg leave now to refer to the tables. Under clinical diagnosis, the preliminary clinical diagnosis is meant, the corrected diagnosis appearing in the last column. Stain No. 1 is fixation in alcohol and ether and staining in eosin and hematoxylin. No. 2, same fixation, stained with eosin and methylene blue in two steps. No. 3, same fixation, stained with eosin and polychrome methylene blue in two steps. Stain 4 is Goldhorn's, which fixes and double stains in one operation, but it has been found desirable to faintly re-stain with Loeffler's alkaline methylene blue. No. 5 refers to Ehrlich's method, and No. 6 to Jenner's, which has been found to answer best in inexperienced hands, but does not approach the modified Goldhorn in brilliancy of detail and fidelity of results. The basophile and neutrophile granulation are particularly well brought out. One of the precautions in the Goldhorn method needs to be mentioned, especially if it is desired to re-stain with blue, and that is to dilute the stain with good wood alcohol and give it double time, as else the leucocytes may be observed to "get up and leave" when examined under water to see if the contrast is good. There is, unfortunately, a personal factor in the separation of the mononuclear cells, and for this reason I have indicated the name of the observer by an initial letter in one column. I was particularly fortunate in securing the services of Dr. A. G. Love, whose patient and conscientious work represents nearly half of the counts, and almost all of these especially made for this paper. Where the number of cells

1. Memphis Med. Monthly, December, 1901.

*135 Jones	16 m.	malaria fever	some weeks	100	200-250	32.0	43.0	many	L	4	no reaction	few dumb chills; ward case.	
*136 Krauss	27 m.	latent malaria	1 week	100	500-250	17.5	24.5	few	K	4	no reaction	No chills; malaria exposure for some weeks.	
*137 Jones	27 m.	latent malaria	1 week	100	400-115	15.5	21.5	small E's	L	4	no reaction	Trachoma; headache; bilious.	
*138 Jones	24 m.	malaria	2 weeks	100	400-115	17.0	21.0	small E's	L	4	no reaction	Malaria; coated tongue; pain.	
*140 Krauss	24 m.	malaria	2 weeks	100	300-190	33.75	46.75	small E's	L	4	no reaction	"Chronic" malaria; enlarged spleen; no parasites in spleen blood.	
*141 Krauss	30 m.	malaria fever	3 weeks	100	300-190	32.0	44.5	many estroves	L	4	no reaction	Recovery on quinin.	
*142 Krauss	30 f.	malaria fever	6 weeks	100	520-244	27.8	47.8	none	L	4	no reaction	Had large doses of quinin.	
*143 Jones	14 f.	"fever"	1 week	100	200-150	16.0	21.0	not recorded	L	4	no reaction	Found 2 parasites in 2 hours.	
*144 Krauss	30 m.	malaria fever	3 weeks	100	600-233	19.0	31.0	many small	L	4	no reaction	Very large spleen last year; crescents and many half grown.	
*145 Jones	6 m.	chills, daily	3 weeks	100	300-150	14.0	23.0	many small	L	4	no reaction	Malaria; confirmed by quinin.	
*146 Jones	6 m.	malaria	1 week	100	350-163	29.7	53.4	very many small	L	4	no reaction	Malaria; confirmed by quinin.	
*147 Jones	6 m.	malaria	1 week	100	300-150	42.6	59.0	scanty	L	4	no reaction	Has taken quinin.	
*148 Turner	6 m.	malaria	1 week	100	200-200	15.0	20.0	many	L	4	no reaction	Third attack; spleen 8 x 10 inches.	
*149 Jones	21 m.	malaria cachexia	3 weeks	100	400-8	11.2	25.5	estives	L	4	no reaction	Has chill now; tertian.	
*150 Jones	30 m.	chills, and fever	some weeks	100	500-490	35.0	59.0	few	L	4	no reaction	Disatory cinchonization.	
*151 Jones	30 m.	latent malaria	1 week	100	200-120	15.0	30.0	estives	L	4	no reaction	Disatory treatment; 2 weeks.	
*152 Jones	25 m.	chills	3 weeks	100	300-33	22.3	41.3	estives	L	4	no reaction	(Only one parasite found; diagnosed on blood count.	
*153 Jones	15 m.	latent malaria	3 weeks	100	200-8	13.0	25.5	many small	L	4	no reaction	Whites counted from "red" pipette.	
*154 Jones	16 m.	malaria infection	8 weeks	100	300-25	22.4	35.5	present	L	4	no reaction	Had chills for some weeks.	
*155 Brauer	25 m.	malaria homogloburria	3 days	100	300-35	21.3	34.3	many	L	4	no reaction	Very slight infection.	
*156 Strickland	10 m.	malaria	10 days	100	300-20	17.0	25.0	many	L	4	no reaction	Not for diagnosis; possible septis; quinin; recovery.	
*157 Jones	10 m.	tertian malaria	2 weeks	100	300-20	17.0	25.0	many	L	4	no reaction	Stoaturation; gametocytes.	
*158 Krauss	24 f.	malaria	2 weeks	100	320-22	43.2	65.4	few	L	4	no reaction	History chills some weeks; enlarged spleen.	
*159 Krauss	24 f.	malaria	2 weeks	100	300-20	21.5	45.2	many	L	4	no reaction	Loss of flesh; malaise; quinin and arsenic; recovery.	
*170 Jekls	40 m.	fever	2 weeks	100	700-75	20.0	63.0	4.5	L	4	no reaction	Double infection; spleen very much enlarged.	
*171 Krauss	26 m.	fever	5 weeks	100	300-6	12.3	31.7	tertian	L	4	no reaction	Had no chills; fever subcontinued.	
*172 Jones	20 m.	chills	some weeks	100	600-7.5	9.3	33.0	present	L	4	no reaction	Had no chills; fever subcontinued.	
*173 Jones	22 f.	debility	some weeks	100	300-25.0	41.0	30.3	0.6	L	4	no reaction	Double infection; spleen very much enlarged.	
*174 Krauss	28 m.	malaria fever	6 weeks	100	220-13.3	23.6	57.7	5.4	L	4	no reaction	Had no chills; fever subcontinued.	
*175 Krauss	28 m.	malaria fever	6 weeks	100	300-5	17.0	43.3	0.6	L	4	no reaction	Chills on marked.	
*177 Turner	17 m.	malaria fever	1 week	100	300-9.0	10.33	30.6	many	L	4	no reaction	Had no chills; fever subcontinued.	
*178 Jones	25 m.	malaria	1 week	100	200-24.5	40.0	32.5	3.0	L	4	no reaction	Had abdominal pain region spleen; abdominal tenderness; quinin and intracranial retracted; crescents and intracranial bodies.	
*179 Krauss	25 m.	malaria	1 week	100	170-23.5	16.1	58.8	1.2	L	4	no reaction	No treatment.	
*180 Jones	10 m.	fever	2 weeks	100	130-33.1	29.2	36.9	1.6	L	4	no reaction	Bilious; feels badly; cinchonized.	
*181 Jones	8 m.	fever	some time	100	400-27.2	25.2	47.6	0.0	L	4	no reaction	Sick some weeks; no chills.	
*182 Krauss	36 m.	malaise	1 week	100	300-110	15.6	72.3	1.0	L	4	no reaction	Enlarged spleen; lived in bottom for years; utral murrain; castis; albumin; no fever; no quinin.	
*183 Krauss	36 m.	malaise	1 week	100	400-27.2	25.2	47.6	0.0	L	4	no reaction	Quinin hypodermic; recovery; diagnosis on leucocyte count.	
*184 Jones	10 m.	fever	some time	100	300-11.5	17.0	43.3	0.6	L	4	no reaction	Plithoric; bronzed; history of repeated malaria; enlarged leucocytes; quinin; recovery.	
*185 Goffman	17 m.	malaria fever	1 week	100	200-3	15.0	78.0	2.0	0.5	L	4	no reaction	No quinin; ordered comp. quinin pills.
*186 Krauss	25 m.	chills	3 weeks	100	320-25.1	33.5	39.7	0.6	L	4	no reaction		
*187 Krauss	25 m.	chills	3 weeks	100	200-9.5	16.7	70.5	3.2	L	4	no reaction		
*188 Jones	25 m.	chill last night	2 days	100	300-3.0	12.0	84.6	0.3	L	4	no reaction		
*189 Krauss	100	malaria	2 weeks	100	300-6.0	14.0	30.0	present	L	4	no reaction		
*190 Braunwerd	100	malaria homogloburria	indefinite	100	200-8	38.0	52.0	2.0	K	4	no reaction		
*191 Heller	20 m.	malaria cachexia	indefinite	100	500-7.4	28.5	62.8	0.2	K	4	no reaction		
*192 Stiebel	6 m.	continued fever	2 weeks	100	400-2.2	17.0	39.8	0.8	K	4	no reaction		
*193 Goffman	1 1/2 m.	fever	1 week	100	300-12.3	27.6	58.3	1.3	0.8	K	4	no reaction	
*194 Goffman	21 m.	suppurated hepatic abscess	indefinite	100	300-13.3	13.6	74.0	1.0	0.6	K	4	no reaction	
*195 Krauss	25 m.	malaise	1 week	100	300-10.3	18.7	69.7	3.5	0.3	K	4	no reaction	
*196 Jones	25 m.	malaise	long time	100	500-10.0	24.0	60.0	6.0	present	K	4	no reaction	
*197 Jones	25 m.	malaria	indefinite	100	500-10.0	24.0	60.0	6.0	present	K	4	no reaction	

TABLE III. LEUCOCYTE COUNT—CONTROL CASES.

No.	Physician	Sex	Age	Chief Diagnosis	Stage of Illness in Years, Months and Weeks	Temperature When Blood Was Taken	Number of Red Blood Corpuscles	Number of White Cells	Small Lymphocytes	Large Lymphocytes	Polymorphonuclear Leucocytes	Eosinophiles	Basophiles	Myelocytes	Parasites	By Whom Counted	Stain	Widal Test	Remarks and Corrected Diagnosis
1	Snyth	m.	30 m.	typhoid fever	3 weeks	102°	3,484,000	7,400 (class, leucocyte-tosis)	20.3	8.3	69.3	1.6	0.3	none	none	K	3	no reaction	Spinal myelitis.
2	Goltman	m.	m.	malaria or typhoid	6 weeks	slight	410,000	56,600	30.1	2.3	91.0	0.3	none	none	none	K	3	no reaction	Malignant endocarditis.
3	Goltman	f.	f.	uræmia	3 years	slight	1,294,000	17,300	12.0	1.5	65.5	19.0	2.0	6.0	none	K	3	no reaction	{ Polychæmias; metachloasts purpura; per- nicious anemia; death. { Leukæmia; marked purpura; spleen en- larged; skin lemon yellow; hemorrhage nose, stomach and bowels.
4	Saunders	16 f.	f.	leukæmia	6 weeks	slight	347,000	11,200	46.4	16.1	37.1	0.4	0.4	none	none	K	3	no reaction	{ Enlarged glands; fever; diagnosis; Hodge- kin's disease. { Splenomegaly; splenectomy; adhesion; death. { Hypertrophied heart; arrhythmias; diag- nosis; renal asthma. { Body covered with eruptions. { Negative because of leucocyte count.
5	Hall	29 m.	m.	leukæmia	9 weeks	slight	3,698,000	17,300	22.3	21.6	37.6	17.0	3.3	none	none	K	5	no reaction	{ Stiffness in joints; swelling. { Clinical picture distinct but mild. { Malignant endocarditis; death. { Diagnosis, lumbago on leucocyte count.
6	Mackie	41 m.	m.	catarrh	3 years	slight	1,294,000	6,200	500	22.3	6.6	69.6	2.0	none	none	K	4	no action	Erysipels, liver enlarged, upward; history of abscess.
7	Jones	35 f.	f.	asthma	9 years	slight	3,455,000	8,100	400	22.7	10.3	58.7	7.5	0.8	none	L	4	no action	{ Syphilis; night sweats; diagnosis; hepatic abscess. { Had typhoid fever two months ago; lymph- nodes enlarged; no pain; splenomegaly; scanties, evening, fever, cough; anæsthesia.
8	Jones	35 f.	f.	asthma	9 years	slight	3,455,000	8,100	400	22.7	10.3	58.7	7.5	0.8	none	L	4	no action	Operation showed syphilitic peritonitis; Suspension; few supporting lesions; Following grippe; influenza, bacilli and pneumococci in sputum; lives in swamp of Bogota Plain.
9	Jones	40 f.	f.	syphilis (sec.)	9 years	slight	3,455,000	8,100	400	22.7	10.3	58.7	7.5	0.8	none	L	4	no action	Been in swamp; mosquitoes had bitten him.
10	Krauss	41 f.	f.	malaria	11 days	normal	3,455,000	6,570	520	13.5	7.2	76.5	2.3	0.5	none	L	4	positive	Showering Secondary syphilis; my opinion is tuber- culosis.
11	Hove	50 m.	m.	typhoid fever	3 weeks	100°	2,228,800	10,120	520	13.5	7.2	76.5	2.3	0.5	none	L	4	positive	
12	Black	50 m.	m.	typhoid fever	3 weeks	103°	2,228,800	10,120	520	13.5	7.2	76.5	2.3	0.5	none	L	4	positive	
13	Turner	31 f.	f.	typhoid fever	2 weeks	102°	1,800,000	18,000	500	29.5	23.0	40.2	3.0	0.2	none	K	4	positive	
14	Turner	36 m.	m.	typhoid fever	2 weeks	102°	1,800,000	18,000	500	29.5	23.0	40.2	3.0	0.2	none	K	4	positive	
15	Turner	36 m.	m.	typhoid fever	2 weeks	102°	1,800,000	18,000	500	29.5	23.0	40.2	3.0	0.2	none	K	4	positive	
16	Jones	3 m.	m.	marasmus	some weeks	normal	6,000,000	9,600	100	30.0	19.0	51.0	none	none	none	L	4	no reaction	
17	Krauss	28 m.	m.	sepsis	some months	normal	4,120,000	11,000	9.2	12.7	73.9	2.3	1.1	0.5	none	L	4	no reaction	
18	Krauss	25 m.	m.	anæmia	indefinite	normal	6,120,000	15,680	300	14.3	12.0	72.6	1.0	none	none	K	4	positive	
19	Krauss	30 m.	m.	suspected syphilis	2 months	normal	7,800,000	7,800	400	8.23	10.5	80.25	0.85	0.24	none	K	4	positive	
20	Krauss	25 m.	m.	moderate liver	indefinite	99°	3,888,000	9,430	400	15.0	14.5	68.0	1.0	0.5	none	K	4	positive	
21	Krauss	60 m.	m.	blood poison	indefinite	normal	3,840,000	11,520	200	11.0	18.0	68.0	2.0	1.0	none	K	4	positive	
22	Krauss	47 m.	m.	protonia	2 weeks	101°	4,120,000	12,600	400	16.7	15.3	66.7	1.3	none	none	K	4	positive	
23	Krauss	30 m.	m.	syphilis	6 weeks	normal	3,982,000	12,170	400	11.8	21.6	71.3	2.6	0.6	none	K	4	positive	
24	Krauss	30 m.	m.	protonia	8 weeks	normal	4,501,000	13,470	300	18.8	21.6	71.3	2.6	0.6	none	K	4	positive	
25	Goltman	37 m.	m.	exposed anæmia	103°	normal	3,840,000	300	13.6	16.4	66.3	3.0	0.7	none	none	K	6	positive	
26	Goltman	60 m.	m.	gas-tric cancer	long time	103°	1,265,400	5,760	200	7.1	9.5	85.8	2.0	0.5	none	K	6	positive	
27	Vann	60 m.	m.	enlarged lymphatic	long time	104°	1,265,400	5,760	200	7.1	7.8	83.8	0.8	0.2	none	K	6	positive	
28	Jones	30 m.	m.	anæmia	3 weeks	101°	3,280,000	30,000	500	1.6	6.4	89.0	none	none	none	K	4	positive	
29	Holler	30 m.	m.	myelomatosis	6 months	101°	3,080,000	16,000	200	11.5	5.0	80.5	none	none	none	K	4	positive	
30	Holler	30 m.	m.	myelomatosis	6 months	101°	3,080,000	16,000	200	11.5	5.6	75.4	1.0	none	none	K	4	positive	
31	Holler	30 m.	m.	interleucal peritonitis	6 months	101°	3,080,000	16,000	400	13.0	12.3	72.0	2.9	0.9	none	K	4	positive	

Total 31 controls—Small lymphocytes, 14.26; large lymphocytes, 74.49; eosinophiles, 2.80; polymorphonuclear leucocytes, 7.43; basophilicities, 0.46; myelocytes, 0.65. Norm. average—Small lymphocytes, 20; large lymphocytes, 8; polymorphonuclear leucocytes, 70; eosinophiles, 1.5; basophilicities, 0.3. (The dagger (†) represents plus.)

SUMMARY:

	Small Lymphocytes	Large Lymphocytes	Polymorphonuclear	All Others
Mean of last 125 cases	15.4	21.0	61.3	1.7
Total mean	10.6	17.0	70.0	2.0
200 cases during apyrexia	17.0	23.0	60.0	0.0
Twenty-five cases malarial anæmia (temperature under 101°)	21.5	29.7	46.4	1.9
Twenty-seven cases disease plus malarial infection	14.0	18.0	71.0	2.8
Thirty-seven cases without malarial	14.3	18.1	71.0	2.6
Thayer's cases typhoid fever:				
First week	12.9	12.4	71.0	0.5
Second week	14.6	14.6	63.3	0.9
Third week	14.6	11.6	63.3	0.9
Fourth week	50.1	14.4	65.0	0.4

Mean of last 125 cases
Total mean
200 cases during apyrexia
Twenty-five cases malarial anæmia (temperature under 101°)
Twenty-seven cases disease plus malarial infection
Thirty-seven cases without malarial
Thayer's cases typhoid fever:
First week
Second week
Third week
Fourth week

counted is under 300, it was due to the scarcity of cells in the spread, the whole film having been gone over with a mechanical stage.

In referring again to Table 3 we find three cases very probably malarial (8, 16, 24). They were positively exposed to it in proper season, in surroundings which precluded protection, although no parasites were found on the spreads. Of the balance, 11 cases had over 10 per cent. of large lymphocytes, and only 5 of these reached the obligate 14 per cent. of Christophers and Stephens. These were:

	Per cent.
One suspected secondary syphilis, with ulcers.....	18
One hepatic gumma with peritonitis.....	14
One leukæmia.....	16.1
One gripal pneumonia.....	15
One typhoid fever, third week.....	23

With the exception of the latter, they all had a marked leucocytosis, none had marked fever when film was taken, and the only question unanswered and unanswerable was, whether they had an associated malarial infection.

CONCLUSIONS.

1. It is not so much the absolute increased per cent. of large lymphocytes which is diagnostic of malarial infection as the relative increase over the small lymphocytes.
2. In cases of malarial infection without much fever and without quinin history, the polynuclears are markedly diminished and the large lymphocytes very much increased in proportion.
3. In the absence of an adenopathy, possibly also of influenza and measles, the above finding is positive evidence of present or very recent malarial infection.
4. During the rise of a malarial fever, or as a result of quinin therapy, the polynuclear leucocytes may reach 80 per cent., but in that event the large lymphocytes exceed in number the small ones.
5. In malarial hemoglobinuria any of the various blood findings characteristic of malarial fever may be present in any stage, and there is no evidence now at hand to explain this.
6. Malarial and typhoid fevers can be more positively differentiated from fevers of sepsis, pneumonia, rheumatism, malignant tumors, etc., by the differential leucocyte count than by the hemocytometer, and it can be done on dried films, away from the bedside.
7. Malarial infection makes a strong impress on the leucocytic relation, no matter with what other disease it is associated.
8. It is not safe to rule out typhoid fever when the malarial variation is found, but, as it calls for anti-malarial medication, the therapeutic test may decide before a Widal reaction would appear.
9. In a gradually developing fever, the absence of marked increase in large lymphocytes or polynuclears during the first week justifies a preliminary diagnosis of typhoid fever.

DISCUSSION.

DR. RICHARD CABOT, Boston.—What criterion is used in the classification of blood cells for a large and what for a small mononuclear? No two men agree, and no two men are likely to observe the same rules in regard to this point, and this uncertainty makes the results of Dr. Krauss and the English school less available. At the same time I am influenced toward the conviction that what he has given us will be of value in confirming the diagnosis of malaria. I am not convinced that it will take the place of the direct observation of malarial parasite, because the same amount of work required to demonstrate the percentage of large mononuclear cells would usually suffice to demonstrate the parasite itself. What has most in-

terested me in the paper is its tendency to prove the central importance of the examination of the film specimen; this implies that the count of the red cells is less important, and in many cases is practically of little value. I seldom count the red cells. What we should count is the white corpuscles, and especially note their differential relation to each other. If we know what actually can be obtained from the film specimen (dried on glass and stained) we know all that will give information of value as regards the diagnosis in four fifths of the cases; nothing more in many cases could be learned from an actual count of the cells.

DR. ROBERT N. WILLSON, Philadelphia.—Unless I have misunderstood his statement I think that there is an error in the assertion of Dr. Krauss that a high percentage of polymorphonuclear cells in the blood excludes malaria and typhoid fever from the diagnosis. I have personally had the privilege of studying a large number of cases of both typhoid fever and malaria with reference to the blood picture, and in common with many other observers have repeatedly found a high percentage of these cells in the presence of complicating conditions. In such cases, unless this fact is remembered, the count will hinder rather than help toward a proper diagnosis. One particular case which I have reported was that of a former member of this Association, a physician who died of perforation of the bowel in typhoid fever. In this instance the polymorphonuclear percentage remained almost constantly about 9 per cent., and was highest at the time when the total leucocyte count was at its lowest point (6,400). In one or two other cases of typhoid perforation, proved by autopsy, there was the same occurrence. One case seen recently, however, was of typhoid complicated by cystitis, in which there was a polymorphonuclear count of only 54 per cent., in spite of the presence of quantities of pus in the bladder and urine. With regard to the statement made by both Drs. Cabot and Krauss that in certain cases the malarial organisms failed of discovery because quinin had been given to the patient, it is interesting to note that in the Philadelphia Hospital I have studied a number of cases in which the parasite could not be discovered after a very careful search until after quinin had been given. This experience was shared by a number of other observers in the same hospital, and has extended over several years time.

DR. C. R. GRANDY, Norfolk, Va.—It often happens in my section of the country that the people will take quinin before coming to the physician for a diagnosis, and, therefore, in many of these cases a blood examination is made more difficult. I wish Dr. Krauss would state distinctly if he has found an increase of large lymphocytes in such cases.

DR. W. E. ROBERTSON, Philadelphia.—In the consideration of the differential leucocyte count, the influence of age is an important factor. As is well known, the younger the child the more pronounced the leucocytosis. Then too, up to the fifth year of life there is a marked lymphocytosis, the polynuclears being proportionately deficient.

DR. WILLIAM KRAUSS.—The difference between a large and a small mononuclear cell is an arbitrary one. The best way is to class all the cells the size of a polynuclear cell as small unless the protoplasmic margin is relatively large and contains scattered neutrophile granules, which stamps the cell as a "large" one. In refutation of Dr. Cabot's contention, English observers have found the leucocyte count a great saving of time in differentiating latent malaria and when plasmodia are absent in peripheral blood. If you make a slide spread a differential leucocyte count can be made in 20 minutes at the far edge of the film, whereas it might take two hours' patient search to find a parasite, and, even if found, it furnishes no information as to the possible presence of a complication. The polynuclears may be increased in malaria, but the relation of the lymphocytes is not interfered with, and when found at the height of a fever, the polynuclear increase points rather definitely to presence of malaria and absence of typhoid. The best evidence of the real value of this diagnostic measure is that in the tables, in which the diagnosis had to be bolstered up by all the collateral evidence available in order to prove my point—it was frequently the sole sign post to a correct diagnosis. The

answer to Dr. Willson's question appears in the tables. In answer to Dr. Grandy I would say that here it was that I found my best field; in persons cinchonized, the question: Should they not be further cinchonized? is best answered by the malarial lymphocyte variation, as it is more sensitive than the presence of plasmodia or pigmented leucocytes. As to Dr. Robertson's question, in children over one year old the variation is usually reliable.

PHYSIOLOGIC OPTICS.

NEW EXPERIMENTS FOR DEMONSTRATION AND NEW APPARATUS.*

WINFIELD S. HALL, M.D.

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When it was proposed to establish a laboratory course in the physiology of vision, the head of the department of ophthalmology was requested to state what he wished students to know in this field when they presented themselves in his department for clinical work on the eye. The reply was in effect this:

Before the student can enter on the clinical study of the eye he should be acquainted with: the anatomy of the conjunctiva; the lachrymal apparatus, including the drainage and the extrinsic muscles; the circulation, extrinsic and intrinsic; the nerve supply of the muscles, the mechanism of muscle action, the gross and minute anatomy of the coats of the eyeball; the refractive media, the retinal circulation, and the ciliary apparatus. He should thoroughly understand the functions of all the parts studied. The student can not hope to succeed in clinical ophthalmology unless he has a clear understanding of the refractive media of the eye from an optical standpoint: the indices of refraction; the law of lenses and their influence on the path of a ray of light; in short, the dioptric system of the eye. He must understand the mechanism of accommodation and be able to determine its range; he must be able to outline the field of indirect vision for form and color, and to map the distribution of the retinal vessels through ophthalmoscopic examination of models and of the eyes of animals and of normal man.

In the development of a course to cover the required ground, several new appliances and methods have been devised to facilitate the laboratory instruction, and I take this opportunity to make a brief description of the more important of them together with diagrams showing their structure.

In these optical appliances three requirements are met: accuracy, simplicity and economy.

TO DETERMINE THE INDICES OF REFRACTION OF WATER AND OF GLASS.

A very convenient and sufficiently exact apparatus for making the required determination may be easily made as follows:

Take a carpenter's tri-square, constructed wholly of iron, from the angle x (Fig. 1), where the graduated limb joins the body, measure off centimeters on the inner surface of the body and cut them in with a file.

Locate on the inner edge of the graduated limb any point as y , 6 to 9 centimeters from the point. With files remove about one-half centimeter of the edge as indicated in figure, cutting deeply at z , so as to leave a slender point at y , as indicated.

Drill a hole in the inner surface of the body at o ; fit and drive a heavy brass or iron wire into this; sharpen the upper end of the wire. The length of the wire above the body must be two or three centimeters, greater

than the distance $x y$. Bend the point over so that distance $o p$ shall equal $x y$.

Place the instrument in the water pan; fill the pan, so adjusting it that both points p and y will just fail to touch the water, for the surface of the water at y must be absolutely plane. If the points touch it the surface will not be plane.

Bring a small rule, r , into position and clamp it to the limb of the instrument by means of heavy serre-fine forceps. So adjust the rule that as one sights along its upper edge the points a , y and 3 seem to lie in the same straight line. Lift the apparatus out of the water and lay it on the table, taking care not to disturb the adjustment.

With dividers measure the distance from the point y to line 3 . This is the radius. Determine the point where the circumference would cut the upper surface of the rule, say point b .

From this point determine the perpendicular distance to the edge of the limb at c .

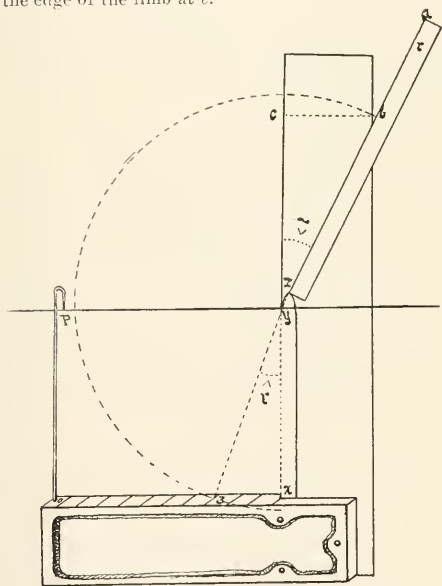


Fig. 1.

The line $c y x$ is a normal to the surface of the water at the point y . The angle i is the angle of incidence; the angle r is the angle of refraction. Imagine a circle whose center is at y and circumference passes through b and 3 . The line $b c$ is the sine of the angle of incidence. The line $x 3$ is the sine of the angle of refraction.

DETERMINE THE RATIO OF SINE I TO SINE R.

In the same manner determine the ratio of these angles when the rule is also adjusted as to bring $a y 2$ or $a y 4$ apparently in one straight line.

If the instrument has been carefully constructed, and if the determination has been made with sufficient care, the ratio, $\text{sine } i : \text{sine } r$, will be found to be practically equal to the ratio, $\text{sine } i : \text{sine } r$; furthermore, the ratio for any substance such as water, is found to be constant. This constant ratio is called the index of refraction, and is conventionally represented by μ .

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

For water. $\mu = \frac{\text{sine } i}{\text{sine } r} = \frac{2.06}{2.00} = \frac{4}{3} = \frac{5.33}{4.00} = 1.33$

To determine the index of refraction of glass, proceed as in the case of water. Set the instrument on the table; the block of glass may be placed on the body of the instrument, the polished surfaces being placed above and below. If the distances between the polished surfaces is not equal to $x y$, a point y' may be located on the upper surface near the edge of the glass block by making a dot with ink where the line $x y$ cuts the upper surface of the block. This line is the normal.

Proceeding with the glass according to the same method as that followed in the case of water, one finds first, that,

the ratio $\frac{\text{sine } i}{\text{sine } r}$ equals the ratio $\frac{\text{sine } i'}{\text{sine } r'}$

further, that the ratio is constant and for crown glass equals 1.5.

TO DETERMINE THE FOCAL DISTANCE OF A LENS.

A simple method of determining a focal distance of a lens depends on the relation of the conjugate focal distances to the general focal distance. This relation may be expressed thus: The sum of the reciprocals of the conjugate foci is equal to the reciprocal of the focal distance, $1/o + 1/i = 1/F$.

When a lens throws on a screen the image of an object it is evident that the distance of the object o represents one and the distance of the image i represents the other of these conjugate focal distances; so one may say: The reciprocal of the distance of the object from the lens, $1/o$, plus the reciprocal of the distance of



Fig. 2.—Apparatus for determining the principal focal distance through the observation of the conjugate focal distances. o , Object; i , image. The conjugate focal distances of o and i may be represented by f and f' respectively. c , Lens carrier which slides along the guide on the bottom of the box.

the image, $1/i$, equals the reciprocal of the general focal distance, $1/F$; thus $1/o + 1/i = 1/F$. This formula enables one to compute the focal distance after first determining by experiment the values of o and i .

The apparatus necessary is very easily constructed. For the determination of the focal distance it is usual to have both object and lens movable. For our purpose this may be dispensed with, as it lends little to the reliability of the result and detracts much from the simplicity of the apparatus. Construct from half-inch pine boards a box 1 meter long and about 8 cm. high and wide (inside measurements). The box should be open at one side, while the inner surface of one end may be painted white and serve as a screen. The other end should have in its center a large hole. Over this hole on the inner surface of the end, fix a sheet of lead or copper in which some figure has been cut, o . Construct a lens carrier, c , whose pointer, p , will indicate on the scale, s , the position of the center of the lens. The use of the instrument will be somewhat facilitated if the distance between the surface of the screen and the surface of the lead or copper be purposely made 100 cm. One needs a lamp or candle to place behind the metallic screen at o (Fig 2).

Place a light behind the metallic screen; it shines through the figure cut through the screen. This illuminated figure is the object. Place a lens in the carrier and so adjust it that the plane which it represents

is perpendicular to the axis of the instrument and its center is in the same perpendicular plane with the index, p , of the carrier. Slide carrier along the base until the object is sharply focused on the screen.

Read from the scale, or measure with a rule, the distance of the lens from the image i . If the instrument is made just 100 cm. between the screen and the object, then the difference between 100 and the reading will be the distance of the lens from the object. The image is inverted.

We have now simply to use the general formula given above, substituting the values observed in the experiment.

(1) $\frac{1}{o} + \frac{1}{i} = \frac{1}{F}$ (2) $\dots \dots \dots F = \frac{o \cdot i}{o + i}$
 (3) $\dots \dots \dots$ But $o \cdot i = 100$ (4) $\dots \dots \dots F = \frac{oi}{100}$

From this form of the statement it is evident that the lens will throw a distinct image in either one of two positions. This may be demonstrated experimentally.

The value of the formula, $1/o + 1/i = 1/F$, is so great and its application in physiologic optics so frequent, that the student should thoroughly familiarize himself with the properties of lenses as revealed in the formula.

The following are some of the problems which may be solved with this apparatus:

1. When the object is twice the focal distance, what is the distance of the image?
2. When the distance of the object is $2F$, how does the distance of the image compare with $2F$?
3. When the object is at a very great distance (∞), at what distance will the image be formed?
4. What is the maximum focal distance that may be determined or verified with above-described apparatus? Discuss in detail.

TO LOCATE EXPERIMENTALLY IN THE MAMMALIAN EYE THE CARDINAL POINTS OF THE SIMPLE DIOPTRIC SYSTEM.

In the study of the glass lens, one takes into consideration the index of refraction and the radius of curvature of the surface of the lens. When one remembers that the eye possesses media of two different refractive indices bounded by three curved surfaces: Anterior corneal surface (radius, 7.829 mm.), anterior and posterior lens surfaces (radii, 10 and 6 cm., respectively), the complexity of the problem becomes apparent.

It has been shown mathematically that a complex optical system consisting of several surfaces and media, centered on a common optical axis, may be treated as if it consisted of two surfaces only.

Applying this principle to the eye, it has been found that the several media and surfaces may be reduced to two parallel spherical surfaces, whose radii are 5.215 mm. These surfaces cut the optical axis just posterior to the cornea, and are only one-third millimeter apart.

To further simplify the optics of the eye, it has been customary to reduce it to a simple dioptric system by assuming one refracting surface near the posterior surface of the cornea midway between the two computed surfaces.

A simple dioptric system is one in which the ray passes from one medium into a secondary medium of different refractive index, the surface of separation of the two media being a spherical surface.

The cardinal points of the simple dioptric system are:

1. The nodal point, which is the center of the curvature of the spherical surface (N, Fig. 3).
2. The principal axis—the line $o R N$ in the figure.

from either side. Let this be the point of fixation or the point where the line of vision falls on the surface of the board.

We propose now to draw on the blackboard a series of circles whose distances from one another shall represent an angular distance of 10 degrees. Reference to Figure 4 makes it evident that if the line AB represents the plane surface of the blackboard, and if the eye be placed at o, the equal increments of 10 degrees on the quadrant become a series of increasing increments on the surface of the board. The numbers at the right (Fig. 4) show just how many centimeters the radius of each successive circle should be, provided the distance of the eye from the board be taken at 20 centimeters.

After drawing the circles draw meridians which divide each quadrant into three or nine subdivisions. The complete blackboard chart will have the appearance and proportions shown in Figure 5. The circles and me-

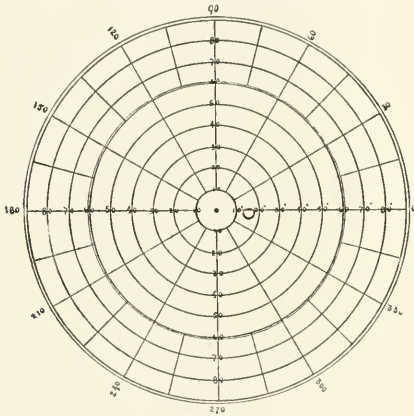


Figure 6.

ridians should be traced permanently in white enamel on the surface of the blackboard. Any marks on the board in chalk may then be erased without disturbing the perimeter circles.

The most satisfactory test objects are pieces of fresh crayon not over 1 cm. in length. They may be held in wire loops of convenient length.

Each blackboard must be provided with a rest or contrivance to insure that the subject's eye is 20 cm. from the surface of the board. Whether this takes the form of a rod of wood extending out from the board and so adjusted that when the subject rests the most prominent infra-orbital region on its end the cornea will be 20 cm. from the center of the chart, or whether it takes some other form that insures the same results, is of little consequence.

In all observations which are subsequently indicated, it is taken for granted that the visual axis is perpendicular to the surface of the chart, that the center of the chart is the point of fixation, and that the accommodation is kept uniform, i. e., the eye is either uniformly focused on the center of the blackboard perimeter or uniformly relaxed; further, that the eye not under observation be closed or closely shaded.

Examine the upper median quadrant by sweeping a white test object around arc 60, keeping the test object as near the surface of the chart as possible. If the sub-

ject does not see the object, try arc 50 degrees. Having located the circle which seems to be near the boundary, locate on each meridian a point which indicates the limit of indirect vision in that direction. Join with a continuous line the points located, thus inclosing an area of indirect vision.

Test the lower median quadrant in the same way. Is the total area covered by indirect vision in this quadrant greater or less in extent than that in the upper quadrant?

Test the upper lateral quadrant and then the lower lateral quadrant. Are these two quadrants practically equal?

Is there any ready explanation why the outer two quadrants should contain such an excess of area over the inner two quadrants?

TO RECORD THE PERIMETER OUTLINE.

For this purpose one should have printed charts in which the circles are equidistant. They represent concentric arcs of a quadrant with 10° of the circle between each two, while the circle on the blackboard represents a radical projection of these areas on a plane tangent to the sphere at the point of fixation. In transcribing the perimeter on the record chart, one has only to locate twelve or more points located on the observation chart and join these points into a continuous perimeter.

In the above experiment we have determined the perimeter for light sensation only, the subject being conscious simply of a light or white spot on a dark ground, but not certain whether the spot is circular or square.

After determining and charting various color perimeters, as red, green and blue, we may inquire:

Have the color perimeters the same general form as the white perimeter? If not, describe any noticeable variations. Which of the color perimeters encloses the greatest area?

Take corresponding perimeter for the other eye. To use the same blackboard it will be necessary to turn it the other edge up. In what general respect do the perimeters differ from those of the left?

With the help of light perimeters of the right and left eyes determine the field of binocular vision. This is the field of binocular indirect vision.

Live Foreign Bodies in the Larynx.—Liaras of Alger has had occasion to observe 3 cases of leeches clinging to the wall of the larynx. He relates the cases in detail and reviews the literature on the subject of live foreign bodies in the larynx. The leech spontaneously traveled out in one case after gargling with tobacco water, and in the others he was able to seize and remove it with forceps. The presence of the leech causes coughing, bloody expectoration, altered voice and respiration and pain. The attacks of coughing may become convulsive and the attacks of suffocation more and more pronounced. He advises intubation as the rational mode of treating such cases. The physician can then wait in confidence that the leech will come out spontaneously to escape the pressure of the tube, this event hastened by sprays or inhalation of tobacco, iodiform, salt water, etc. If the animal is not dislodged by the end of five or six days, and the patient shows signs of anemia from the loss of blood or inflammatory reaction in the larynx, thyrotomy may be indicated as the last resort. In his communication to the *Revue Hebdomadaire de Laryngologie*, xxv, 11, Liaras remarks that the horse leech, hemipis, abounds in Algiers and Sicily, and that it is frequently found in the mouth, nasal fossae and pharynx of both man and animals. Chavasse observed two cases of its presence in the larynx and collected 17 others in his experience as an army surgeon in Algiers. Contrary to Liaras, he recommends immediate incision without wasting time on medical measures.

POISONING BY WOOD ALCOHOL.

CASES OF DEATH AND BLINDNESS FROM COLUMBIAN SPIRITS AND OTHER METHYLATED PREPARATIONS.

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AND

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(Continued from page 1123.)

These additional cases of death and blindness from the ingestion of methyl alcohol, collected by Dr. Wood, demonstrate that the baleful influence of the poison is still on us in undiminished force. The form of the drink has, as might be expected, assumed a variety in keeping with its extended employment. Thus we find that in some hitherto unpublished instances the victims drank, in addition to the commoner forms of wood spirits, methylated "essence of peppermint," numerous patent medicines whose chief menstruum was "deodorized" methyl alcohol, "eau de cologne," "Florida water," "bay rum," "witch hazel," lemon "extract," "punch," "high-balls," "hot drops," and red ink. In other respects the histories parallel those collected by Dr. Buller. We propose to use the histories thus made available for a few additional remarks on the general subject of methyl alcohol intoxication.

TOTAL NUMBER OF METHYL ALCOHOL VICTIMS.

From Dr. Buller's tables of published histories we have a well-authenticated list of 54 cases of methyl alcohol amblyopia, to say nothing of the deaths that are incidentally mentioned, of which no particular record was made. As the proportion of deaths to survivals with blindness is a fairly constant one, and reading the reports intended to describe the blindness only, we may put down 40 as the minimum number of published deaths.

Reference has already been made to the experience of Dr. Moulton with deaths from wood alcohol on Indian reservations. Other ophthalmologists tell the same story about these "strictly preserved" localities. One observer, who has reported several cases of methyl alcohol amaurosis, says regarding them: "Almost the first question I ask an amblyopic patient from a reservation is, What have you been drinking? The answer almost invariably is, Columbian spirits, Jamaica ginger, or something of that sort. It is no trouble to find the deleterious effects of methyl alcohol among these people. As for Indians, they will drink anything they think has alcohol in it, even red ink."

Nor is the consumption of methylated compounds as a substitute for ethylic alcohol confined to Indian reservations. Wherever men in any walk in life are deprived of a chance of indulging in the usual forms of ethylated beverages, they are very likely to drink some tempting form of methylated mixture. Assistant Surgeon X. writes me: "The temptation of the men of this post is particularly great, as we are over ten miles from the nearest saloon. At the time the deaths occurred the men, having consumed all their grain alcohol, had to have something to 'sober up' on, so they got hold of Columbian spirits and drank it, hardly knowing or caring what they were taking." Perhaps if the United States Army had been supplied with a properly regulated canteen, where light wines and good beer were sold, these soldiers would have "sobered up" on non-poisonous drinks and not on wood alcohol!

The list of previously unrecorded cases of blindness, so far as Dr. Wood has been able to collect them, includes 89 well-authenticated cases from the drinking of methylated liquids. Absorption of the fumes is responsible for ten instances of amblyopia, while the deaths (without history of previous blindness) number 82. Altogether, then, we have 153 instances of blindness and at least 122 cases of death from methyl alcohol poisoning during the past few years—275 in all.

Our reasons for believing that these figures by no means complete the roll of serious intoxication from this poison we have already pointed out. How many cases of death and blindness (or both combined) have resulted from methylated preparations since the comparatively recent introduction of Columbian spirits is a matter of conjecture; probably 400 instances.

Since this article went to press, the newspapers report the deaths of twenty-five persons in a certain district in New York City from drinking whisky which contained wood alcohol and which was purchased in a saloon. The newspaper account continues: "The police to-night arrested Rudolph Fritsche, the proprietor, and closed the place. A chemical analysis of the stomach of one of the victims who died of acute gastritis showed the presence of wood alcohol, which also was found in a bottle of whisky purchased at the saloon."

COMMERCIAL FORMS OF METHYL ALCOHOL.

Although that nauseous and vile-smelling fluid is still purchasable as wood alcohol, wood spirit, pyroligneous spirit, wood naphtha and methylated spirit, its place in commerce has been almost altogether taken by the deodorized variety, of which "Columbian spirits" is easily the best known and most widely used. There are many other forms of this fluid on the market, such as "colonial spirits," "union spirits," "eagle spirits," etc., in the United States. "Green wood spirits" (mostly used for fuel) and "standard wood spirits" (a more thoroughly deodorized article) are largely sold in Canada and intended for the same purposes as the American Columbian spirits. The deodorized fluids all have the same volatile, agreeable, vinous odor, and the pungent, biting taste as pure ethyl alcohol, and it is often difficult for the average individual to distinguish them from grain alcohol. It is, therefore, quite easy to understand how the thirsty one, unaware of the danger to life and eyesight, might indulge in a drink of the methylated product. Manufacturers of all sorts of alcoholic potions have not been slow to take advantage of this fact; indeed, there is hardly a "liniment," an "essence," an "extract" or a "bitters"—hardly any nostrum or concoction, medical or domestic, in whose preparation alcohol is employed—that has not been, or is not now, adulterated with this poison. We have within the past few months had several proprietary remedies, suspected to have produced blindness, carefully analyzed; they all contained wood alcohol.

As stated on the highly ornate labels of the bottles intended for retail consumption, one form of methylated "spirits" is highly recommended for "bathing, burning and cleaning." Among the uses specified are "bathing and sponging the sick; making liniments; rubbing for rheumatism, bedsores, etc.; veterinary uses where alcohol is required; Turkish bath cabinets; burning under chafing dishes and in spirit lamps; removing oil and grease from brass and woodwork." In all these instances ample opportunity is afforded for absorption of the poison.

A few instances—there are hundreds of others—of the use of “deodorized” wood spirit as an adulterant of or substitute for grain alcohol may be given:

In the 1903 report of Dr. R. O. Brooks, state chemist of New Jersey, it is shown that from four to eight samples of paregoric (page 7) and from four to eleven samples of ginger (page 24) contained wood alcohol—a fact that would seem to indicate that drug adulteration with wood alcohol is still practiced to a considerable extent.

Scoville² reported that he found two out of six commercial liniments containing wood spirit; also the same poison in several brands of witch hazel.

Dr. Allen Greenwood of Boston found quite recently that two of his patients had been furnished tinctures whose menstruum was “Columbian spirits.” The druggist, on being called to account, stated that many tinctures are now being made with “spirits” of this kind!

The president of the New York Board of Health ordered in 1902 an examination of the ingredients in the Jamaica ginger and spirits of ammonia sold by druggists throughout the city. The official chemist found that 40 out of 215 drug stores were substituting wood alcohol for grain spirits. Warrants were issued for these offenders.

Dr. Warren, the pure food commissioner of the state of Pennsylvania, reports that to Feb. 5, 1904, he had collected and examined 1,000 samples of cheap whisky from all parts of the state. Over 95 per cent. of the samples contained varying quantities (some as high as 75 per cent.) of wood alcohol. He believes that 5,000 cases will be found in the state and is desirous to prosecute them.

In 1902 E. L. Patch of Stoneham, Mass., reported to the American Pharmaceutical Association that he found wood spirit in 40 out of 225 samples of spirit of camphor.

Without further multiplying examples of this brazen attempt at wholesale poisoning we finally present a recent report of the dairy and food department of the state of Minnesota, who condemned and pronounced illegal, because of their containing wood alcohol, samples of lemon “extract” from all parts of the state. These poisonous products were put up and sold by wholesale manufacturers of (?) respectable standing in Chicago, St. Paul, Minneapolis, Duluth and Milwaukee. In addition to this list they also found four cases in which methyl alcohol was used in the manufacture of Jamaica ginger, two cases of vanilla extract, one of pineapple and two of strawberry.

TOXICITY OF METHYL ALCOHOL.

While a study of the cases reported in this article must undoubtedly establish the fact that the majority of those who imbibe a moderate quantity—say two or three ounces—of wood alcohol or its equivalent of methylated liquids, escape permanent damage, i. e., most persons are, to some extent, immune to serious poisoning by small quantities of methyl alcohol, this is by no means true of larger quantities; nor does it, by any means, prove the immunity of every person from poisoning by very small quantities. Until the experiment has been made nobody can be assured of safety to eyesight from the ingestion of much smaller amounts of the poison. There are many well-authenticated instances in which the drinking of a couple of teaspoonfuls of wood spirits was followed by blindness.

The intoxication of persons from inhalation of the fumes of methylated alcohol is another example of poisoning by small quantities of the intoxicant, because the actual bulk of liquid so absorbed by the lungs and skin must be comparatively small.

The cumulative quality of methylism has been referred to by several writers. This matter will be further discussed in speaking of the pathology of the subject. Meantime our investigations undoubtedly demonstrate that in many instances no marked poisonous symptoms were noticed until twenty-four hours or longer, after the last of a number of doses (usually small “drinks”) had been taken. Unlike most poisonous agents that are

responsible for acute symptoms, these may not much disturb the patient for a relatively long interval after the ingestion of the poison. Indeed, it may be set down as a rule that, except in persons exhibiting an idiosyncrasy against wood alcohol, or unless a large dose of the poison is drunk within a few hours, not only may the severe abdominal symptoms, the cardiac and nervous collapse and the blindness be postponed, but even the fatal termination has, in some instances, been delayed for several days.

This information, derived from the histories just published demonstrate the fact that there is danger, albeit an unknown degree of danger, to life and eyesight attending the ingestion of *any* amount of wood alcohol. Moreover, while the acute, unmistakable symptoms of the ordinary forms of intoxication enable us to recognize them at once there can be no doubt but that much smaller quantities, taken into the system, as methylated quack remedies, adulterated food-stuffs (Jamaica ginger, “lemon extract,” essences), or the secret dram drinking of bay rum, cologne water, etc., may, in persons not immune, injure the digestion and permanently damage the vision.

There are very few poisons that more distinctly exhibit the selective character of the intoxication than wood alcohol. It has again and again been demonstrated that a minority of those who imbibe methylated fluids suffer no permanent damage from them. In other words, many people are practically immune to moderate doses of methyl alcohol. In most cases where small doses are taken serious intoxication means that there is in the poisoned individual an idiosyncrasy against this agent. It is owing to this fact that in times past many perfectly sincere observers asserted, and interested parties loudly proclaimed, the innocence of methyl alcohol. During the trial of the Baltimore suits against Gilbert & Co. a dramatic incident occurred, based on this belief. A chemist drank a quantity of methylated spirits in open court. Of course, we now know that, although this was a dangerous act, the chances were greatly in favor of the witness, especially if at the time his stomach were full of food, or if he took an emetic shortly after the draught of wood alcohol.

Prof. W. A. Puckner, in the *Western Druggist* for December, 1897, wrote:

“The only constituent of wood alcohol likely to be present in sufficient amount to be poisonous is acetone and, since methyl alcohol is comparatively free from this, the preparations now in the market are presumably also free from the poisonous properties ascribed to wood alcohol.”

Supporting this proposition, he took internally single, 30 c.c. doses of a commercial wood alcohol containing about 0.5 per cent. of acetone, and experienced no unpleasant results therefrom.

“Further doses of 15 c.c. taken at intervals of thirty minutes until 90 c.c. had been drunk, left the body temperature normal, at first somewhat accelerating, later slightly depressing the pulse—i. e., producing the characteristic effects of ethyl alcohol.”

On the other hand, Dr. Reid Hunt⁶ of Johns Hopkins showed that, in experimenting on dogs, the latter were all killed by doses of Columbian spirits and other fluids containing methyl alcohol, while animals survived the same and larger quantities of ethyl alcohol and pure acetone.

In considering the actual poisonous agent in the methyl alcohol of commerce, one must not forget the secondary organic compounds formed in the intestine*

and in the blood. It is quite likely that these play an important rôle in the damage inflicted on the system. Prof. C. S. N. Hallberg believes that the untoward effects of methyl alcohol are mainly due to formation of the poisonous formaldehyd.

In respect of its varying toxicity, however, this poison does not differ from many other lethal compounds, Paris green, for instance. The effect on the individual, in the case of this arsenical drug, will be largely governed by the amount ingested, the condition of the patient's alimentary tract, whether his stomach is full or empty, whether already irritated by other agents, whether vomiting sets in early or late, and whether absorption of the poison is complete or not. If the conditions are adverse a fatal termination might ensue from a small dose and in a short time; if favorable, the drinker might escape after the ingestion of a relatively large quantity of the poison.

The manufacturers of wood alcohol no longer contend that the internal use of their product is innocuous, but they do deny that any harm arises from its external application, or from its employment in the arts or as a fuel. This contention will be considered later.

The varying effects of methylated fluid on individuals is largely due to idiosyncrasy, exactly as in the case of ethyl alcohol and other poisons. For example, a peripheral neuritis, sometimes associated with blindness (toxic amblyopia), is one of the well-known results of ethyl alcoholism, but it does not so affect every drunkard. That about 50 per cent. of those exposed to the poisonous influences of wood spirit escape permanent damage is now a recognized fact, and this immunity is mostly due to a peculiar resistance inherent in the nervous and digestive apparatus.

Another fact, fully recognized by Reid Hunt in his laboratory studies, is clearly shown in the clinical history of those cases in which the poisoning was brought about by the ingestion of various mixtures containing different proportions of this drug, together with other things. In every instance the toxic action was that of methyl alcohol, as clearly and sharply defined as if nothing but the pure spirit had been consumed. It can, therefore, no longer be maintained that the poisonous effects of Jamaica ginger, lemon extract, bay rum, etc., are due to anything else than the methyl alcohol which some of these preparations are well known to contain.

PATHOLOGY OF METHYL ALCOHOL AMBLYOPIA.

The irregular onset and variety of the symptoms (especially the eye-signs) set up by methyl alcohol intoxication argues a variety in the lesions produced by it. There can be no doubt but that the ophthalmoscopic changes described in the foregoing case-histories bear out such an idea. In one series, for example, although the blindness was complete, no fundus alterations were discovered except, possibly, slight blurring of the disc outlines, or a faint congestion of the papillary vessels. These are, in all probability, cases of deep-seated retrobulbar optic neuritis, with no changes present in the nerve-head. In the course of time most of these cases suffer a postneuritic atrophy with abundant evidence of the lesion in the pallid papilla.

On the other hand, a well-marked anemia of the nerve is perceptible in many cases of intoxication a very short time after the ingestion of the poison. In this regard wood alcohol acts like quinin. It is a question whether this condition should be called "atrophy," first, because fairly good vision has been recovered in not a few of these cases, and, second, because sufficient

time to bring about true atrophic changes had not elapsed since the poisoning. Later on, without possibly any marked alteration in the ophthalmic picture, the sight grows dimmer with the occurrence of veritable optic atrophy.

A third picture is that of a mild papillitis. The outlines of the disc are obscured, the physiologic excavation is filled by an edematous swelling, and the vessels, especially the veins, are distinctly turgescient. Vision will, in these, as in other cases, depend on the extent to which the central bundles of optic fibers are affected. A well-developed neuritic process situated far behind the globe and not discoverable by the ophthalmoscope may result in an early, sudden, complete and permanent blindness, while recovery, sometimes complete, may follow a superficial papillitis or an early blanching of the nerve-head.

These apparent anomalies must not, however, blind us to the fact, certified by all careful observers, that in the great majority of instances of intoxication an early retrobulbar neuritis, whose signs and symptoms shortly improve (with more or less clearing of sight), is the precursor of a genuine postneuritic or secondary atrophy, from which most or all of the patient's useful vision is wiped out.

The lesions in the majority of instances of methyl alcohol amblyopia and amaurosis are local ones—that is to say, they are not secondary to central circulatory or nervous changes. Unlike other forms of toxic amblyopia, e. g., quinin, tobacco and ethyl alcohol, the poisoning is frequently accompanied by scleral and ciliary congestion, tenderness of the eyeball, painful excursions of the globe, pain in the eyes and forehead, and other evidences of an acute inflammation of the orbital or intraocular contents. The exact character of the morbid alterations that give rise to these symptoms and to the blindness probably varies somewhat, according to the severity of the intoxication.

Whatever the primary process may be—whether it affects first the retina and then the optic nerve, or *vice versa*—the final outcome is a rapid atrophy of the fibers of the nerve and retina. Friedenwald, Holden and Birch-Hirschfeld take the former view. They believe that there is a degeneration of the ganglion cells of the retina in general, and of all the percipient elements of the macular region in particular. This metamorphosis of the retinal nervous elements, they agree, is the result of a sudden interference with their nutrition, the result of vasoconstrictor effects of the poison on the retinal vessels. On the other hand, Gifford holds that the orbital pain and ophthalmoscopic evidences of positive neuritis met with in some cases, together with complete blindness, followed by a temporary improvement, indicate a primary affection of the optic nerve. Hotz, who has seen optic neuritis in this affection, considers that if the primary effect were to destroy the central nerve elements of the retina, a partial recovery, followed by a second lapse of visual acuity, would not be likely to occur, but that this would be the natural sequence of a nerve lesion of an inflammatory type, the effusion at first clearing away, with relief to the compression of the nerve fibers; then follows renewed pressure on these with the advent of atrophic changes. Gifford noticed in one case total absence of retinal changes, as seen by the ophthalmoscope, a few hours after the blindness had come on, and holds this to be proof that the primary lesion is not in the retina. On the other hand, De Schweinitz states that in animals experimented on with

methyl alcohol its toxic action is first on the ganglion cells of the retina, and that the optic nerve changes are secondary.

Certainly the early and often complete loss of vision can scarcely be regarded as other than positive proof of profound disturbance in the optic nerve, and the subsequent rapid alterations in the vision, without visible ophthalmoscopic changes in the fundus, seem to point in the same direction. There were changes in the optic nerves in Buller's third case which indicated a retrobulbar neuritis at an early period, but nothing that would justify the assumption of pathologic alterations in the region of the macula lutea.

The whole controversy reminds one of the difficulties that surround the question of the exact nature of the lesions in the amblyopia of chronic (ethyl) alcoholism and in the blindness from tobacco, especially as to whether the optic nerve degeneration, so well described and pictured by Uhthoff and others, is primary or secondary. On the whole, it seems highly probable that the ocular changes in methyl alcohol poisoning are mainly a peripheral neuritis affecting in some cases the nerve trunk only, sometimes the retinal fibers only, and sometimes both these tissues. Occasionally recovery follows, more or less rapidly, in all forms of the disease, but as a rule the changes proceed to entire destruction of the light percipient elements of the parts that had been primarily the site of the neuritis.

The clinical histories in both the recorded and unrecorded cases fully bear out this view of the pathology of methyl alcohol amaurosis. The ophthalmoscopic changes and other symptoms generally correspond to the amount and kind of the blindness, and enable one to foretell their character so far as vision is concerned, but this is not always the case. Recovery sometimes occurs even when evident optic neuritis is present, and, on the other hand, a patient now and then becomes blind when the mirror does not reveal any neuritic changes.

This, however, is less frequently the case so far as concerns the association of white atrophy and permanent blindness. Sooner or later we find the one in cases that exhibit the other.

SYMPTOMS OF METHYL ALCOHOL POISONING.

From a study of these cases we may conclude that there are three degrees of wood alcohol poisoning.

1. An ordinary mild intoxication, with perhaps some dizziness, nausea and mild gastrointestinal disturbance, terminating in perfect recovery within a few days, but occasionally followed by more or less serious damage to vision.

2. A toxic effect more pronounced in every way, dizziness, nausea, vomiting and gastroenteritis being conspicuous symptoms. Dimness of vision, often increasing to total blindness, is characteristic of this degree of poisoning.

3. An overwhelming prostration which terminates in coma and death.

The clinical picture of wood alcohol poisoning usually depends on the quantity taken, modified, of course, by the resisting power of the individual. Generally there will be observed the ordinary effects of alcoholic intoxication (vertigo, nausea, gastric discomfort, and general malaise), with disturbance of vision.

The more pronounced cases exhibit headache, muscular weakness, vomiting, dimness of vision, often progressing to complete blindness, with considerable gastrointestinal disturbance, and evidence of depression of the heart's action.

A step further and, with the exaggeration of all these symptoms, the patient becomes suddenly blind, or nearly so, with widely dilated, reactionless pupils, slow respiration, weak pulse, sweating, delirium or unconsciousness, often passing into coma and terminating in death.

It rarely happens that a patient suffering from methylic alcohol intoxication recovers if he once becomes comatose. He almost invariably dies unconscious, or, having regained consciousness, suffers a relapse and death shortly follows.

The characteristic feature in nearly all the severe cases not terminating fatally is bilateral, total blindness, coming on in a few hours, or perhaps not for several days; then a partial restoration of vision, which again in a few days or weeks gives place to more or less complete and permanent blindness, with atrophy of the optic nerve.

Surely this is a picture entirely different from any other known form of intoxication and sudden amaurosis, and it has been drawn by many observers from actual clinical observation over a widespread area. *It is a picture which methyl alcohol alone can create.*

VISION IN METHYL ALCOHOL AMAUROSIS.

As already noted, vision is frequently good for several days after recovery from the intoxication, when without warning blindness, often total, sets in. After a few days or weeks of darkness the eyesight returns, and the improvement may even be very marked—may, indeed, be almost as good as ever. Yet a relapse is almost certain to occur, and before long the blindness once more returns, and this time, as a rule, is permanent.

The visual field is nearly always contracted, and absolute central scotomata are rarely absent. The pupils are widely dilated and do not respond to light or accommodation. The optic neuritis characteristic of the early stages of methyl alcohol intoxication shows itself in blurring of the optic discs, congestion of the papillary vessels and slight swelling of the nerve head. Later the congestion of the optic papilla disappears and complete atrophy, with a white or grayish nerve head and contracted retinal vessels, is easily made out with the ophthalmoscope.

CASES OF MINOR DEGREES OF INTOXICATION.

The circular letter addressed by Dr. Wood to medical men throughout the country asked for reports of what he termed "partial intoxication," in which it was assumed that the patient escaped with small damage to eyesight—atypical cases exhibiting low degrees of amblyopia, with slight contractions of, or small scotoma in, the visual field. It was thought that, in susceptible individuals, small and repeated doses of this powerful poison might explain eye symptoms otherwise inexplicable. Persons who, unaware of the danger to health and eyesight, indulge in repeated "nips" of Columbian spirits (or of punch or other drinks made with it), methylated Jamaica ginger, bay rum, eau de cologne, or some patent medicine, or who use wood alcohol for "rubbing," or are exposed to the fumes of the poison, might suffer from failing eyesight, "dyspepsia" and headaches, without either themselves or the physician suspecting the cause of the trouble. Beyond an occasional "indigestion" or a mild "bilious attack," nothing might happen to draw the attention of either doctor or patient to the true character of the intoxication or the accompanying failure in vision. That such cases occur is evidenced by several of the published histories. Dr. Albert H. Brundage, president of the New

York State Board of Pharmacy, writes in this particular:

In two other cases where small quantities of wood alcohol were taken there were noticed nausea, headache, slight delirium, dilated pupils, finally developing blurred vision, which persisted on recovery from the other symptoms; also sweating, chilliness and quite marked debility. I have also thought I observed in two cases, where the external use of wood alcohol for "rubbing in" over quite an extensive surface was resorted to, mild but quite distinctive symptoms of a similar character. One of these cases was that of a man about 70 years old, suffering from cardiac dilatation and general debility. The other that of a child suffering from pneumonia. Therefore, the directness of the symptoms were somewhat uncertain. In the case of the old man the effect on vision was quite decidedly referable to the wood alcohol and was never fully recovered from.

That many instances of mild methyl amblyopia have been and are now attributed to other causes there is every reason to believe. The following cases, among a number seen by Dr. Wood and of which he has preserved records, are probably examples of methyl alcohol amblyopia, and yet the evidence is not so convincing that he felt justified in publishing them among the histories in Class B. Doubtless other ophthalmologists will recall similar instances. Whenever a patient presents himself with a history of recent "dyspepsia" or "bilious attacks,"

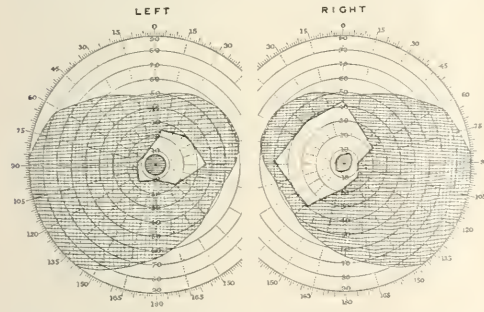
gray-white with shallow atrophic cupping, and arteries much smaller than normal. Retinal veins smaller left than right. On the whole, the mirror exhibits fewer signs of optic atrophy right than left. The visual fields (See Figs. 2 and 3) show a well-marked absolute scotoma in both eyes with decided contractions of their boundaries.

Treatment by strychnia, etc., was of no avail. In view of the history of acute indigestion, the bibulous habits of the patient, the condition of the fundi, the form of the fields, the progress of the disease and the probable exclusion of other causes of amaurosis, Dr. Gifford and Dr. Wood suspected a mild form of methyl alcohol poisoning, although it was not possible to trace the intoxication to its probable origin.

The second case is better defined.

CASE 2.—R. F. F., "burner" in a brickyard, aged 43, was referred to Dr. Wood April 19, 1904, by Dr. Seim of Blue Island, Ill.

History.—He is a man of good habits and has always enjoyed the best of health and good eyesight until six months ago. Since that time his vision has failed and he has had attacks of severe "indigestion," including vertigo, nausea, vomiting, headache and pain in the stomach. He now has foggy vision for both distance and near, and, suddenly he found he could not read even the coarsest print. On several occasions he has had aching in both eyeballs, when the vision seemed more foggy than before. He also thinks that during the attacks of "biliousness" his sight is worse. A careful examination of this man's urine, blood and internal organs generally show them to be all practically normal. There is no history of rheumatism, gonorrhea or syphilis. He has smoked considerably for several years. Feeling much fatigued by his work he began, six



Figs. 2 and 3.—J. E. B. Field of vision for white. 5 mm. object. Left eye: Absolute central scotoma for white; no field for green. Right eye: Slight blurring of white object at fixation point, more marked on the nasal side.



Fig. 4.—R. F. F. Visual field for white. 5 mm. object. Left eye: Central absolute scotoma for white; no field for red.

accompanied by failing vision and central scotomata and the symptoms are not otherwise clearly explicable, poisoning by wood alcohol in small doses should be suspected. One can never tell, without careful inquiry, which of one's patients may be secretly indulging in the delights of the cologne or bay rum bottle, or taking "XXX bitters" or cheap whisky, for his stomach's sake.

CASE 1.—G. E. B., patient of Dr. F. W. Cook, Plattsmouth, Neb., aged 40, machinist, was seen in consultation, first by Dr. Harold Gifford of Omaha, and on April 28, 1889, by Dr. Casey Wood of Chicago.

History.—Apart from a gonorrhoea (from which he entirely recovered) at 25 years of age there is no history of venereal or other general disorder. He has had many attacks of "dyspepsia" during the past few years which has not been treated with success. He does not smoke, but drinks "not much but many things." His knee jerks are unaffected and his pupil reflexes normal, although sluggish to light. Tension normal. On Sept. 28, 1898, he noticed a heavy sensation in both eyes, with some pain, photophobia and dimness of sight. After some decrease in pain and improvement in vision a steady lessening of vision followed, and now he sees "as if through a mist" at all distances. Objects also have a reddish or yellowish appearance.

Examination.—V. L. = fingers at 4 feet and Jaeger XX only; V. R. = 20/100, and with glasses words of Jaeger IV at 8 inches. The fundi show clear media, nerve heads

months ago, to drink wine fortified with various kinds of spirits, especially cheap whisky bought at saloons. Since the attacks of indigestion he has rather increased the amounts and number of these alcoholic potations although the stomacheal distress is rather worse than better. On two occasions the drinks of wine and spirits were followed by nausea and vomiting.

Examination.—His pupillary and patellar tendon reflexes are about normal. The pupils do not, however, respond quickly to accommodation. V. in each eye is 2 7, and words of Jaeger XIV; no improvement with glasses. The ocular media are clear, but the nerve heads are distinctly grayish and the papillary tissue is woolly, with indistinct edges. No changes in the vessels or retina. The fields of vision were measured at various periods (See Figs. 4, 5, 6 and 7), showing condition when first seen and after a month's treatment.

Treatment and Result.—All stimulants were stopped and the patient given pilocarpin sweats, followed by strychnia and iron tonics and large doses of strychnia hypodermically. Vision rapidly improved, so that on Sept. 17, 1904, he had 6/6 and Jaeger I almost, in each eye. A faint central scotoma for red and green can still be demonstrated in each eye. His general health is much improved.

DIFFERENTIAL DIAGNOSIS.

The picture presented by methyl alcohol intoxication is so uniformly clear and characteristic that, once the attention of the observer has been drawn to it, there

can hardly be any difficulty in recognizing any of the degrees of poisoning. However, as it is only in recent years that the signs of methyl alcohol intoxication could be studied, and as the meaning of its symptom-complex could, consequently, be understood only by a comparatively small number of practitioners, we may be pardoned for a few words on this subject.

When dilated pupils and blindness (total or partial, temporary or permanent) accompanies, or follows shortly after, an alcoholic debauch, the presumption is that the intoxication is due to wood alcohol.

The necessity of better knowledge on the part of physicians generally of the dangerous qualities possessed by wood spirit, in whatever form it may be taken, is well illustrated in the following brief history of a lethal case:

A physician was called to see a woman, 43 years of age, and found her comatose, fairly good pulse, sighing respiration, widely dilated pupils, and was informed that before his arrival she complained of loss of vision. He suspected uremia and returned to his office for a catheter, being gone about fifteen minutes. On his return she was dead. No urine was drawn off and found to contain albumin. No autopsy was made, but the cause of death was considered to be uremia, and, no doubt, certified accordingly.

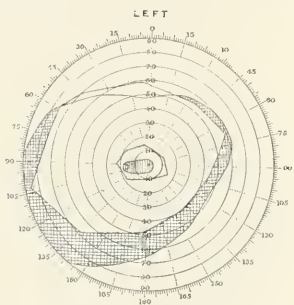


Fig. 5.—R. F. F. Left eye: Field of vision for white and red. Relative scotoma for red, which is seen at the fixation point as dark red.

With slight variations in some of the symptoms, this brief exposition of a sudden and fatal illness is typical. It would be interesting to know how many practitioners could under similar circumstances arrive at a correct diagnosis. Just out of curiosity we have "supposed" this case to many, and so far have not found one who could even guess at its real nature. We have a right to assume, therefore, that many deaths may have occurred in a similar manner, without recognition of the causation. If this be true, thousands of people are daily exposed to the hidden danger which may bring about a similar result.

The fact that death has followed the drinking of spirituous liquor generally means that the deadly fluid was methylated, because, although large quantities of ethyl alcohol may cause death, such a result is extremely rare.

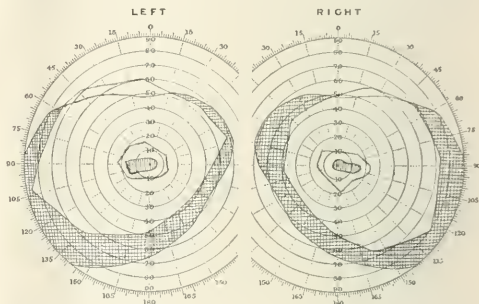
When blindness supervenes after symptoms of severe intoxication, the case might be mistaken for quinin amaurosis, but in acute cinchonism the deafness, ringing in the ears, the intense anemia of the whole fundus oculi, and almost total obliteration of the retinal vessels, serve to distinguish it from methyl alcohol amaurosis.

MIXED INTOXICATION.

Methyl alcohol poisoning, complicated with other poisons or with systemic diseases capable of producing some of the severer symptoms of methylism are, of course, not so easily diagnosed. Death from uremia in an ethyl-alcoholic, who has recently been imbibing quantities of grain alcohol, might easily be preceded by symptoms simulating wood alcohol poisoning, and it might require an analysis of the stomach contents to determine the cause of death.

In the same way, when a large dose of quinin, administered in cheap whisky or other suspicious alcoholic beverage, is followed by gastrointestinal disturbances, cardiac depression, headache and blindness, it may be difficult to say which of the two intoxicants, possible adulteration by wood alcohol in the menstruum or the quinin (or both), is responsible for the amaurosis. The following case illustrates a difficulty of this sort:

In May, 1904, Dr. Casey Wood examined, through the kindness of Dr. Oscar Dodd, whose clinic at the Illinois Eye and Ear Infirmary he attended, J. A. B., druggist, aged 33. On Nov. 27, 1903, he had a chill and took, as a remedy for it, three or four ounces of Armstrong's bitters, following this with 8 or 10 grains of quinin and some acetanilid. The same evening his



Figs. 6 and 7.—R. F. F. Field of vision for white and red. Right eye: Relative scotoma for red, which is seen as "gloomy" red. Left eye: Relative scotoma for red, which is seen at the fixation point as "dark" red.

sight suddenly failed and grew slowly worse for three weeks. On Jan. 13, 1904, he was admitted to the infirmary.

Examination.—V. R. = light perception; V. L. = shadows. Both pupils dilated. The ophthalmoscopic findings are the same in each eye, viz., disc sharply outlined and very white, lamina cribrosa plainly marked; arteries very small; some disappear a short distance from the disc. The veins are engorged.

Treatment.—Treatment, with pilocarpin and increasing doses of strychnia, was given until April 4, 1904, when he was discharged with light perception only in either eye.

When seen by Dr. Wood the retinal arteries were smaller than normal, but not so markedly reduced in caliber as one usually sees in quinin amblyopia; nor were the veins abnormally increased in size—conditions probably the result of treatment—but the nerve-heads were very white and sight was so reduced that it was impossible to outline the visual fields. There was no history of deafness. The remainder of the bottle of "bitters" was examined for Dr. Wood by Dr. Wesener of the Columbus Laboratory. No methyl alcohol was found in the concoction.

PREVENTION OF WOOD ALCOHOL POISONING.

Notwithstanding all that has been said and written in the last few years in reference thereto, the medical profession experiences difficulty in educating the people in any questions pertaining to public health. It is only by persistent effort on our part that a subject so important as the abuse of methyl alcohol has now become

will ever receive the recognition and attention it deserves, not from the public, but from their rulers, the makers of laws.

Here, then, we have a fair field for the exercise of preventive medicine. It remains to be seen how the evil may best be dealt with. Whenever these cases are brought before medical societies the unanimous opinion has always been that something should be done. So far, however, comparatively little has been done. It would be useless to try and educate the public to the knowledge that wood alcohol is a poisonous substance, since it appears under the disguise of many attractive names, such as Columbian spirits, cologne spirits, colonial spirits, Florida water, Jamaica ginger, lemon essence, essence of peppermint, etc., names intentionally misleading, and in no way suggesting the nature of the liquid, which, moreover, is further concealed by methods which remove most of its naturally unpalatable qualities.

Moreover, this new (1896) and distinct form of poisoning by a substance so widely and indiscriminately used in arts, trades, manufactures, and even in the preparation of many articles intended to be taken internally, either as food, condiments or medical preparations, is chiefly dangerous in consequence of new methods of manufacture, so cunningly devised that there is now produced a harmless-looking, and even palatable, fluid which unfortunately retains all the dangerous qualities of the crude and essentially repulsive form previously in general use.

Individual effort has done something in the way of reform. We might refer particularly to the work in this direction of Dr. Swan Burnett of Washington, D. C.; Dr. Joseph White of Richmond, Va., Dr. Harold Gifford of Omaha, Dr. H. Dickson Bruns of New Orleans, and many others.

Dr. Frank Buller has urged that in addition to, or as a substitute for, the poison label, the notice, "this fluid, taken internally, is likely to produce blindness," appear on each package. This label would be even a more effective warning than the word "Poison" and the pictured skull and crossbones familiar to us all. All of them would not be out of place under the circumstances.

In this connection it is of particular interest to know why there are so many cases of methyl alcohol poisoning in the United States and practically none in other countries. The explanation lies in the fact that a more palatable form of the drug has come into general use in this country; that, consequently, it is taken in larger quantities. This view is sustained by information obtained in regard to its use abroad, as in the contribution of J. C. McWalter to the *State Journal of Medicine*, in London, England.⁷

He states that the "methylated spirits" of commerce (in England) is a compound containing only 10 per cent. of wood naphtha, 2 per cent. of mineral oil and 64 per cent. of absolute alcohol. So long as its composition conforms to this formula, there is absolutely no legal restriction as to its sale, provided the seller obtains a license costing 10 shillings a year. He points out that this spirit contains a combination of three powerful intoxicants, capable of producing intensely greater effects than the most virulent form of raw whisky. Yet so unattractive is it as a beverage that no cases of poisoning result from its use.

He estimates that there are in Great Britain and Ireland about 10,000 retailers of methylated spirits, and

that three and a half millions of gallons are consumed annually; possibly half of this is used for legitimate purposes, as polishing, dressing, etc.

McWalter believes that he has discovered a growing tendency to use even the nauseating (British) methylated spirits as a drink for securing intoxication, and thinks its employment for such a purpose should be controlled by legislation; he suggests making it absolutely undrinkable by adding naphthalin. He also suggests placing it on the list of poisons, so that it can be sold only by licensed druggists, duly labeled as poison. In spite of this alleged use of methylated spirits as a drink, he does not allude to any ill effects on vision. He thinks that sometimes cirrhosis of the liver, splenic enlargement and albuminuria may occur in consequence of its abuse.

As before stated, the manufacturers of the various forms of "deodorized" methyl alcohol regard their products as poisonous when taken internally, and packages sent out by them are, as a matter of fact, labelled "not to be taken internally," but this notice, even if it occupied a more prominent place on the bottle than it generally does, is usually offset by the recommendations on and the harmless air imparted to the rest of the label. It is quite incompetent to protect the man in search of "any kind of alcohol for a drink."

The immunity of foreign countries from methyl alcohol intoxication gives us our clue to the only effective prophylaxis. No labelling of bottles and packages will guard against the evil effects of this powerful poison one-tenth as effectually as adding to it naphthalin or some other pungent ingredient in such quantities as, in the case of the corresponding German and British article, will prevent its employment for any of the poisonous purposes indicated in this investigation. As long as we allow deodorized wood alcohol to be sold in its present shape, just as long will we have the usual record of death and blindness from its entrance into the bodies of human beings. The reader will readily perceive that "deodorized" wood alcohol has no legitimate place in commerce. Its mere existence must always be a menace to the lives and eyesight of the community. As in Europe, safety lies in an untaxed mixture, for commercial uses, of ethyl alcohol, with some nauseous protective agent, corresponding to the "methylated spirit" of Great Britain and the "Brennspritus" of Germany.

TREATMENT OF METHYL ALCOHOL POISONING.

The conduct of some of the cases has been outlined in the foregoing reports. There does not seem to be any antidote to the poison in the common acceptance of that term, but one's efforts, if the case be seen early, should be directed to getting rid as promptly as possible of the poison from the alimentary tract, and so to prevent its absorption. Whether vomiting has set in or not, there seems no reason why careful use should not be made of the stomach pump, with an oily emulsion as a diluent. The subsequent treatment should be directed to the symptoms.

Lieutenant R., who recently had considerable experience in the treatment of five cases at Fort Terry, in which there was one complete recovery (neither death nor blindness), reports it as follows:

Private J. F. W., aged 27 years, was found on duty at the post exchange at the same time the other patients were found in their quarters. Though showing the effects of alcohol, he was able to go about his duties (cooking). He was sent to

the hospital, or, rather, carried, though he had walked to the quarters from the canteen, about 100 yards, a few minutes before. This man had sense enough to tell the truth; he admitted that he had taken about a pint of Columbian spirits, and also a pint of bay rum in addition, the "alcohol" on the day before and the bay rum on the 29th. When his fears had been sufficiently quieted, he was given 44 c.c. of oleum ricini, which only caused more vomiting than he had already experienced, of a mawkish, bay-rumish-acid smelling fluid. This was followed by 30 c.c. of whisky, and the dose continued every hour. Next morning the bowels were opened with enema. Temperature on admission (29th), normal; pulse, 68, soft; temperature during night varying from 97 to 99. Sleepless; complained of precordial pain and oppression and sense of impending danger. Next morning, condition fairly good; still complained of pain around heart, in bowels and in region of kidneys. General condition continued to improve on the whisky and strychnia treatment, though the pain around heart and weak pulse continued to a slight extent for two or three weeks. Returned to duty about the fifth day, but kept on strychnia for two weeks longer. The fact that this man told the truth about the affair, and thus was enabled to get most of the poison out of the alimentary canal, is, no doubt, the reason he is alive. Present condition, normal.

Dr. R. would call particular attention to the fact that none of the three deaths occurred within twenty-four hours of the ingestion of the poison, but took place in from twenty-eight to sixty hours thereafter. This long range (as to time) effect renders the stuff a most dangerous poison, for the reason that there seemed to be a paralyzed condition of the bowels, due, doubtlessly, to the methyl alcohol. It is the belief of Assistant Surgeon R., from his experience of five cases of poisoning, that methyl must be replaced by ethyl alcohol, in order to combat a collapse and sustain the patient's vitality. This, with the speedy clearing out of the poison from the alimentary canal and the continued stimulating and supportive treatment for several weeks, should constitute the principal aim in treatment.

Dr. Albert H. Brundage, who has had experience of several patients, thinks the acute, severe cases should be treated by thorough siphonage of the stomach, cold affusions to the head, cardiac stimulants, pilocarpin injections, inhalations of oxygen, external heat to body and extremities, moist heat over the kidneys, rectal injections of hot coffee and normal salt solution.

The treatment of the optic atrophy is not very satisfactory in the severe cases, although the use of pilocarpin, sweat baths and potassium iodid (as soon as the patient's condition permits) during the early stages of neuritis, followed by strychnia in full dose hypodermically, seems to have been beneficial in some instances by limiting the extension of the secondary atrophy.

CONCLUSIONS.

We believe that a study of the case histories in this investigation justify us in drawing the following conclusions:

1. Methyl, or wood alcohol, in any of its forms, as well as all methylated preparations made from it, are dangerous poisons, menacing both life and eyesight.

2. It is best known to us in its deodorized form as Columbian spirits, purified wood alcohol, cologne spirits, colonial spirits, standard wood spirits, union spirits, eagle spirits, green wood spirits, and a variety of other fluids.

3. It is used as an adulterant of, and substitute for, grain alcohol in cheap whisky and other alcoholic beverages, not to mention Jamaica ginger, lemon extract and many other essences and flavoring fluids.

4. Methyl alcohol is largely used in the preparation of many proprietary and patent medicines, witch hazel, domestic liniments, as well as bay rum, cologne water, Florida water and other perfumes.

5. To this date, at least 153 cases of blindness and 122 deaths have resulted from this poison; in all, 275 instances of lost life and eyesight. This total would probably be raised to 400 if a more thorough search were made.

6. The injury to the ocular apparatus consists chiefly of a destructive inflammation of the optic nerve fibers or retinal elements (or both), followed by their atrophy.

7. The symptoms of poisoning are gastrointestinal disturbances, more or less severe, accompanied by abdominal pain, general weakness, nausea, vomiting, vertigo, headache, dilated pupils and blindness. If recovery does not occur, there is marked depression of the heart's action, sighing respiration, cold sweats, delirium, unconsciousness, coma and death.

8. The blindness is bilateral and may set in a few hours after the inhibition of the poison, or it may be delayed for several days. It is generally complete, with a subsequent improvement, and, finally, a relapse into permanent blindness.

9. The visual fields are contracted and exhibit absolute central scotomata. The ophthalmoscope reveals at first a congested nerve-head, followed by grayish or white atrophy and contracted vessels.

10. The diagnosis can hardly be mistaken. Methyl alcohol poisoning presents a picture unlike that of any other intoxication. Acute abdominal distress, followed by blindness, should always awake a suspicion of methyl alcohol poisoning.

11. The prevention of poisoning by this insidious drug can only be brought about by prohibiting the sale of "deodorized" wood alcohol in all its forms. The number of deaths may meantime be limited by putting all methylated preparations on the list of poisons and prosecuting all persons adulterating foods and drinks with it. Labelling it with the notice, "This fluid, taken internally, is likely to produce blindness," will certainly have a deterrent effect.

12. Methyl alcohol intoxication is an example of idiosyncrasy. As in the case of several other poisons, some persons are largely immune so far as permanent damage to the organism is concerned. If ten persons drink, say, four ounces of Columbian spirits within three hours, all will have marked abdominal distress and four will die, two of them becoming blind before death. Six will eventually recover, of whom two will be permanently blind. With still larger doses, the proportion of death and blindness will be greater.

13. Poisoning by inhalation of the fumes of methyl alcohol generally occurs when the exhalations are mixed with rebreathed air, as in varnishing the interior of beer vats, small rooms, etc. It is also highly probable that in susceptible subjects repeated or even single methylated "alcohol rubs" may produce poisonous symptoms, through absorption of the spirit by the skin.

14. Chronic (or partial) poisoning from methyl alcohol (in the shape of "nips" of methylated Jamaica ginger, bay rum, punch made with Columbian spirits, etc.) is the most insidious and probably not an uncommon

form of intoxication. Its symptoms are not so pronounced or so easy of recognition as in the acute form, but the eyes, digestive apparatus and nervous system undoubtedly suffer.

15. The use of ethyl or grain alcohol in the arts, as in the manufacture of varnishes, as a burning fluid, for "stiffening" hats, lacquering brass, etc., is without danger to life or eyesight. By adding to it a small percentage of naphthalin, for example, the fluid would be undrinkable. A combination of ethylic alcohol with 10 per cent. of wood spirit would answer the same purpose. Such a mixture is the "methylated spirit" of Great Britain, where not a single case of acute poisoning or amaurosis from methyl alcohol is recorded, in spite of the extensive commercial use of methylated preparations in the British Isles.

16. The treatment of methyl alcohol intoxication consists chiefly in getting rid of the poison from the stomach and intestines by means of the stomach-pump and rectal injections; stimulants, especially ethyl alcohol, strychnia and coffee; heat to the body and extremities.

17. The treatment of the amaurosis is unsatisfactory. In the early stages pilocarpin and potassium iodid; later, strychnia hypodermically and by the mouth.

EDITOR'S NOTE: This concludes the report save for the tabulated summaries of the cases previously published elsewhere, which will appear next week.

REFLEX APNEA AND CARDIAC INHIBITION IN OPERATIONS ON THE RESPIRATORY TRACT.*

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The following case, reported elsewhere by one of us,¹ gives some idea of the practical importance of this subject:

In 1900 one of my students came to me for an explanation of certain curious phenomena that occurred during massage of an epithelioma of the lower lip. It was about 1 1/4 inches in diameter and surrounded by an indurated area. The center was very sensitive. When this part was massaged the patient cried: "Don't cut my wind off! You are choking me!" He gripped the chair and grew dark in the face, breathing hard, with a pulse of 100, subsiding quickly to 20; respiration about 12. Massage next day caused the same alarming symptoms.

No doubt it was a case of reflex inhibition caused by mechanical stimulation of the abnormally sensitive endings of the trifacial.

Reflex inhibition has not received from laryngologists the attention it deserves. The text-books do not refer to it, and yet it is a subject familiar to most general surgeons and physiologists. It seems worth while, therefore, to discuss in a brief way the subject as a whole. We would call attention to the value of inflation of the lungs when death seems imminent from cardiac inhibition.

CAUSES OF INHIBITION.

Reflex inhibition of heart and respiration is caused

in the following way: Afferent impulses, following irritation of the trifacial and sensory branches of the vagus (superior laryngeal and pulmonary), are carried to the cardioinhibitory center in the medulla. This center is thrown into greater activity, and strong inhibitory impulses are sent to the heart. At the same time the respiratory center is so acted on as to cause a cessation of respiratory movements, until the accumulated carbon dioxid again drives it into action. The consequent inflation of the air vesicles of the lungs then reflexly lessens the activity of the cardioinhibitory center,² and in this way inhibition is overcome.

Inhibition of this kind must not be confused with syncope or shock, for syncope is due to a sudden vasodilation; the blood, from gravity, collects in the abdominal viscera and dependent parts of the body, and loss of consciousness ensues from cerebral anemia. Inhibition following trifacial and superior laryngeal irritation, on the contrary, causes a reflex stimulation of the vasoconstricting mechanism and is not necessarily associated with loss of consciousness.

Of course, reflex inhibition can be produced by irritation of other sensory terminals than those in the respiratory tract; it frequently occurs in operative procedures on the trifacial area about the lips,³ teeth,³ eye¹ and ear.⁴ As this paper will deal with the respiratory tract only, we can now take it up in detail.

Nose.—Those who have inhaled strong ammonia know that it is several minutes before they can get their breath, or, technically speaking, before the inhibition of respiration passes off. Also, in etherizing rabbits, it is noticed that as soon as ether is applied to the nose the animal stops breathing over a more or less prolonged period. At the same time the heart is markedly inhibited—in fact, almost stopped. This reflex inhibition is also produced when applications of irritating solutions, e. g., dilute sulphuric acid, are made to the turbinates. Such result was observed by Kratschmar,⁵ who experimented with tobacco smoke as an irritant. Quite frequently in operations on septum reflex inhibition will cause a patient to suddenly feel faint, "lose his nerve," although, the tissues being cocaineized, he experiences no pain. Some of these cases can be ascribed to psychical causes, a few to the cocaine⁶; indeed, it is apparent at once that a large percentage of cases of so-called cocaine idiosyncrasy may properly be ascribed to reflex inhibition. Doubtless many of the deaths occurring in primary anesthesia can also be attributed to this cause. The effect of slight irritation of the nasal terminals of the fifth nerve is illustrated by the following case:

John C., aged 10 years. Acute purulent rhinitis. Pulse before examination, 100. During cleansing of nasal mucosa pulse fell to 66. Inhibition gradually decreased as cocaine was applied.

Rhinopharynx.—The rhinopharynx is also very sensitive to reflex inhibition. Applications to this region produce in some instances a momentary catching of the breath, and in the removal of adenoids a marked slowing of the pulse almost invariably occurs when the instrument—forceps, curette or finger—is introduced behind the soft palate.

CASE 1.—Edward C., aged 3 years. Adenoids operated on under ether. Before operation pulse was 145. No change in pulse occurred during removal of faucial tonsils; respiration was, of course, interfered with. The pulse immediately afterward

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

1. Good: American Medicine, Aug. 23, 1902.

2. Sitz d. k. akad. Wissensch., vol. Lxlv, p. 11.

3. New Orleans Med. and Surg. Jour., 1850.

4. H. O. Reik: Trans. Amer. Otol. Soc., 1903.

5. Sitz. c. k. akad. Wissensch., vol. Lxli, p. 11.

6. Harland: Philadelphia Med. Jour., May 23, 1903.

went up to 168. When forceps were used in the rhinopharynx the pulse suddenly slowed, and for 40 seconds remained about 90, at times running as low as 72 per minute. After operation the pulse ran up to 150.

CASE 2.—Dorothy T., aged 4 years. Adenoids removed under ether. Pulse before ether was applied, 120; under anesthesia it rose to 172; just before operation it was 160. During manipulations in postnasal space pulse fell to 66, increasing at once as soon as the instrument was removed. Three minutes after operation the pulse was 136. Two hours later it was 124. Respiration was also interfered with during operation.

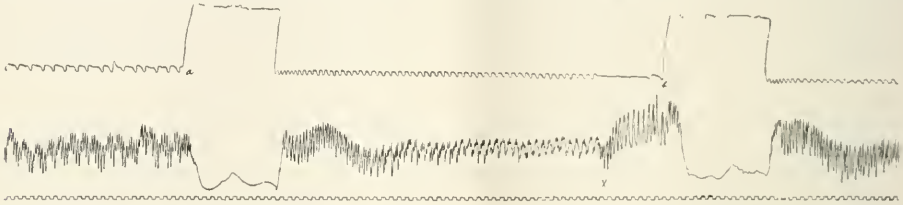
CASE 3.—Josephine C., aged 8 years. Adenoids removed under ethyl chlorid. Before anesthesia pulse was 125. During early stages the pulse suddenly fell to 96 and respiration ceased for a short time (probably due to cold ethyl chlorid vapor irri-

pulse to fall, first to 96, later to 75. After operation it rose rapidly to 160; ten minutes later it was 132.

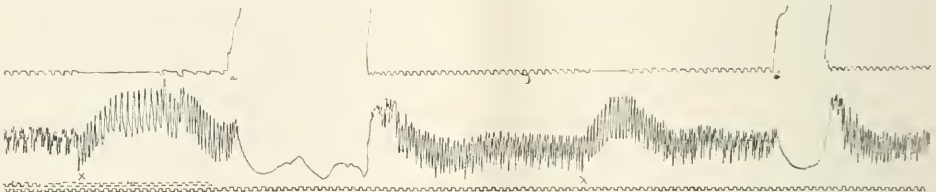
Jane R., aged 8 years. Adenoids under chloroform. Pulse before anesthesia, 160; under full relaxation, 120. During operation it fell to 72. Immediately after operation it rose to 150.

There seems to be no choice of anesthetic so far as cardiac inhibition is concerned.

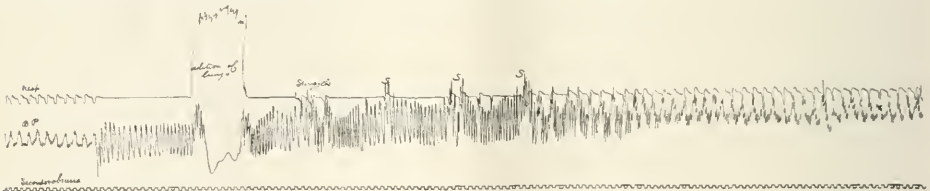
Larynx.—We have found by experimental irritation of the laryngeal mucosa of rabbits with dilute sulphuric acid that reflex inhibition arising from the larynx is accompanied by a rise of blood pressure, unless the irritation is particularly well marked, when there may be a slight fall. If inhibition is prevented by division of both vagi the pressure is increased (40 to 70 mm.).



Tracing 1.—These tracings are one-fourth actual size. Upper line is the respiratory curve; at "a" and "b" the lungs were inflated with a pressure of 40 or 50 mm. mercury. The middle line is the blood pressure with the cardiac pulsations. The lower line is the seconds marked and zero pressure raised 25 mm. Tracing 1 is from a rabbit (morphin, gr. 1/3, injected hypodermatically). Dilute H_2SO_4 had been applied a few moments before to the nasal mucosa. At "x" it was reapplied. At "x" the apnea and cardioinhibition are well marked. As soon as the lungs are inflated the blood pressure falls and the heart begins to beat rapidly, the cardioinhibition returning as soon as the inflation ceases.



Tracing 2.—Rabbit (morphin, gr. 1/3, inj. hypoderm.). The animal was recovering from the effect of a previous stimulation of the nasal mucosa, when at "x" dilute H_2SO_4 was again applied to one nostril, and about 90 seconds later to the other nostril. The cardioinhibition in both cases is well marked and the blood pressure is increased; as soon as the lungs are inflated the heart commences to beat rapidly and the pressure falls at least 50 mm.



Tracing 3.—Rabbit (morphin, gr. 1/3, hypoderm.). Dilute H_2SO_4 applied to the nasal mucosa with the usual marked cardioinhibition, in this case from 250 to 40 beats per minute. The release from inhibition by inflation of lungs can not be made out in this tracing on account of reproduction being small.

tating the air tract). Later, when relaxed, the pulse was 120. During the removal of the adenoids the pulse was irregular, faulty, and 75 per minute. There was clonic spasm, similar to that seen in rabbits when the nasal or laryngeal mucosa is irritated. After operation the pulse was 120; five minutes later, 116; ten minutes later, 105.

In order to eliminate error due to individual fault of operator the following cases, operated on by Dr. Grayson, were studied with his permission:

James M., aged 8 years. Adenoids, under ether. Before anesthesia pulse was 110; before operation it was 180. Child completely relaxed. Manipulations in rhinopharynx caused

Crile⁷ has shown that irritation of the larynx, forcible dilatation of the pharynx and violent traction on the tongue will each cause reflex inhibition, and even death. He states that in 156 intubations inhibition was encountered six times, twice with fatal results. Simple obstruction causes cyanosis and a full pulse, whereas inhibition is characterized by pallor and by a slow, weak pulse—diagnostic signs of considerable importance.

Irritation of the trachea causes little or no reflex inhibition. However, in the rabbit, at least, cardiac slowing

7. Crile: Surgery of the Respiratory Passages, THE JOURNAL A. M. A., Feb. 22, 1902.

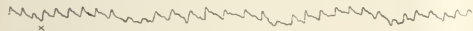
is at times observed when a tracheotomy tube is placed in position, especially when the tube is rather large.

Lung.—Brodie and Russell⁸ have shown that electrical irritation of the pulmonary vagal fibers, or irritation of their terminals in the alveoli, with irritant vapors, causes marked cardioinhibition, apnea and vasodilation. Their results we have been able to confirm on rabbits by injecting small amounts of dilute sulphuric acid into the alveoli through the chest wall. McWilliams⁹ caused well-marked cardiac inhibition in eels by irritating the gills, which have the function of lung alveoli. A case in point is reported by Brodie and Russell⁸ of a child that died on the withdrawal of a hypodermic needle that had been introduced two inches into the lung in a vain search for pus. The heart stopped at once; breathing continued for a short time, aided by artificial means. In another case¹⁰ death occurred after a few inhalations of ether. The fatal result was ascribed to irritation of lungs rendered abnormally sensitive by disease (multiple carcinoma).

The subject of this paper is one that invites to further study and elucidation. Enough has been given, however, to suggest the possible dangers that attend all operations on the air tract and to explain some of the causes in which heart failure and death have followed unexpectedly from what seemed insufficient causes. It is only necessary in this brief outline to say a word further on prevention and treatment.

PREVENTION.

We can not hope to prevent reflex inhibition in every case. Atropin is the one drug given internally that, theoretically, is of value. It paralyzes the peripheral cardio-



Tracing 4.—Sphygmogram. W. Z., aged 3 years, adenoids removed. The pulse fell from 140 to 50 when instrument was introduced into rhinopharynx. x. Operation commenced.

inhibitory ganglia in the heart, thus preventing cardiac inhibition, which is the most important indication, for apnea can be controlled by artificial respiration and lung inflation. Atropin must be administered early and in full dose to insure its absorption before ether is given or operation begun.

General anesthesia, when complete, prevents inhibition by abolishing the reflexes, but it is dangerous to abolish all the reflexes. Of the anesthetics ether is safer than chloroform, and probably safer than ethyl chlorid. Cocain, applied locally, prevents inhibition when the anesthesia is complete. In the larynx absorption is slow, and it can be used without much danger of toxic effect: in the nose the amount must be guarded. It is not always practicable to get cocain to penetrate deep enough, and when sawing through spurs on the bony septum inhibition will occasionally occur, even though the mucous membrane itself is insensitive.

Before ether is given a preliminary spray of 1 per cent. cocain, with 1 to 10,000 adrenalin chlorid,¹¹ into the nose and throat prevents not only irritation, congestion and excessive secretion, but also lessens the tendency to reflex inhibition. Applied with an applicator to the rhinopharynx, it is still more effective. Strychnin should probably not be given: it can not be expected to prevent reflex inhibition, as it increases the normal reflexes and,

according to Wood, probably stimulates the cardioinhibitory mechanism.

TREATMENT.

Treatment will vary with the severity of the symptoms. Usually a temporary withdrawal of the cause of irritation will suffice. In severe cases one can hardly rely on atropin, even if given hypodermically, as ten or fifteen minutes will elapse before it is absorbed. The prone position and artificial respiration, gentle traction on the tongue, etc., should be at once resorted to. If these prove without effect, then inflation of the lungs by mouth-to-mouth insufflation or with a bellows, keeping the lungs distended for five seconds, and repeating until the patient is revived. The value of this procedure has been demonstrated again and again. In a series of experiments on cats and rabbits (under morphin, inhibition having been induced by applications of sulphuric acid to the laryngeal or nasal mucosa), inflation caused the cardiac inhibition to at once cease, and the heart tended to beat even faster than normal. Hering² has shown that in normal animals moderate inflation (40 to 50 mm. of mercury) of the lungs causes a marked increase in the number of heart beats. He believes that the sensory nerves of the lungs stand in the same relation to the cardioinhibitory center as the nervus depressor does to the vasomotor center. In other words, irritation of sensory endings in the lungs by inflation causes, reflexly, a decreased activity of the cardioinhibitory center and a consequent increase in the number of heart beats. Jackson,³ in a case of marked reflex apnea and cardiac inhibition from trifacial irritation, resuscitated his patient by mouth-to-mouth inflation. "The effect was instantaneous; the chest expanded, the eyes opened, a sigh was breathed, and the heart pulsated a few seconds. The insufflations were repeated until the functions were re-established. There was another attack in the afternoon, without unconsciousness. She was restored by insufflation by her husband."

CONCLUSIONS.

Any part of the air tract, when irritated, is apt to produce reflex apnea, cardiac inhibition, and even death. Usually this can be prevented by the administration of atropin, by having the patient completely anesthetized before operating, when general anesthesia is used, and by the use of cocain locally. If severe inhibition does occur we have in moderately forcible inflation of the lungs a most valuable means for relieving this dangerous condition.

DISCUSSION.

DR. G. HUDSON MAKUEN, Philadelphia, said that the whole subject of reflex disturbances originating in peripheral irritation of various portions of the respiratory tract furnishes a fertile field for conjecture and speculation. Opinions differ with regard to it; some think that there is no such thing as a reflex neurosis, while others class almost all nervous symptoms in this category. When skilled neurologists, such as Dana of New York, openly declare that they find no special pathologic relationship existing between the mucous membrane of the nose, for instance, and the general nervous system, we must pause and think before making contradictory statements or advancing opposing theories. Dr. Makuen said that the cases reported show the effect of peripheral irritation of the respiratory mucous membrane on the heart. It would be interesting to note whether the rate of the pulse is actually diminished by placing the curette in the vault of the pharynx in all or only in selected cases. Dr. Makuen said also that an inspiratory crowing sound always takes place in one of his patients whenever any topical application is made to the mucous membrane of the nose, and that such phenomena are not surprising when we con-

8. *Jour. Phys.*, vol. xxvi.

9. *Jour. Phys.*, vol. vi.

10. *Lowe*: *British Med. Jour.*, 1877, vol. ii.

11. Edward Martin: *Proc. Philadelphia County Med. Soc.*, March 31, 1903.

sider the complexity of the network of nerves in this region. A reflex arc, in its simplest form, consists of an afferent sensory nerve, an efferent motor nerve and a cerebrospinal center or ganglion, which latter may also be connected with the higher cortical centers of the brain and to some extent controlled by these centers. It is only by keeping in mind the structure and functions of this arc that we can understand or explain the nervous phenomena that may occur during an intranasal operation. It is probable that no untoward symptoms will arise during such operations, provided the reflex arc is in good condition functionally and organically, and it is only when this reflex arc is impaired in whole or in part that we are liable to meet with accidents. Take a patient having what we call an unstable nervous system and prepare him for intranasal operation. He probably goes through several days of anxious thought about it. Cocain is then applied, the mechanical effect of which is sufficient in some cases to cause immediate disagreeable symptoms, and the systemic effect, a little later, coupled with the psychic impulses arising from the fear and dread of the operation, are often sufficient to cause the patient to collapse. When the operation is begun the patient grows pale, breaks out in a perspiration and, to use the common expression, faints. Is this collapse due to cocaine poisoning, to some psychic impulse of the brain, or is it the result of cardiac inhibition from the mechanical effect of the operation? This differential diagnosis is important. If the cause is found in the heart we should use more cocaine. If it is the result of cocaine poisoning then we should diminish the amount. The time may come when we shall be able to determine definitely just how much cocaine may be used in a given case.

DR. GEORGE L. RICHARDS, Fall River, Mass., said that he had operated on a child of 6 years for adenoids. The child was etherized by an expert nurse and yet cyanosis and complete apnea resulted before the operation was begun. The mouth was forced open with the finger and afterward artificial respiration was performed until at length a gasp came. The operation was completed without further anesthesia. He considered the facts that the adenoid was large and practically filled the nasopharynx and that the child was a mouth breather, as the explanation. When the anesthesia was complete there was complete closure of the mouth with resulting asphyxia.

DR. S. SOLIS-COHEN, Philadelphia, said that he avoids apnea from anesthetics by having the nostrils closed by the assistant before administering the anesthetic, and that he also avoids the use of anesthesia in operations on the air passages wherever it is possible to do so. In tracheotomy the patient loses his breath for a moment or two after the larynx is opened, and in removing growths from the trachea, irritation of the posterior wall of the trachea will sometimes affect respiration.

DR. EMIL MAYER, New York City, said that it would be of interest if Drs. Harland and Good would throw some light on why certain people are especially susceptible to this form of cardiac inhibition. We have known for a long time that it is to be looked out for, especially when chloroform is being used. The only death Dr. Mayer ever saw from chloroform was in a laryngologic case with a foreign body in the larynx. Adrenalin is of great value in cases where there is great danger of collapse. It should be added to the list of remedies recommended.

DR. E. PYNCHON, Chicago, divided the subject into two parts, because the prostrations which occur with general anesthetics are generally different from those resulting from cocaine. In general anesthesia the patients are usually at a hospital where assistance can be had, while prostrations from cocaine most often occur at the office, when no one else is present. In fifteen years' use of cocaine, Dr. Pynchon had had his share of prostrations, but no deaths, and in several cases the prostration was considerable. He has frequently applied cocaine to the fauces in strong solutions with a cotton applicator, and has never had prostration from its use in this locality and in this manner. Collapse has always occurred while applications were being made to the nose or when injected about the tonsils hypodermatically. Prostration was not due so much to the effect of the cocaine as to the irritation of the nasal mucous membrane. He mentioned the case of a healthy girl of 18,

who had been operated on several times, the tonsils and ridges from the septum having been removed. Applications of cocaine had in each case been made without any unfavorable manifestations. Lastly, there remained one other condition which demanded operation, and in cocainizing the middle turbinal a small applicator was pressed in between it and the septum. She had epileptiform convulsions, differing materially from cocaine prostration. Some time afterward he attempted to repeat the operation, using a weaker solution of cocaine, but the introduction of the probe in the same manner produced the same results.

DR. R. C. MYLES, New York City, said that it is difficult to account for these idiosyncrasies. It has always seemed to him that there was some condition of shock. The most difficult case he had ever had was that of a man on a football team, and he tried seven times before he was able to do the operation. The patient was an athlete of the higher order, but could not face the idea of having an operation performed. This condition is not confined to any one class of individuals; the point is to watch the patient and by studying him try to anticipate the result. Tracheal injections sometimes produce the same condition. Dr. Myles said he had injected solutions of vaselin into the trachea with the same results as from cocaine. Whenever he has occasion to try it now he first tests the case, especially if it is to be an application to the trachea, under a general anesthesia, and is particularly careful, because he once lost a patient on the table and could never account for the death. The patient was frightened. The anesthetic was administered by an expert. Investigation shows that the majority of deaths from anesthesia occur in operations about the throat, and a little preliminary tickling of the mucous membrane is the thing to do as an experiment.

DR. C. M. COBB, Boston, said that, in the removal of adenoids, he had had patients do almost everything except die, and that he did not feel justified in submitting a patient to ether in adenoid operation unless he had a mouth gag in use. It saves time lost in forcing a spasmodically contracted jaw open, possibly two minutes. It is just as easy to put the mouth gag in and have absolute control of the patient, and it may save the patient's life in an emergency. These adenoid patients are doing business on a small amount of oxygen, and the slightest disturbance of the mucous membrane makes them close the mouth and they can not breathe through the nose. Since he has adopted the practice of instructing the house physicians to put in a mouth gag as a routine measure he has had much less trouble.

DR. B. R. SUDRLY, Detroit, said that we are coming to use nitrous oxid more and more, and that it deserves a much wider use. He asked if any use of it has been made in the experiments.

DR. W. H. GOOD, said that it is very easy to prove this cardiac inhibition on rabbits by applying irritants such as ether to the nasal mucosa. The heart, normally beating at the rate of 300 a minute, immediately falls to about 60 a minute. Inflation of the lungs removes this inhibition, the heart running rapidly up to 300 beats or more a minute. In cardiac inhibition the thing to try first is simple inflation of the lungs for four or five seconds, repeating until the heart recovers. The apnea can be overcome by artificial respiration. It is the cardiac inhibition that kills these patients. The heart of a patient from whom a dentist was removing a carious tooth suddenly stopped, and after trying a number of things, he inflated the lungs. The heart started to work, but again stopped, and he repeated the process. The next day the cardiac inhibition returned without the loss of consciousness. The patient was at home, and the husband, who had been present at the dentist's office, blew into his wife's lungs and she recovered. Dr. Good said that adenoids make a very sensitive pharynx, and ether could have caused the condition without the blocking of the passage; he said he was unable to answer the query in Dr. Mayer's case. Adrenalin to be of service should be given intravenously, but he did not think it would overcome any of the indications. It causes increased blood pressure, but that is already present and it does not de-

crease the cardiac inhibition. He said that clonic convulsions almost invariably result from irritation of the mucous membrane of rabbits. Nitrous oxid had not been used in any of the experiments. When a patient is under the influence of any anesthetic this inhibition may occur. With cocaine the sensory endings of the nerves are paralyzed and inhibition does not occur. Using cocaine locally and giving a dose of atropin to paralyze the peripheral ends of the vagus in the heart prevents inhibition.

THE RADICAL TREATMENT OF NON-STRAN-
GULATED INGUINAL HERNIA FROM
THE STANDPOINT OF THE
MODERN SURGEON.

J. M. BANISTER, A.B., M.D.

Major and Surgeon, U. S. Army.

MANILA, P. I.

It has been well said that, owing to the anatomic construction of the inguinal canal, the occurrence of rupture in the human species must have been coeval with the appearance of man on the globe, and this being the case, it would not be preposterous to assume that to some early descendant of Adam belongs the credit of having invented the first crude retention apparatus.

In accordance with the trend of modern thought on the descent of man, we may with propriety consider this tendency to hernia on the part of the human race as one of the penalties resulting from the action of Adam and Eve in abandoning the quadruped method of progression of their immediate simian progenitors, and assuming the erect carriage which has since characterized the human family. The erect posture has certainly placed man, with his weakly constructed inguinal canal, in the very best position for the gravitation of a coil of the intestine into a patulous internal abdominal ring, and for its being forced through the opening and into the canal during strain of the abdominal muscles.

THE FIRST SUCCESSFUL METHOD OF CURE.

From the earliest times until the present day men of advanced ideas in our profession have persistently pursued the chimera of the radical cure of hernia, with ignominious failure as the constant reward of their efforts, and the treatment of hernia has, until the very present, continued to be the greatest opprobrium of those posing as the healers of the ills of humanity. Suffering mortals have continued to die from strangulated hernia with persistent regularity, and the coffers of the truss makers have grown full to overflowing. It remained for the surgical genius of the present day to devise a safe and permanent radical cure for this distressing and common infirmity, and from the publication in December, 1889, of the method of Halsted of Baltimore, and in 1890 of that of Bassini of Padua, must the radical cure of hernia be considered to date.

These methods, independently evolved by their distinguished authors and fulfilling the same indications, have solved the surgical problem of the ages. In this connection it is interesting to note that in 1890, just prior to the publication of Bassini's method, Dr. Bull of New York City published a paper giving the results in 134 cases of hernia subjected to operation in the preceding four years, with three deaths and 38 per cent. of relapses. In the paper referred to, Dr. Bull says: "In reflecting on the experience of these cases, I am obliged to conclude that in these methods which I have faithfully tried, there is no prospect of obtaining a radical cure in any form of hernia, and the majority

of cases will be found to relapse if followed for a sufficient time." Sir William MacCormack states in his Bradshaw lecture for 1893 that of the cases of non-strangulated hernia operated on in the London hospitals, 6 per cent. died. The opinions of such men, with such results as they recorded, served to create in the minds of many conservative men a serious prejudice against the radical operation for hernia, which has only been mitigated within the last few years, owing to the brilliant results obtained under our present system of aseptic technic by the methods of Bassini and Halsted.

The views expressed by Dr. Bull in 1890, which were formulated prior to the publication of the Bassini method, and which were founded on the results of operations since abandoned, are still quoted by some, against the radical operation. It is interesting to note in this connection that within a few years after the publication of this paper, Dr. Bull himself had become one of the ardent advocates of the radical operation for hernia by the Bassini method, and I had the opportunity, in the autumn of 1895, of seeing him perform this operation several times at the Hospital for the Ruptured and Crippled in New York City, where, with Dr. Coley, he was paving the way for the great permanent popularity of this operation in our own country.

Looking back at the infinite series of failures in the efforts to secure a radical cure for hernia already referred to, we, with our present knowledge, are not surprised that success was not attained. Such a fortunate result was impossible prior to the introduction of our modern aseptic surgical technic, no matter how ingenious or how well executed the method of operating might have been. The introduction of the absorbable animal suture has also had a great influence in making the radical operation for hernia a success, although it must be confessed that Halsted invariably uses silver wire for his buried sutures, while Bassini, at least in his earlier operations, used silk for the same purpose.

REQUIREMENTS FOR SUCCESS.

In order that an operation for the radical cure for hernia may be successful, the following indications must be met:

1. A perfect aseptic technic must be followed in all its details.
2. The hernial sac must be obliterated.
3. The internal abdominal ring must be narrowed closely around the cord or a new internal ring made.
4. The inguinal canal must be reconstructed.

The three anatomic indications are fully met in both the methods of Halsted and Bassini.

Without a perfect aseptic technic general sepsis or septic peritonitis may follow the surgeon's efforts or if such serious dangers to life are avoided, suppuration in the deep portion of the wound will be almost certain to result with a consequent failure in the efforts to effect a cure. This was the rock on which were wrecked the hopes of countless numbers of operators, who essayed to cure hernia with the knife prior to the introduction of our present aseptic methods.

The internal abdominal ring should be narrowed to closely embrace the spermatic cord, for it is a self-evident fact that unless this step is carefully carried out a fresh protrusion of intestine will work its way by the side of the cord down into the canal through the patulous opening thus left.

It is equally evident that the hernial sac must be obliterated, else a trap for intestine will be left, and it is

unnecessary to dwell on the importance of reconstructing the floor of the canal and thus forming a further buttress against hernial protrusion. When a case of hernia is presented to a modern surgeon for operation he may safely limit his choice of method to two operations, namely, the methods of Bassini and Halsted.

VARIOUS OPERATIVE METHODS.

The Bassini operation is most popular in the United States, and is most highly prized in Europe as well, especially in Italy and Austria. While Halsted's operation is a most excellent method in every respect, yet it must yield the palm to that of Bassini, which, in my opinion, is the most rational, simple, safe and successful yet devised for the radical cure for hernia. Nevertheless, Halsted's operation closely deserves the second place. Kocher's operation, which has yielded excellent results in the hands of its author, is, in my opinion, greatly inferior to the two operations just mentioned. This operation is very objectionable to my mind, from the fact that in this method the attempt is made to treat the sac through the external abdominal ring without the division of the aponeurosis of the external oblique muscle. In very many cases that have come under my eye this procedure would have been utterly impossible of performance. In addition, the passage of sutures to close the internal abdominal ring and narrow the inguinal canal through the intact aponeurosis of the external oblique muscle is a dangerous and unjustifiable procedure, owing to the proximity of such important structures as the internal iliac vessels, the deep epigastric vessels and the spermatic cord. The division of the external oblique aponeurosis, as practiced in the Bassini and Halsted operations, does not add one jot or tittle to the danger of the operation, while it confers on the operator the inestimable advantage of permitting a clear view of all the anatomic details, thus enabling him to strip and dispose of the sac under the direct guidance of the vision and to apply his sutures just where he desires to place them, without danger of wounding important structures. I have in my time had quite a personal experience with operations in the neighborhood of the inguinal canal, both as operator and assistant, yet I am free to confess that I would not dare to perform the Kocher operation as it is described in print.

The operation of Championnière is popular in France, and is seemingly an efficient method, though decidedly inferior to either the Halsted or Bassini operation. Championnière opens the inguinal canal through the external oblique aponeurosis, dissects out, ligates and excises the sac, and then narrows the internal abdominal ring and reconstructs the canal by the use of mattress sutures, which cause "the muscles at the upper border of the canal to overlap the lower border."

Dr. Newbern of New York removes the testicle on the affected side from the scrotum, wraps the cord snugly around it, and anchors all in the abdominal cavity in a pocket, which he constructs with the transversalis fascia of the abdomen near the internal ring. Having thus gotten rid of the testicle and cord without interference with their functions, he entirely closes the internal ring and reinforces the floor of the canal as in the Bassini operation. For cosmetic purposes he places a hollow celluloid sphere in the empty side of the scrotum.

DESCRIPTION OF THE BASSINI METHOD.

It is useless to mention other so-called operations for

the radical cure of hernia; they are all weak imitations of better methods, and serve no useful purpose except to furnish padding for surgical text-books and a little ephemeral advertising for their originators. I never think of operating for hernia by any other than the Bassini method. The steps of this most important operation are, briefly, as follows:

The patient is carefully prepared as for all abdominal operations and all the details of a rigid aseptic technic carried out. In all of my operations my assistants wore freshly sterilized rubber gloves. The incision is commenced at the spine of the pubes, and is carried upward and outward to the extent of about three inches. The external oblique aponeurosis will be recognized by its shining, fibrous appearance. The overlying fascia should be rapidly cleaned off by tearing between the two index fingers. Having located the external abdominal ring with the finger, the operator seizes with forceps the spermatic fascia, extending between the pillars of the ring, and rapidly tears through this tissue with the dull dissector. Through the opening into the inguinal canal so made, he introduces a grooved director, and on it divides the aponeurosis of the external oblique in the direction of its fibers to the extent of about one inch. The two index fingers are then introduced, and the incision of the aponeurosis enlarged by tearing to the requisite extent. This division of the aponeurosis of the external oblique muscle, which forms the anterior wall of the inguinal canal, lays open the canal and exposes its contents.

On strongly retracting the two aponeurotic flaps, the first structure in the anatomy of the canal to attract attention will be the muscular arch formed by the internal oblique and transversalis muscles over the internal abdominal ring. These fibers unite to form the conjoined tendon, which plays such an important part in the reconstruction of the canal, and which can be seen on the inner side of the canal passing down to its insertion into the crest of the pubes and pectineal line.

Poupart's ligament stands out in bold relief when the outer flap of the divided aponeurosis is strongly retracted after the loose overlying fascia has been cleared off with a piece of gauze. Emerging from the internal abdominal ring beneath the arch of the fibers of the internal oblique transversalis muscles before mentioned, will be seen the infundibuliform process of the transversalis fascia, which is continuous at its base, around the circumference of the internal abdominal ring with the transversalis fascia lining the anterior wall of the abdominal cavity, and which, in the case of an oblique hernia, contains the hernial sac and its contents. This fascia should be lightly seized with forceps just beneath the muscular arch, and rapidly torn through with a dull dissector until the sac is reached. Next the sac should be grasped and held up, while with a piece of gauze the tissue still covering it must be stripped off and the sac separated from the spermatic cord, which in an oblique hernia is behind the sac well down into the internal abdominal ring. The use of gauze for stripping the sac will be found most convenient and sufficient.

Having thus thoroughly stripped the sac, it is held in apposition perpendicular to the body, and is opened with scissors between two clamps. Having opened the sac, the index finger is introduced to explore its interior, and on this finger as a guide the sac is opened with scissors pretty well down toward its neck. If the sac is empty, it is pulled up by an assistant with some

degree of traction, its neck transixed with a needle threaded with kangaroo tendon, and the ligature so introduced, tied first on one side and then around on the other. The portion of the sac beyond the ligature is cut off and the stump allowed to retract into the abdominal cavity. If the sac contains intestine this must be reduced, all adhesions being carefully separated. Should there be found in the sac a large process of omentum, this must be separated if adherent, carefully unfolded, ligated in sections and excised beyond the ligatures, the stump being replaced in the abdominal cavity.

A small omental protrusion may be safely returned into the abdomen without further consideration. Having disposed of the sac, an assistant picks up the cord by means of a blunt hook or a strip of gauze and carries it well up into the angle between Poupart's ligament and the arching fibers of the internal oblique and transversalis muscles. The operator then passes a kangaroo tendon suture through the muscular tissue on the inner side and Ponpart's ligament on the outer just above the cord, and ties this suture at once. This constitutes a firm upper boundary for the new internal ring, which will very effectually prevent future stretching in this situation. Then the tissue of the same muscular arch is united to Poupart's ligament just below the cord, while the latter is held up by an assistant as close to the upper suture as possible. This second stitch completes the new internal ring, which should not constrict the cord to any degree, else orchitis or epididymitis, with subsequent atrophy of the testicle, might in all probability occur. Next, interrupted sutures of kangaroo tendon are passed in the same line from just beneath the lower suture of the two forming the new internal ring down as near as possible to the pubes. These sutures pierce the muscular fibers of the internal oblique and transversalis muscle, and when these fibers terminate in the conjoined tendon, this tendon is situated on the inner side and the margin of Poupart's ligament on the outer.

When these sutures are tied the margins of the conjoined tendon and Ponpart's ligament are united, thus constituting a new floor for the inguinal canal and affording a further buttress against intestinal protrusion. The cord is then laid on this new floor, and the divided aponeurosis of the external oblique muscle united over it, the last stitch completing the new external abdominal ring. The skin wound is closed in accordance with the taste of the operator and dressed with a dry aseptic dressing. I never use iodoform or any antiseptic in or on my non-infected wounds. The patient is kept in bed for three weeks, and at the end of this period is allowed to get up and gradually get about.

In the case of a direct hernia the intestinal protrusion does not occur at the internal abdominal ring, but forces its way up into the canal from under the external margin of the conjoined tendon, pushing in front of it the peritoneum constituting the sac and the transversalis fascia forming the floor of the canal. Consequently to reach the sac, the transversalis fascia must be divided over the protrusion. The spermatic cord will be found lying in a position external to the neck of the sac.

The deep epigastric vessels are external to the neck of the sac, while the reverse is the case in an indirect or oblique hernia. The sac in direct hernia is disposed of just as in the oblique variety, and then the divided floor of the canal may be united by a continuous suture of kangaroo tendon. The cord is lifted up, the new internal ring constructed around it, and the floor of the

canal reinforced by uniting the conjoined tendon to Poupart's ligament, just as in the operation for the radical cure of oblique hernia. I desire here to call attention to an anatomic fact which I have noted in every operation for direct hernia which has fallen under my observation, and that fact is this: That the conjoined tendon does not form a covering for direct hernia, either when the sac is confined to the inguinal canal, or has escaped through the external abdominal ring into the scrotum, as is erroneously stated in Gray's Anatomy and in other text-books. The hernia in every case of direct rupture pushes its way into the canal from under the margin of the conjoined tendon, and when once in the canal, passes on down toward the scrotum, lying to the outer side of the conjoined tendon. I have demonstrated this fact to the surgeons present at quite a number of operations for this variety of hernia, and within the last week have had the opportunity of making a similar demonstration to my assistants at the First Reserve Hospital.

In a case of oblique hernia of the congenital variety, the protrusion of intestine takes place directly into the patulous tunica vaginalis, which has remained open at its upper extremity, thus communicating with the general peritoneal cavity. In such cases it is necessary to divide the sac horizontally into two portions, the lower portion being stitched closely around the cord to form the tunica vaginalis testis, while the upper portion is separated from the cord and treated by ligation and excision in the usual manner.

Halsted's operation is so well known that I do not consider it advisable to take time to describe it.

STATISTICS.

For fear that I may be considered too enthusiastic on the subject of the radical cure of hernia, I beg leave to briefly present a few statistics with reference to the results of modern operations:

In September, 1895, by order of the War Department, on the recommendation of the surgeon general, the radical operation for hernia was made the routine treatment in the United States Army.

At that time the whole question was still *sub judice*, and the responsibility of proving the adaptability of the operation to the military service was placed on the pioneer operators of the medical corps of the Army, in which class I happened to be. Since that time, several hundred operations for the radical cure of hernia have been performed by the officers of the Medical Department on the officers and soldiers of the United States Army, with the most brilliant results, which have, beyond all cavil, proved the operation to be most admirably suited to the military service. There has been no mortality as far as I have been able to learn in the practice of the surgeons of the Army, with the exception of one death which occurred at the General Hospital in Washington, and the rate of relapses, even after the severe hardship and effort consequent on the arduous campaigning which has fallen to the lot of the United States Army since 1898, has remained so small as not to merit consideration.

I have lost count of the number of operations which I have performed, but I think I may fairly place my own cases in the neighborhood of 100. In this list there has been no mortality and no wound infection, except in one case, in which a small abscess developed under the skin after the skin wound had healed *per primam*. So far as I have been able to trace my cases I have had only three slight relapses, which were no more than

slight bulgings at the internal ring. One of these so-called relapses occurred in the case of a cadet at the United States Military Academy, who, after being returned to duty, was sent to the hard work of the riding school too soon after operation.

I operated on this patient a second time, and at the operation discovered that the union of Poupart's ligament to the conjoined tendon was perfect, and that the cause of the trouble at the internal ring had been the yielding and stretching of the latter. This was reduced by two kangaroo tendon sutures, and he has had no further trouble from his hernia. He completed his cadet life, graduated, and is now on duty in the Philippines. He called to see me the other day, and reported himself as being perfectly cured. Consequently, I have to my credit, or rather discredit, two partial relapses still remaining out of about 100 operations.

Dr. William B. Coley of New York reports¹ the final results of 1,003 operations for the radical cure of inguinal and femoral hernia performed between 1891 and 1902. Of these cases 937 were operations for inguinal and 66 for femoral hernia. Of the 937 inguinal cases, 756 were in the male and 181 in the female.

From the above list are excluded all cases operated on within six months of the time of the writing of the paper. In this list of 1,003 cases there have been two deaths, or adding the operations performed up to May 11, 1903, two deaths in 1,075 cases, which would constitute a mortality of one-fifth of 1 per cent. Dr. Coley's first death was due, he states, to ether pneumonia, in a child 6 years of age, and the second fatality occurred in a case of an adult with a large irreducible omental hernia.

At the Vienna Clinic, according to Dr. Coley's statistics, there were three deaths in 804 operations.

At Johns Hopkins the mortality rate has been only one death in 459 cases, and at Carle's Clinic in Rome there were only two cases of mortality in 400 operations, one being from pneumonia. It can be seen from these statistics that at the present day the danger of a fatal result at the hands of a careful and skillful operator is so infinitesimal as not to be worthy of consideration.

RELAPSE STATISTICS.

In the 937 cases of operation for the radical cure reported by Dr. Coley, 917 were typical Bassini operations with transplantation of the cord, in which list there were 11 relapses, a rate of 1.2 per cent. In 20 cases in which the cord was not transplanted and which consequently were not regular Bassini operations, 6 relapses have been observed by Dr. Coley. This, to my mind, is a very strong argument against leaving the cord *in situ*.

The Johns Hopkins' statistics show that in 307 operations for inguinal hernia by Halsted's method, there resulted 7 relapses and 4 cases of weak cicatrices. Counting the latter as relapses, there would be 11 relapses in this list, making a rate of 3.6 per cent.

In a series of 2,032 Bassini operations published by Matanowitsch, as having occurred in the practice of various surgeons, there were 74 relapses, which is a rate of 3.6 per cent. In 528 cases by Kocher's method, reported by this observer, there were 19 relapses, 3.8 per cent.

WOUND HEALING.

In the 1,003 operations for inguinal and femoral hernia. Dr. Coley reports 30 cases of suppuration, in only

9 of which cases was the suppuration deep, the remaining being limited to stitch-hole abscesses. Prior to March, 1899, when Dr. Coley and his assistants began to use rubber gloves, the cases of suppuration amounted to 4.2 per cent. Since the use of rubber gloves at this operation, Dr. Coley states that he has had only 5 cases of suppuration (1 deep and 4 superficial) in four years in about 400 cases, or 1¼ per cent.

At Halsted's Clinic, before rubber gloves were worn, the suppurations amounted to 24.13 per cent. In 226 cases in which gloves were used, there were only 4 suppurations, 1.7 per cent. I do not think that further proof of the great value of rubber gloves in surgical work could be demanded, even by the most skeptical.

The above statistics are conclusive, and I feel perfectly justified in claiming that a careful modern operator can easily hold his rate of suppuration close to 1½ per cent. In my own list it has been 1 per cent.

CONCLUSIONS.

In view of the facts adduced in the preceding pages, I feel justified in formulating the following conclusions:

1. By the methods of Bassini and Halsted, the modern surgeon has at his command two absolutely reliable operations for the radical cure of hernia.

2. With our modern strict aseptic technic, the operation is as safe as any in surgery, and the risk of a fatal termination in an operable case is so insignificant as not to be worthy of consideration.

3. The danger of relapse is so remote as to be of no moment in forming a decision with reference to the advisability of an operation in any given case.

4. If the above propositions are true, every operable case of hernia in patients between the age of 4 and 50 years and without disease of vital organs, should be subject to the radical operation, as is the custom of our military service.

ACIDOSIS.

EXPERIMENTAL EVIDENCE THAT ITS NERVOUS SYMPTOMS ARE NOT WHOLLY DUE TO LACK OF ALKALI.

RAY LYMAN WILBUR, M.D.

Assistant Professor of Physiology, Stanford University.

STANFORD UNIVERSITY, CAL.

Experiments performed in Professor von Noorden's Laboratory in the Städtisches Krankenhaus, Frankfurt a. M.

The following experiments were performed in the hope of throwing some light on acidosis and coma in diabetes. Coma is usually ascribed to the effect on the nervous system of the circulation of blood of diminished alkalescence in the blood vessels, and it is usually assumed that this blood change is due to the chemical union of certain acids, particularly betaoxybutyric, with the alkali of the blood. It is for this reason that sodium bicarbonate is administered by mouth in moderate acidosis, and sodium carbonate given intravenously for coma. These measures are not uniformly successful, and frequently much less so than theoretical considerations would lead one to expect. There are some facts pointing toward a specific toxic action of betaoxybutyric acid.

Intravenous infusions into forty rabbits were made with dilute solutions of sulphuric, acetic, lactic and betaoxybutyric acids, and with neutralized betaoxybutyric and lactic acids. These infusions were made in a normal saline solution at a body temperature, at a fairly uniform rate of 4 c.c. per minute. The femoral or one

of the ear veins was used. The acids produced the characteristic symptoms of acid poisoning, dyspnea, fall of body temperature, convulsions and death; and the toxic doses for each acid were fairly uniform per gram of body weight. The infusion of betaoxybutyric acid produced in no experiment a typical coma, although most of the rabbits passed through a stage, just previous to the convulsions, when they were very quiet and less susceptible to external stimulation.

The sulphuric acid (in $N/10$ sol.) was most toxic, about five times as toxic as betaoxybutyric acid; then the acetic ($2\frac{1}{2}$ per cent. sol. used), lactic (5 per cent. sol.), and betaoxybutyric (5 per cent. sol.). The average toxic dose of the latter was 0.03152 c.c. of a 5 per cent. solution per gram of body weight, while that of lactic acid was 0.0172 c.c. per gram of body weight.

Experiments of two kinds were performed to test the effect of the infusions of neutralized solutions of betaoxybutyric and lactic acids. The latter organic acid was used as a control to find out whether there was a specific toxicity of the betaoxybutyric acid salts. First, infusions were made, until a fatal result was obtained, with a 5 per cent. solution of betaoxybutyric acid neutralized with Na_2CO_3 or KOH , and, second, infusions were made with neutralized 5 per cent. betaoxybutyric acid until various proportions of the toxic dose were given, and then the 5 per cent. betaoxybutyric was administered until death occurred.

Two typical experiments follow.

EXPERIMENT 1.—Male rabbit, weight 1,800 grams. Infused 209 c.c. of a 5 per cent. solution of neutralized betaoxybutyric acid at the rate of 4 c.c. per minute. Bladder empty at beginning of experiment. No noticeable change in the condition of the animal until 67 c.c. were given, then the respirations began to increase. At 100 c.c. the breathing was of a snoring character, sighing at times and the animal was very quiet and kept the eyes closed. It moved only when disturbed.¹ (This condition was seen at times with the betaoxybutyric acid infusions, but was more noticeable in the neutral infusions.)

At 180 c.c. the respirations became rapid and irregular and various muscular movements began, especially twitching of the eyeballs. The pupils were somewhat enlarged. There was a gradual increase in the violence of these symptoms until 204 c.c. had been infused, when the first general convulsion took place. Recovery from this followed a cessation of the infusion, but when 5 c.c. more were given, a few minutes later, the terminal convulsion took place.

The urinary secretion began soon after the infusion, and continued even during the convulsive stage. In all, 220 c.c. of faintly alkaline urine (more than the fluid injected) were collected.

Postmortem.—No abnormal changes except a slightly yellowish color of the kidney cortex, a distended gall bladder, and markedly fluid contents in the small bowel.

This experiment shows that the neutralized solution was toxic in a dose of .116 c.c. of a 5 per cent. solution to gram of body weight, and is typical of similar results obtained in other rabbits. In general, the symptoms produced were similar to those obtained from the betaoxybutyric acid infusions, except that more of the neutralized acid was required. Similar experiments with the sodium salt of lactic acid were fatal in the dose of .118 c.c. of a 5 per cent. solution to gram of body weight, and the symptoms, except for the coma-like state, were practically identical.

1. It would be instructive to study the influence of neutralized betaoxybutyric acid on the nervous system of the monkey. In which the mechanisms of expression are so much more fully developed than in rabbits. Dr. C. A. Herter tells me that he has produced typical diabetic coma in monkeys by the intravenous infusion of solutions of betaoxybutyric acid. (See Transactions N. Y. Path. Soc., 1899.)

The second experiment given is to illustrate the effect of infusing a certain proportion of the toxic dose, as found, for neutralized betaoxybutyric acid, and following it with a proportionate dose of betaoxybutyric acid solution. This was to see whether the effect produced by the neutralized acid reduces the amount of acid required to produce death and vice versa.

EXPERIMENT 2.—Male rabbit, 1,330 grams body weight. (From average of former experiments we would expect about 150 c.c. of neutralized and about 41 c.c. of the 5 per cent. betaoxybutyric acid to be the respective toxic doses in a rabbit of this size.) Eighty-three cubic centimeters (about 55 per cent. of toxic dose) of the 5 per cent. betaoxybutyric salt was infused. The characteristic free diuresis began promptly, and the respirations began to increase at 75 c.c. Then after a short delay 24 c.c. (a little more than half of toxic dose) of 5 per cent. betaoxybutyric acid was given and the usual results, rapid breathing, convulsions and death, were obtained. During the infusion of the salt 90 c.c. of urine was passed, and 30 c.c. during the infusion of the acid.

Similar results were obtained from the infusion of varying proportions of acid and salt, giving sometimes the acid before the neutralized solution. The fatal result was particularly striking and prompt, when, after the infusion of enough neutralized solution to cause rapid breathing, a small amount (5 or 10 c.c.) of betaoxybutyric acid (5 per cent.) was rapidly given. This rapid addition of free acid seemed to exert more effect than was to be expected from its toxic acid value.

The above experiments show that in rabbits neutralized betaoxybutyric acid is toxic and that it produces symptoms similar to those of the acid itself. It seems probable that in some of the cases of diabetic coma the effects produced by betaoxybutyric acid production in the body are not due entirely to its withdrawal of alkali from the blood, but that its salts, arising from combination with the blood alkali, are still toxic, though in a lesser degree. The failure or only partial success of sodium carbonate infusions and of the alkali treatment in general is probably due to the poisonous action of neutralized organic acids which are not removed from the organism.

It thus appears that the pathologic effects of acidosis can not be wholly due to the withdrawal of alkali from the blood and various tissues, and this is the outcome of my experiments which I desire especially to emphasize.

Oxygen in Surgical Infections.—Dr. Thiriar recently communicated to the Belgian Académie de Médecine his further successful experience with the direct application of a stream of oxygen to infected tissues. He uses it in the form of a permanent application: a tube is inserted in the lesion, communicating with the oxygen tank, and left undisturbed for several days. Every case of infection of a serous membrane has been benefited by this treatment in his experience, but the results have been most striking in gaseous septicemia. The oxygen not only stimulates the tissues and promotes phagocytosis, but also kills the germs, substituting an oxygenated emphysema for the microbial emphysema. Oxygen applied under pressure to a furuncle or carbuncle has always aborted or cured it in a few days, and it has proved its usefulness in hundreds of cases of diffuse phlegmons, gangrenous erysipelas, suppurating complicated fractures and arthritis. He does not advocate it for generalized infections, although recent publications have proclaimed the feasibility of intravenous injections of oxygen, with which Thiriar has had no experience. The *Gaz. Méd. Belge* of August 6 gives the particulars of several cases of suppurating knee affections treated by Thiriar's method as an adjunct to operation, commenting on the rapid and perfect healing under the stream of oxygen.

A NEW METHOD OF LATERAL ANASTOMOSIS.

PRELIMINARY REPORT.

AXEL WERELIUS, M.D.
CHICAGO.

The object of this paper is only to record the technic of the operation. The result of experimental work now in progress will be published later.

STEP 1.—Fix by guy suture opposing surfaces of intestines, or stomach and intestine, as the case may be.



and sew (Fig. 1) with running through-and-through suture.

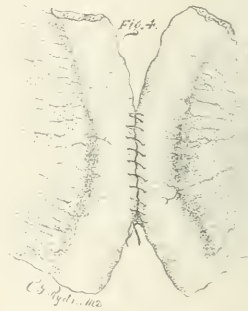
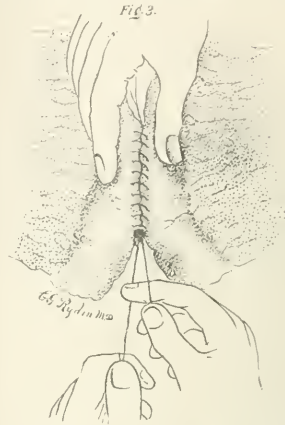
STEP 2.—Insert a silk or twine ligature or silver wire (Fig. 2), running into lumen of bowels, as in the McGraw ligature.

STEP 3.—Cover the silk ligature by folding adjacent parts of intestines over it and sew with through-and-through suture, leaving the free ends of the silk ligature on the outside (Fig. 3).



STEP 4.—An assistant holds the united tissues firmly on the opposite side of the free ends of the ligature. By alternate pulling of the right and left ends of the silk ligature, the tissues are neatly cut through and an anastomatic opening is made, the thread escaping through the minute slit between the sutures. Take one more stitch where the thread slipped through and the operation is complete.

By this last maneuver, which is the distinguishing feature of the operation, the bowel is cut through without exposure of the mucous surfaces. The operation is



complete at once, leaving no foreign body. There is no puckering.

It is extremely simple, and takes less time than any similar operation.

Clinical Report.

A PECULIAR CASE OF POISONING.

MATT A. REASONER, B.S., M.D.
MORRISONVILLE, ILL.

History.—Boy, aged 7, had in some manner acquired a taste for asafetida, and without the family's knowledge had been in the habit of eating it for six months. A large quantity of the drug was procured in order to prepare some hog medicine, and the boy found it and ate all he wanted.

Examination.—When discovered he was in a semi-stuporous condition, lying down, body relaxed and warm, pupils dilated, unable to stand erect without falling. Pulse weak, feeble, accelerated; respirations shallow, irregular and about 22 a minute; expectoration rather profuse. Within a couple of hours the odor of asafetida was plainly discernible in the different secretions, and for several days after in the diarrheal bowel movements.

Treatment.—I did not see the patient until probably one hour and a half after eating the asafetida. I used emetics, evacuants and stimulants. He was much better in two hours, but some of the effects remained for twenty-four hours.

New Instruments.

ACETYLENE HEADLIGHT AND REFLECTOR FOR NIGHT OPERATING.

EVAN O'NEILL KANE, M.D.
KANE, PA.

This acetylene light is designed principally for night emergency and other outside surgical work, and especially for illumination of the abdominal cavity. It burns with extraordinary brilliancy. It is almost equal to the sun's direct rays for at

position by a shoulder and waist strap. The whole affair is simple, easily operated, rapidly adjusted and can not, like an electric apparatus, fall out at the critical moment by getting out of order. All that is necessary is to be sure that the receptacles in the generator for carbid and for water are filled; simply touch a match to the burner and magnificent illumination is sure to result.

I have been experimenting with acetylene gas for this purpose for some time, and I am confident that my device is far superior to anything else now before the profession. The only drawback to this apparatus worthy of mention is its price, the expense of operating it being a mere trifle of a few cents; but when placed regularly on the market I am assured it can be obtained very reasonably. I have a few modifications and improvements still to make in this lamp, but even as it is I can promise any operator that he will consider it indispensable after once employing it.

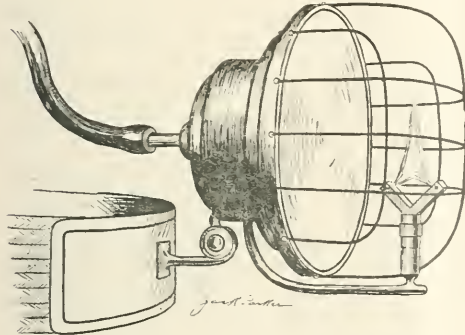


Fig. 1.—The headlight, showing head band and tube.



Fig. 2.—Method of using headlight.

least three feet from the reflector. No heat is thrown back against the face or forehead. Fitted firmly on the brow, it enables one to throw the light in any direction, even vertically. Both reflector and light turn on a ball-and-socket adjustment.

The burner is fed through a rubber tube which passes over the head and down the back and is out of the way while operating. From the back the tube passes around to the side to enter the generator worn there. This generator is retained in

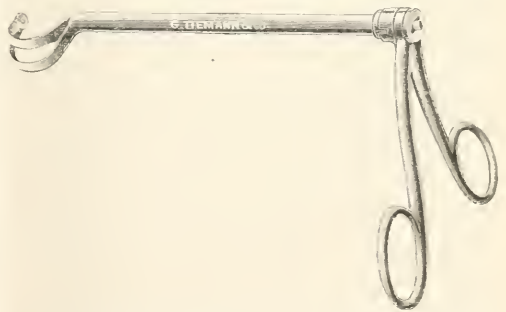
A NEW TONSILLOTOME.

E. E. STRAW, M.D.
MARSFIELD, OREGON.

The instrument here represented is a double-curved scissors, the blades of which are connected to the handles by means of a tube and shaft. The handles are held by a detachable and reversible lock, and the blades joined at the distal ends by a pin-lock. A slot one-eighth of an inch wide, running the entire length of the tube, allows the passage of the shaft in taking the instrument apart and putting it together. A separation or closure of the handles rotates the shaft inside of the tube and causes a corresponding motion of the blades.

This tonsillotome possesses the following advantages:

1. It engages the whole tonsil, and the curvature of the blades is such that any desired amount of tissue can be removed at the first cut without danger of injuring the faucial pillars.



2. The tendency of the blades is to pass behind and not through the tonsil, and by severing the blood vessels in the soft underlying tissue the danger from serious hemorrhage is diminished.

3. Little, if any, preliminary dissection is required.

4. The operator's hand is placed in a comfortable position and does not interfere with his view.

5. The blades can be thrown wide apart without any motion of the instrument in the patient's mouth.

6. It has reversible handles and therefore can be used for either tonsil.

7. Its construction is simple and it has no delicate parts that are liable to get out of order.

Absorption of Silk Sutures.—Silk sutures, when buried in the tissues, are considered non-absorbable, but Dr. E. Muirhead Little, in a letter to the *London Lancet*, reports a case in which silk sutures, which had been placed in a tendon, were absorbed after fourteen months.

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MODERN PRISON SYSTEMS.

The United States Government has recently issued a "Report on Modern Prison Systems," written by Dr. Charles R. Henderson, which brings together some very interesting material especially concerning the present status of European continental prisons.

Probably few of the social contrivances of men have changed more than the prison and the penitentiary. It is not many centuries since our English forebears felt no responsibility for a prisoner beyond his literal safe-keeping. Bolts and bars were provided by government, but food, for instance, was to be obtained by the prisoner as best he could. Although it has been shown that in certain modern prisons conditions have been so prejudicial to health in very recent years that a ten-year sentence was "equivalent to capital punishment," yet in the main it is perhaps true, as Dr. Henderson points out, that a conscientious effort is now made in a number of our prisons for the conservation and improvement of the bodily health of the prisoner. Dr. Henderson says: "If we adopt the purpose which is coming to be decisive—that is, the protection of society through the rehabilitation of the prisoners—the physical care becomes a matter of fundamental interest, and this from several considerations. Physiologic psychology has demonstrated the causal connection between the will and normal conditions of the body; a man can not make a choice or decision and persist in a purpose without having a stored supply of physical energy. Perhaps the most distinctive trait in a body of criminals is not violence or cunning, but simply feebleness and low vitality. . . . Therefore, the intelligent warden or superintendent aims first of all to brace a man for the struggle of life by improving his physical health."

In view of this interesting and sanguine introduction, some of the details furnished from the official regulations of the penitentiaries in various countries are somewhat disappointing. The report considers the prisons of the chief European nations, with the exception of Russia, and along with general descriptions of prison organization gives much information as to dietaries and sanitary regulations. The dietaries in some of the foreign countries seem inadequate to American readers, though they may be proportioned to the general standard of living in the same countries. It is, however, startling to an American to learn that, out

of the twenty-one meals weekly in the prisons of Würtemberg, nine consist of a little more than half a pint of "soup" made of hot water and black bread. At two meals in each week and on extra holidays the prisoner is allowed a little less than a quarter of a pound of meat. The other meals consist principally of vegetable soups and various flour foods. The Holland dietary, though slightly more generous, is still very restricted in quantity and variety. It has been the reproach of English prisons up to very recent years that a prisoner was doomed always to be hungry. On the whole, it is probably true that the American prisoner is the most liberally fed of all. However, among the thousands of county jails and city prisons each is a law unto itself. Some are lavish, some niggardly. Dr. Henderson very properly suggests as one of the most desirable reforms in administration of jails in the United States the establishment of a standard legal dietary with power lodged in a state board of supervision to see that it is enforced. As yet there is no approach to a common understanding on the subject. "The admirable studies of food published by the Department of Agriculture will ultimately assist in the preparation of a standard dietary suited to American conditions."

The criminal class naturally shows a strong tendency toward various neuroses and especially toward insanity. In some countries in the selection of prison physicians the preference is given to those who have had experience in hospitals for the insane. In Holland and Belgium provision is made for periodical inspection of prisons by expert alienists. Prisoners who become violently insane are removed to the state asylums, but the system of special asylums for criminal insane is apparently further advanced in America than in the continental countries. Sometimes special expert commissions are sent from the institutions for the insane to inspect the prisons at regular intervals or for special cases if necessary. The German states and Belgium have notably good regulations on these points. It is true that the details of punishment and discipline, the limited exercise and food, the scant provisions allowed for cleanliness, as set down in the various official regulations, indicate a rather inadequate fulfillment of the larger conception of the physical aim of the prison with which the author sets out. Yet there are points of great encouragement. For instance, it is indisputable that the Elmira Reformatory has furnished to the world the best and earliest practical example of a prison conducted on the basis Dr. Henderson describes. It has undergone many vicissitudes of management, but the principles on which it is conducted not only have for their basis the conviction that a healthy body is an essential condition of mental and moral sanity, but the practical carrying out of these principles has demonstrated their truth.

To the Italians we are, of course, indebted for those brilliant studies in criminal psychology which have given

a world-wide impetus to the understanding of the physical basis of moral disorder, and have brought the criminal class within the recognized field of medical science.

There is one point of great significance in this report, namely, the fact that in the European prisons the appointment of all officials and the entire control of the prisons is shown to be free from political influence. As we have had occasion to point out in discussing the public care of the insane, political control and scientific progress are eternal enemies. As soon as this incubus is removed the higher standard of living in this country, the simpler democratic attitude toward individuals, and, above all, the growing interest of the schools and universities in social science, give cause to believe that the American prison may become truly humanizing.

THE CURABILITY OF PULMONARY TUBERCULOSIS.

It is not without reason that pulmonary tuberculosis has been dubbed "the white scourge," "the captain of the men of death," and similar terms denoting its destructive effect on human life. It is probable that the knowledge of its great mortality has led both the laity and the profession to too pessimistic a view of the curability of this disease. When we consider some of the recent statistics, such as those of Naegeli and others, which show that practically everyone has some form of tuberculosis before death, one is led to the conclusion that tuberculosis is the most curable of the more chronic diseases.

In a recent article Blumer and Lartigau¹ give the results of an analysis of 500 consecutive autopsies with regard to the prevalence of healing or quiescence in pulmonary tuberculosis. They regard as evidence of healing the patches of cicatricial tissue found in the region of the apices, and also the calcareous nodules so frequently present in the lungs. Neither of these lesions can be definitely proved to be residua of tuberculosis, because inoculation experiments with them are negative, but in the case of the calcareous nodules there is little doubt, as all stages, from caseous to calcareous areas, can be traced, and in the case of the apical scars their situation, their frequent association with active lesions, and the fact that they may be the only findings in individuals who are known to have had tuberculosis during life makes their previous tuberculous nature practically certain. The writers point out that any area which contains caseous material can not be regarded as healed, inasmuch as inoculation experiments with caseous material are practically always positive; they, therefore, regard such areas, whether encapsulated or not, as merely quiescent.

Inasmuch as in previous articles the healed and quiescent cases are considered together, Blumer and Lartigau follow the same course with their cases. They show that the percentage of healed pulmonary tuberculosis reported varies from 4 per cent. to 100 per cent.,

their own cases showing 28.8 per cent. The great differences in the reported statistics are due, they think, to a variety of causes. In some instances routine autopsy records are used made by many observers, many of whom were doubtless not at all interested in healed tuberculosis and were not looking for it particularly. In other articles all cases of active tuberculosis were excluded in making up the statistics, this tending to make the percentage of healed cases higher. Another source of error lies in the fact that some statistics cover cases from hospitals with patients suffering from acute illnesses, others cases from hospitals for chronic disease, others almshouse cases, and still other deaths from violence or suicide. The most important factor regulating the per cent. of cures, and one which is not mentioned in many of the reports, is the age of the patient. The authors show that where a very high percentage of cure is reported the patients are practically always old people. The cases analyzed by Blumer and Lartigau were some of them hospital and some of them private cases, and were all particularly scrutinized for signs of healed lesions in the lungs. The figures obtained by these observers show that the signs of healing, as would be expected, corresponded to the areas in the lung most often the sites of active tuberculosis. Almost the same percentage of healing occurred in females as in males, the former showing 29.4 per cent. of healing to 28.4 per cent. on the part of the males. The analysis of the cases as regards age brought out the most interesting figures. In both males and females there was very little tendency to healing up to the age of 15, and no very marked tendency even to the age of 25; after this age, however, the active cases tended very strongly to decrease and the healed or quiescent cases to increase, and the tendency to healing grew more marked as age advanced. Curiously enough, the active cases reached their height in the females ten years before they did in the males, and healing cases began to be common in the females ten years before this was the case with the males.

The whole study tends to show the curability of pulmonary tuberculosis, but it also shows that the tendency to spontaneous cure can not be relied on to any great extent in childhood and early youth, and impresses on us forcibly that at these periods of life especially the diagnosis of the disease must be made early if successful treatment is to be hoped for.

GRAFT IN PUBLIC INSTITUTIONS.

Occasionally it happens that a physician of excellent professional standing is appointed to a public position, such as the superintendency of a state institution, and that thereafter the newspapers begin to teem with stories of mismanagement, of revolts, and of general turmoil in the institution. And then it is insinuated that doctors are not business men. The man on the inside knows better. The sweeping statement can be made that the majority of our public eleemosynary

1. California State Journal of Medicine, September, 1904.

institutions are the subject of more or less "graft." This "grafting," except on the pettiest scale, is difficult when a shrewd man is at the helm. Therefore, the "grafters" must have a superintendent who, at least, is complaisant.

In two different instances, each in a separate state, medical men possessing administrative ability to a marked degree have had trouble all through their administrations. At the beginning the old "grafters" had been found and decapitated. These joined forces with others who wished to have a part of the spoils, and a regular plan was formed to foment turmoil in the institutions. Subordinate employes have been incited to drink and to disorder, assistant physicians have been told false and damaging stories regarding their chiefs, the legislature has been influenced to curtail necessary appropriations, and everything possible done to keep the superintendent in hot water, in order to make a showing that he is a poor administrator. This process is extremely harassing, and few can stand it. So it comes that the higher class of medical men rarely seek these positions where they could do so great service to medicine and to the commonwealth.

Indeed, nowadays one may almost conclude that administrative peace in an institution, whose management is in the hands of those appointed by partisan politicians, means that the "grafters" are allowed free hand, either for a share of the plunder or because of a convenient lack of vision that is assumed as the price of peace and of continued tenure of office. The superintendent is safe, and is a "good fellow" if he neglects to see that his wards are getting renovated butter when the state is paying the market price of good butter; that the coal bill is increased by the inclusion of quantities of slate; that the beef bill is swelled by the steward sharing in "short weighing" of cattle, and that the foundation of a heavy new building is being made out of loose, unshaped stone held together only by poor mortar.

As a rule, it is a sign that a superintendent of good repute is manfully doing his duty if discharged employes and small political fry bring against him all manner of charges, and keep it up persistently month after month. At least, one such battle is now in progress, but the superintendent, fortunately, has at his back the organized profession of his state. He should win.

And here a suggestion is permissible. In every such case the medical profession has a chief interest not yet acknowledged by the politicians. If there is doubt as to the true state of affairs, the state association or the county society should appoint a committee of members of tried integrity to investigate the institution's affairs minutely and report publicly; we repeat, report publicly. In this way the medical profession can do what it ought to do—discourage institutional "grafting." In this way, too, it can demonstrate to the public and to the politicians that it has a real interest in institutions for the care of the sick, the infirm and the insane.

THE PROBLEM OF A SATISFACTORY MILK SUPPLY.

It is not always easy to determine the most effective method of improving the quality of town and city milk supplies. The matter, however, is, as the French express it, on the order of the day. It is well known that various more or less tentative efforts looking toward reform have been made by many communities. Some of these experiments have been crowned with a high degree of success, but it is an open secret that the campaign for pure milk has not been equally effective in all places.

Under the circumstances, the experience of one remarkably successful method is of value to other municipalities similarly situated. The persistent endeavor made by the town of Montclair, N. J. (population in 1904 about 17,000), for a pure milk supply has been based on the doctrine of thorough investigation followed by publicity, and the result of this mode of procedure is worthy of deliberate examination. The tenth annual report of the Board of Health of Montclair (1904) now before us, affords an interesting illustration of the actual practice. Detailed and candid statements are made concerning the condition of the twenty-one chief sources of milk supply; together with these are given the complete reports of chemical and bacterial analyses based on the examination of monthly samples. In each case the name of the proprietor of the milk route is printed in full, as well as the names of the farmers from whom the supply is obtained. The comments on the cleanliness of surroundings and on various important details of conducting the business are decidedly frank, and there seems to be no reason why any citizen of Montclair should not keep thoroughly informed regarding the character of the milk furnished his household.

Two examples of the outspoken method followed in the printed report are, perhaps, worth quoting: "Albert and Eug.—As predicted last year, this supply has proved unsatisfactory to Montclair, and gave up the ghost after a little struggle." "The Puritan Dairy.—W. H. and R. S. Francisco, owners of this dairy, have kept it in better condition than usual this year, but it is necessary that they make further effort to keep down the bacteria and the dirt." Other milkmen and proprietors are, respectively, admonished to remove manure heaps from the neighborhood of the dairy, to discontinue the use of straw and hay as litter, and to use more whitewash. The open and public character of these statements and warnings must, in a large measure, be responsible for the high degree of success attained by the Montclair method. That the success is a real one is evinced by the analyses included in this interesting report. In view of the general legal requirement in our cities of a butter-fat content of 3 per cent., it is noteworthy that only eight of the twenty-one Montclair supplies failed to maintain an average of upward of 4.5 per cent., and that the lowest average of all is 1.27 per cent. ! The number of bacteria found in nearly

all the samples of milk is remarkably low. The highly satisfactory condition prevailing in Montclair is no accident, but is the outcome of an organized and systematic campaign.

The following extract from the report just cited is suggestive reading for citizens of other communities in which at the present time conditions are less favorable: "After ten years of unremitting effort to secure a pure milk supply for Montclair, it is felt that in a large measure success has been attained. Most of the dairymen are thoroughly aware that it is impossible to market an unclean or impure milk in town for the simple reason that the public will not buy it. The successful dairymen have brought their plants to a high degree of perfection, and the others are compelled to follow their example by the mere force of competition. Nearly all the men keep their cows in stables, which are ceiled and which are cleaned twice daily. The use of straw and meadow hay for bedding has been given up by all of the best dairymen and by most of the others. The feed is carefully selected, and the cows are kept clean and in good condition."

BLOOD PRESSURE IN THE INSANE.

That certain conditions are attended more or less constantly with a blood-pressure that varies only within narrow limits might be inferred from *a priori* reasoning, but knowledge on this subject is as yet too scanty to permit of the formulation of definite conclusions. As a matter of fact, it is only within comparatively recent times that methods have been devised by means of which it is possible to measure the blood-pressure with the facility necessary to make such a method of clinical utility. An important step forward would, indeed, be made if the conditions under which blood-pressure is raised or lowered respectively were established, as it is probable that information of this character would constitute a most valuable therapeutic guide. While it seems likely that the blood-pressure is subject to considerable variations even under apparently like conditions, it may be found, nevertheless, that it pursues a certain curve that may prove more or less distinctive. Observations have already been made indicating that the blood-pressure is increased in connection with depressive mental states, such as melancholia, and decreased in the presence of mental disorders attended with excitement, such as acute mania. It has further been found that the blood-pressure varies in the course of the same affection; for example, circular insanity, accordingly as a state of excitement or one of depression prevails.

With the view of determining the value of blood-pressure observations in their bearing on the diagnosis and treatment of mental diseases, Dr. W. R. Duntont¹ undertook a study of the subject at the Sheppard and Enoch Pratt Hospital, the results of which, while not conclusive, are at least interesting and suggestive. At

first a series of single observations were made on a number of patients, but it was soon realized that accurate results could not be obtained by such a method, so that later the blood-pressure was regularly measured in several cases throughout the course of the mental disorder. The readings were taken in the ordinary way, just as observations of temperature, pulse and respiration are made, no attempt being made to isolate the patient from sights and sounds that might affect the reading, and the patient not being asked to lie down, if up and about.

It was found that the continuous taking of the blood-pressure is of little value in the majority of mental cases, and the plan was adopted of taking it for a limited period, then discontinuing the observation, and resuming it at another period, whenever a change in the motor or mental condition of the patient occurred. While no point could be observed where there was any change sufficiently marked to be noticed as corresponding with any mental change, and no constant ratio, direct or indirect, could be made out between the motor, mental and blood-pressure curves, nevertheless the average blood-pressure was found to be low in connection with motor restlessness or mental excitement and high in connection with depressive conditions or diminished mental activity. The influence of the motor condition on the blood-pressure was greater than that of the mental condition. A moist state of the skin was without especial influence on the blood-pressure, although it is thought active perspiration may have such an effect. The observations of others that the blood-pressure is lower in the evening than in the morning could not be confirmed.

THE DANGER FROM ARSENIC IN CLOTHING.

The Department of Agriculture has been investigating the amount of arsenic used in coloring wall papers and in preserving articles of clothing. Samples of wall paper were purchased in the open market in Washington and examined. Only four samples contained more than 0.1 grain to the square yard. This is the maximum quantity allowed by the law of Massachusetts, which is the only state in the Union having a law regulating the use of arsenic in wall paper and wearing apparel. Several samples of stockings were examined, and a number were found to be heavily charged with the poison. Black stockings seemed to contain a larger amount of the drug than colored stockings. Furs and fur rugs were found to contain from 20 to 1,700 times as much arsenic as would be allowed by the law of Massachusetts. Poisoning caused by wearing garments containing arsenic is a very real danger and menace to health, which is probably often overlooked. Many cases of arsenical poisoning of obscure origin, no doubt, might be traced to a small abrasion of the skin of the feet or neck being brought into contact with hosiery or furs containing arsenic. This is another factor in the etiology of disease, for which the practitioner must watch until the government shall control the matter.

1. American Journal of Insanity, vol. lxi, 1, p. 41.

LARGE FEE SECURED BY MORAL VIOLENCE.

A distinguished Paris surgeon, whose methods have come sometimes under the criticism of his confrères, is in trouble. It is reported that he demanded a fee of \$20,000 to cure a patient with an anticancer serum, after having begun the treatment and declared the case a curable one, and that he threatened to discontinue his services if it was not at once paid. The patient became worse and finally died, and her husband is now suing the physician for the sum paid, pleading "fraud and moral violence." The plaintiff in the case is an American, as in another recent case noted by us as occurring in Germany. The proper moral to be drawn from the facts is, do not go to those who claim too much, and be especially shy of those who have not the full confidence of their own professional confrères or who have come under their criticism generally for methods or acts deemed unethical. The moral that will probably be drawn by many Americans is not to go abroad for treatment, and such occurrences will be likely to diminish the profits of foreign physicians from American tourists.

VACCINATING UNDER RED LIGHT.

A Hungarian physician, Dr. Hugo Goldmann,¹ has been vaccinating children with the exclusion of the chemical light rays. He vaccinated forty children in a room like a photographer's "dark chamber," that is, lighted only by a red lantern. The arms were then dressed with red cloths applied to exclude the light. A slip of photographers' sensitized paper was placed under the dressings to serve as a test for the exclusion of the chemical rays, and also to learn whether the dressings were tampered with. In each instance the pustules, it is said, developed typically, but without the slightest inflammatory reaction. The scar was typical, although small, and there were no general symptoms of any kind. Subsequent inoculation was always negative. The other arm was vaccinated in the usual way on some of the children, with the result that it became swollen and painful, with more or less fever and general symptoms. In some instances the red dressings were removed the second, third or tenth day, and the course of the pustules seemed milder than those of the controls.

THE POSSIBILITIES OF THE MEDICAL DEPARTMENT OF AN ARMY.

The ideals seem almost attained in the roseate picture presented by Dr. Louis L. Seaman,² concerning the remarkable work of the Japanese army medical department. He states that the medical corps has here its rightful position, and has authority over such details as rightly belong to it. He describes—having just returned from Manchuria—the Japanese medical officers testing water supplies in the forefront of the advance guard, inspecting all forage and supplies, and searching every village that is approached by the vast army, lest some insanitary condition imperil the health of the

soldiers and thus weaken the fighting force. He calls attention to the result, a mortality due almost entirely to the actual results of combat. The medical work is carried out with skill and speed, details are not neglected, and the rate of recovery from wounds is remarkable. He makes the pertinent remark that the United States Army should improve on Japan's system or else meekly follow it. His words are well worth heeding. If here is an example of the possibilities of the sanitary, prophylactic and reparative aid of the medical profession in warfare, when free from the hindrance of being subordinated to other departments, it should be well studied.

CENTENARIANISM.

The secular press is at present, or has been recently, considerably taken up with discussions of methods of obtaining longevity, and one little item which has the alleged authority of Professor Metchnikoff has been widely copied. It is that sour milk as a diet is specially conducive to longevity, more so, in fact, than any other form of food. It is the common drink among the Bulgarians, and they are said to furnish the largest number of centenarians. Some one has suggested that it is the ignorant and indolent who live to a good old age: it is at least exceptional to find a man of science like Chevreul or persons of cultivation or those taking an active part in the life of the age reaching one hundred years or over. Extreme simplicity in the mode of life is conducive to longevity. If a person should follow all the advice given, assuming that all be good, and live under the strenuous conditions of modern civilization, he might increase the chances of living one hundred years by a minute percentage above the present figure of one chance in one hundred thousand. Inasmuch as the conditions usually suggested involve some inconveniences and self-denials—as, for instance, living on sour milk—most individuals would probably not think the game worth the candle. At present, and probably for a long time in the future, the continuance of life to one hundred years or over is a happy—or shall we say an unhappy—accident, and being a centenarian, with its physical infirmities, is at best a mighty lonesome condition.

RHEUMATOID ARTHRITIS AND NERVOUS DISEASE.

Rheumatoid arthritis has not generally been included in the nervous disorders, and only in one recent text-book—that of Pearce—we find it thus placed. Nevertheless, the conviction seems to be growing that it is at least closely allied to certain of these diseases. Attention has been called to these points by Spiller and Llewellyn Jones, who have pointed out apparent relationships with paralysis agitans, tetany, exophthalmic goiter and symmetric gangrene, and the latter author concludes that rheumatoid arthritis, like certain other toxemias, "tends to pass into that gloomy region of medicine consecrated to system diseases of the cord." There are many reasons for supposing that rheumatoid arthritis is even primarily associated with a neurotic predisposition, and that the toxemia is only an exciting factor. Such are the marked heredity in some cases,

1. Wiener klin. Woch., vol. xvii, No. 36, Sept. 8, 1904.

2. Before the International Congress of Military Surgeons. See Society Proceedings, page 1247.

its occurrence in neurotic families (which has been frequently noticed) and the fact that it is not exclusively aroused into existence by toxic agencies, but that traumatism, exposure and nervous and debilitating influences may also be its antecedents. Still more striking in this connection are the facts that in some cases the motor paresis may locally precede the sensory and arthritic symptoms, a fact difficult to explain on the reflex theory of the rheumatic paralyses. That it depends on any special microbe seems highly improbable. Its aggravation by almost any form of active infection is against this hypothesis. While it will probably be long included among the more obscurely known disorders, its proper place, it seems possible, will be found from the balance of evidence to be among the diseases of the nervous system. A thorough pathologic study of cases in all stages of the disease as occasion offers is highly desirable.

THE ADMINISTRATION OF NITROGLYCERIN.

When it is desired to lower an abnormally high blood pressure and to alleviate symptoms associated therewith, such as headache and giddiness in arterio-sclerosis, no drug yields better results, when judiciously employed, than nitroglycerin. Physicians are, however, greatly disappointed at times when they give this remedy, the expected effect not being obtained. It would appear that disappointment is most common when the nitroglycerin is administered in tablet form. An examination of nitroglycerin tablets has revealed the fact that their nitroglycerin content is very variable, and that many of them contain extraordinarily little of the substance. Binz of Bonn, in several instances, was unable to demonstrate any nitroglycerin at all. Von Noorden of Frankfort, in view of these facts, urges the use of an alcoholic solution of nitroglycerin of the strength of 5 per cent. He asserts that when sufficient doses of this are used, one is certain, in suitable cases, of obtaining wholly satisfactory results. He has used the alcoholic solution extensively in his wards during the last few years, and finds its action much more constant and much safer than when tablets are employed. He asserts that it is permissible to give much larger doses than has hitherto been thought warrantable. Thus, when one begins with small doses and gradually increases the amount, as much as 10 milligrams (gr. 1/6) or even 12 (gr. 1/5) of nitroglycerin may be given in twenty-four hours, without any untoward symptoms becoming noticeable. Von Noorden has often been able, in cases with a blood pressure of from 180 to 220, controlled by repeated preliminary measurements, to reduce the pressure by gradually increasing doses of nitroglycerin to 100 or 120, or even lower. He finds, further, that the pressure remains low, not only as long as the drug is being administered, but very often for a time after the medicine has been stopped; it may remain low, as in one case, for eight days after the last dose, in another for twelve days or for two or three weeks, after which nitroglycerin may be begun again. It is hoped that this suggestion may be helpful in removing one of the many uncertainties of pharmacotherapies.

THE ULTRAVIOLET MICROSCOPE.

It often occurs that, soon after the declaration has been made that progress in a certain direction has reached its ultimate limit, new and unexpected discoveries are made. Many had believed until recently that the compound microscope had reached its maximal development, not owing to inability to construct lenses of greater magnifying power, but on account of the supposed impossibility of further illumination. Then came the remarkable invention of the ultramicroscope, which has been repeatedly referred to in these columns, and which renders particles of molecular size, hitherto totally outside the range of sight, visible. Just recently the Zeiss foundation has made available another new instrument, known as the ultraviolet microscope, which represents a most important advance. In this instrument, too, it is the mode of illumination and the method of utilizing it that characterize the invention. The shortest wave-length of light not absorbable by the lenses of ordinary microscopes is 550. By the use of a microscope in which the lenses are made entirely of quartz, it is found that a wave-length of 275 can be employed. The source of light is from cadmium electrodes. Condenser, slide and cover-slip lenses, all are made of quartz. By the naked eye nothing is seen through such a microscope, but by using an ocular containing a fluorescent screen, the rays are converted and a picture of the object may be seen in green. This fluorescent screen is for focusing purposes only; the real results are gained by photography. Photographic plates are very sensitive to the rays sent out from the cadmium electrodes, and the detail obtainable with wave-lengths of 275 is remarkable as contrasted with the detail from light of a wave-length of 550. Indeed, the effects are in many respects totally different from those gotten by ordinary illumination, for, as with the *x*-rays, some structures are penetrable by the cadmium rays and others are not. A wholly new method of differentiating unstained histologic structures is thus afforded us. The photographs already made of cells undergoing karyokinesis, of nostoc and of yeast-cells are full of promise for the future application of the instrument.

Medical News.

CALIFORNIA.

Antitoxin for Football Team.—Because of the prevalence of diphtheria at Leland Stanford University, all the football team have received prophylactic injections of antitoxin.

Accidents.—Dr. William W. Kerr, San Francisco, was severely cut and bruised in a head-on automobile collision, October 3.

—Dr. Thomas E. Ellis, Elsinore, was thrown from his buggy in a runaway accident, September 29, and fractured his clavicle.

Cancer-Curer Has License Revoked.—The State Board of Medical Examiners in 1903 revoked the license of S. R. Chamley, San Francisco, who advertised a "cure-all" for cancer. Chamley carried the matter into the courts and on September 29 Judge Cook of the Superior Court decided that the board acted within its rights and refused to give the petitioner relief.

Hospital Notes.—The Pacific Electric Railway System is planning to erect a hospital at Los Angeles to cost \$100,000. —The German Hospital, Los Angeles, was formally opened October 2. —Work on the Merritt Hospital, Oakland, will probably begin this month, as the trustees after long litigation

are now ready to proceed with the execution of the trust. — Fabiola Hospital, Oakland, will erect a new addition to the nurses' home connected with the hospital, to cost \$11,700.

College Opens.—The twentieth annual session of the Medical College of the University of Southern California, Los Angeles, opened October 13 with an address by the dean, Dr. Walter Lindley. Among faculty additions are Dr. Luther M. Powers, hygiene and state medicine; Dr. Louis G. Vischer, diseases of stomach and intestines; Dr. Albert Soiland, electro-therapeutics and radiology; Dr. Francis M. Pottenger, pulmonary tuberculosis and climatology, and Dr. W. A. Edwards, diseases of children.

ILLINOIS.

Personal.—Dr. William E. McClelland, Beason, is reported to be seriously ill with appendicitis.—Dr. and Mrs. Rufus J. Coultas, Mattoon, have returned from their trip abroad.

Physician Wins.—In the suit instituted by William P. Buchanan against Dr. William O. Beam, Moline, for alleged malpractice in the treatment of a dislocated shoulder, the jury decided in favor of the defendant.

Smallpox.—On October 17 Dr. Baker of the State Board of Health reported that there were 56 cases in Belleville and 75 in East St. Louis. In the past few days four deaths from the disease have been reported. Joliet reports five new cases and Peru still has four cases.

Scalds or Disease?—The death of a patient at the Illinois Hospital for the Incurable Insane, Bartonville, has excited much comment. The coroner's jury alleged gross carelessness and negligence on the part of the management of the institution, but the assistant physician states that death was due to senile gangrene, and the attendant avers that the water in which the patient was alleged to have been scalded to death was only "milk-warm."

Chicago.

Twenty-Minute-Old Baby Vaccinated.—A smallpox patient at the Isolation Hospital gave birth to a boy baby October 10, and within twenty minutes of its birth the child had been vaccinated.

Unlicensed Practitioner Fined.—Mrs. Anna Lietz was found guilty of practicing medicine without a license October 14 and was fined \$100 and costs. The fine and costs were suspended. The prosecution was at the instance of the State Board of Health.

Alleged Abortionist Attempts Suicide.—Dr. Alois Rasmussen, charged with having caused the death of a woman by an unlawful operation, took morphin while in a cell in Chicago avenue police station October 14, but was revived after much difficulty and will probably recover.

Davis Memorial Service.—A service in memory of the late Dr. N. S. Davis will be held Sunday, October 23, in Powers' theater. The principal addresses will be made by Bishop S. M. Merrill of Chicago and the Right Reverend J. L. Spalding, bishop of Peoria. Beside music, there will be five or ten-minute addresses by Drs. Billings, Murphy and others. The committee announces that a cordial invitation is extended to all.

Deaths of the Week.—The 424 deaths from all causes reported during the week are 14 more than the total for the week previous. Consumption, 62, shows the greatest increase, 13, followed by bronchitis, 11 more, apoplexy, 9 more, Bright's disease and pneumonia, each 8 more. On the other hand, there were 15 fewer deaths from acute intestinal diseases and 4 fewer from typhoid fever. The deaths from consumption form 14.6 per cent. of the total mortality, but those from pneumonia are only 8.4 per cent. of the total.

INDIANA.

Hospital for Children Opens.—Eleanor Hospital, Indianapolis, devoted to the care of sick children, was opened September 22 by the Flower Mission.

Richmond Hospital Begun.—The cornerstone of the hospital given by Daniel G. Reid of New York City to the city of Richmond was laid September 27.

Accidents.—Dr. Nathaniel H. Manning, Elwood, was thrown from his buggy October 3 and painfully bruised.—Dr. Emil Schable, Lafayette, was knocked down by his horse October 1 and painfully injured.

Disease and Death in September.—The monthly bulletin of the State Board of Health for September says: "Sickness in

the state this September was less than in the same month last year, and was also less than in the preceding month. Diarrheal diseases were most prevalent, and then in regular order follow typhoid fever, rheumatism, tonsillitis, bronchitis, scarlet fever, erysipelas, malarial fever, pneumonia, diphtheria, influenza, whooping cough, measles, purpural fever and cerebro-spinal meningitis. Typhoid fever was reported present in all but 13 of the 92 counties. There were 137 deaths from the disease and 702 cases reported. The number of deaths is accurate. The number of cases is probably twice as great as here given. The total number of deaths was 2,658, or an annual rate per 1,000 of 12.2. In the corresponding month last year the deaths numbered 2,766, or 13.4 per 1,000. There were 287 deaths from consumption, 20 fewer than in the corresponding month last year. Diphtheria deaths were 12 as compared with 35 in September, 1903. Very little influenza was reported in the month and only one death occurred from this disease. Cancer claimed 115 deaths, violence 146 and smallpox 12. Of the 332 consumption deaths 132 were males and 200 females. One hundred and eighty-five, or 56 per cent., were between the ages of 15 and 40. Eighteen were fathers between the ages of 18 and 40 and they left 36 orphans under 12 years of age. Of the females 59 were mothers between the ages of 18 and 40, and they left 118 orphans under 12 years of age. This monthly havoc wrought by consumption could be reduced 50 per cent. in three years if the people would unite against the disease causing it. Of the 146 violent deaths 3 were murders, 27 suicides, and the remainder accidental, of which railroads killed 31, street cars 1, gunshot wounds 11, electricity 1, drowning 8, and burns and scalds 11. Smallpox is reported in 22 counties, 197 cases in all, with 12 deaths. All of the deaths occurred in Vigo County. At several points the disease appeared in virulent form. Several of the Vigo County deaths were from hemorrhagic smallpox. Cases of confluent and semi-confluent smallpox are now quite common and hemorrhagic smallpox is reported not infrequently. All of this shows that the disease is becoming more virulent, as has been predicted would be the case.

IOWA.

Physicians Purchase Ambulance.—The physicians of Des Moines have purchased and presented to the city a new \$1,000 ambulance.

State Medical Department Opens.—The State University of Iowa College of Medicine, Iowa City, opened for the year in its new buildings, September 29. Dr. Elmer F. Clapp delivered the opening address.

Reference Medical Library.—Medical men of Dubuque have combined and subscribed for 19 medical journals, which are to be placed on the shelves of the public library for the use of physicians, nurses and druggists and others at the discretion of the librarian.

"Cancer Doctor" Acquitted.—"Dr." F. L. Pond, who has been treating cancers in Osage for thirty years, and who was arrested for practicing medicine contrary to the state medical law, was acquitted October 3, his attorney claiming that as he treated cancer by plasters and used no medicine, he could not be said to be practicing medicine.

MARYLAND.

Accident.—Dr. W. W. L. Cissel, Highland, was severely injured in a runaway accident October 8.

Acquitted of Criminal Charge.—Dr. Harry N. Rickards, Ridgely, charged with performing a criminal operation, who was admitted to \$5,000 bail September 23, the bail being furnished by citizens of the town, was acquitted. No evidence was adduced to connect him with the crime. He was on his way to the St. Louis fair when arrested.

Baltimore.

Death Rate High.—There were 181 deaths last week, an annual rate per 1,000 of 16.44. This is higher than usual.

Personal.—Dr. Harry Taylor Marshall has been appointed by the mayor a member of the board of supervisors of city charities, vice Dr. Mactier Warfield, resigned.

N-Ray a Delusion.—Prof. R. W. Wood spoke before the Johns Hopkins Scientific Association on October 13 on "The N-Ray Delusion." Professor Wood has personally tested Blondlot's experiments in France and finds nothing in them.

Portrait of Benefactress Painted.—The trustees of the Johns Hopkins University and Hospital have had painted by John S.

Sargent a portrait of Miss Mary E. Garrett and have had it hung in the corridor of McCoys Hall at the university in honor of the generosity of Miss Garrett, to which the Johns Hopkins Medical School owes its existence.

MICHIGAN.

Information on Pneumonia and Typhoid.—The State Board of Health has ordered a new edition of 25,000 copies of the leaflet on the restriction and prevention of pneumonia, and also 11,000 copies of the amended pamphlet on the restriction and prevention of typhoid fever.

Society Elects Officers.—The Saginaw County Medical Society held its annual meeting at Saginaw October 11 and elected the following officers: President, Dr. William L. Dickinson; vice-president, Dr. Bert E. Rowe; secretary and treasurer, Dr. John N. Kemp, and trustees, Drs. Fletcher S. Smith, Sidney I. Small and James W. McMeekin, all of Saginaw.

September Mortality of Michigan.—There were 2,635 deaths registered during September, representing a death rate of 12.7 per 1,000. This shows a slight increase over the preceding month, which had a death rate of only 12.1, but is lower than the rate for September, 1903, which was 13.4 per 1,000. Important causes of death were as follows: Tuberculosis, 192; typhoid fever, 63; diphtheria, 36; scarlet fever, 6; measles, 4; whooping cough, 4; pneumonia, 74; diarrhea, 318; cancer, 163; accidents and violence, 158. Smallpox caused 3 deaths during the month and 2 deaths were reported from tetanus.

Disinfection and Isolation.—Secretary Baker of the State Board of Health, at its meeting October 4, presented results of compilations of the evidence in the special reports of health officers for several years, on the relative importance of disinfection and isolation in measles, and in whooping cough, which indicate that prompt isolation is of greater importance in the restriction of measles and also of whooping cough than is disinfection. This indicates that the germs of these two diseases do not maintain their vitality for such long periods of time as do the germs of diphtheria and scarlet fever. On the other hand, measles is spread directly from the patient in the early stage of the disease. Eighteen times as many cases occurred in those outbreaks of measles in which both isolation and disinfection were neglected as in the outbreaks in which they were both enforced. Although isolation was of most importance, there were 25 per cent. less cases where both isolation and disinfection were enforced than where only isolation alone was enforced. Although isolation proved to be of more importance than disinfection for the restriction of whooping cough, there was an average of nearly one case less per outbreak where both isolation and disinfection were enforced than where isolation alone was enforced.

NEW YORK.

The Amalgamation in New York Apparently Indefinitely Postponed.—The annual meeting of the New York State Medical Association was held this week. Our correspondent telegraphs that the council and fellows of the association, at its meeting on Monday last, received the report of the Committee on Amalgamation of the New York State Medical Association and of the Medical Society of the State of New York. The committee reported that before a legal union of the organizations could be effected certain changes in the by-laws of the association were necessary to make them conform to the corporation laws of the state of New York. Considerable discussion ensued, but it was evident that nothing could be legally accomplished until after the annual meeting in October, 1905. The report of the committee was accepted. A motion to continue the committee with power to act was defeated.

New York City.

Free Clinical Lectures.—The New York Skin and Cancer Hospital announces a sixth series of clinical lectures on diseases of the skin, to be given by Dr. L. Duncan Bulkley in the Out-Patient Hall of the hospital, on Wednesday afternoon at 4:15 o'clock, commencing November 2. The course will be free to the medical profession.

New Home for Crippled Children.—The New York Home for Destitute Crippled Children has completed negotiations for the property at West Sixty-first Street. It proposes to open the home in about three weeks with fitting dedicatory ceremonies. The dispensary is now at Lexington Avenue and Fiftieth Street.

Impure Milk Traffic.—Judge Hinsdale has declared in Special Sessions Court that unless the practice of selling impure

milk is stopped, the punishment hereafter will be imprisonment instead of fine. Despite this statement he had before him on the following day 50 grocers and others, most of whom were punished by the infliction of the maximum fine.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended October 8, 291 cases of tuberculosis, with 157 deaths; 248 cases of diphtheria, with 34 deaths; 136 cases of typhoid fever, with 26 deaths; 103 cases of scarlet fever, with 6 deaths; 44 cases of measles, with 3 deaths; 16 cases of variola, one death from smallpox and 10 deaths from cerebro-spinal meningitis.

Personal.—Dr. Alexander E. Macdonald retired from the superintendency of Manhattan State Hospital East, Ward's Island, October 1, and was succeeded by Dr. J. T. W. Rowe, who was appointed acting superintendent.—Drs. Seth D. Close and Charles H. Goeller, while driving, were struck by an electric car. Dr. Close is in a serious condition as the result of a fracture of the skull and internal injuries.

More Water Needed.—The danger of a water famine is no mere bugaboo of periodic re-urrence, but an actual menace that engineers declare to be too real. On several occasions within recent years, when the rainfall has been below normal for considerable periods of time, the city has been within a day or two of a water famine, but the public has not known it. Engineers are now surveying for the proposed Paterson and Cross River aqueduct, which will add about 50,000,000 gallons daily to the present supply.

Tent Life for Babies.—Last summer the experiment of putting babies under canvas was made at Bellevue Hospital, a tent similar to those used by consumptives being used. The mortality records for the first month showed 46 babies cared for, with 11 deaths, whereas the usual mortality is 60 per cent. The children were taken into the hospital recently during the cold weather, but the results were so unfavorable that it has been decided to make a few changes in the tent, to surround it with steam pipes, and to continue its use during the winter months.

Crusade Against Adulterated Liquors.—As a result of a large number of sudden deaths from drinking adulterated whisky in the Strikers' Farm district there promises to be a general crusade against adulterated liquors. It is probable that the law-making powers, both state and national, will be asked to pass more stringent laws against the adulteration of liquors and their sale in bottles which do not reveal their true contents. The results of analyses of the stomach contents of victims, so far as have been completed, show that those of at least three of the supposed victims contained sufficient wood alcohol to cause death, and wood alcohol was also found in the whisky, though there is evidence that this wood alcohol had been used only for the past four weeks.

Drug Fraud.—Seven prisoners in all have now been arrested on the charge of counterfeiting drugs and patent medicines, and are under \$2,000 bail each. Most of the drugs counterfeited were those prescribed for producing sleep, allaying fever and stimulating heart action. In addition to the alleged spurious drugs there was a large quantity of literature and merchandise handled which subject the dealers to criminal prosecution. The drugs have been sold under false labels to druggists all over the country in no less than 1,500 drug stores. The attorney for one drug firm, whose drugs have been counterfeited, states that \$100,000 has been spent during the past year in getting evidence against these "drug peddlers." It is expected that an investigation of drug stores in this city will lead to many more arrests.

New Appointments at the College of Physicians and Surgeons.—Dr. Gorham Bacon has been appointed professor of otology; Dr. Joseph A. Blake, professor of surgery; Dr. George E. Brewer, professor of clinical surgery; Dr. Frederick R. Bailey, adjunct professor of normal histology; Dr. James R. Hayden, professor of genito-urinary diseases; Dr. Samuel W. Lambert, professor of applied therapeutics; Dr. Arnold Knapp, professor of ophthalmology; Dr. Eugene Hydenpyl, adjunct professor of pathological anatomy; Dr. Harry McMahon Painter, professor of clinical obstetrics; Dr. Frederick Peterson, clinical professor of psychiatry; Dr. John S. Thacher, professor of clinical medicine; Dr. Francis Carter Wood, adjunct professor of clinical pathology, and Dr. Russell Burton-Opitz, adjunct professor of physiology.

OHIO.

Magnificent Donation.—Dr. Charles E. Slocum, Defiance, has given to the new city library of his home city his private

scientific, historic and reference library and museum, valued at \$25,000.

Mercy Hospital Open.—On October 19 the new Mercy Hospital, Hamilton, erected at a cost of nearly \$125,000, was formally thrown open to the medical profession. Drs. E. Gustav Zinke and David I. Wolfstein, Cincinnati, were the chief speakers.

Resolutions Regarding Dr. Hyndman.—The faculty of the Medical College of Ohio, Cincinnati, at a special meeting passed resolutions expressive of their grief in the death of Dr. James G. Hyndman, of their admiration for his high intelligence, skill and professional attainments, and of their appreciation of his goodness of heart, generosity of soul and sincerity of friendship.

Assistant Physicians Meet.—The Association of Assistant Physicians of the Ohio State Hospitals held its fourth session at Columbus, October 5 and 6. The dietary committee was enlarged so as to include one member from each state hospital, and Dr. Rudolph W. Holmes, Gallipolis, chairman of the special committee chosen to represent the association at the meeting of the Ohio State Medical Association, reported that the latter had passed a resolution indorsing the objects and work of the assistant physicians' organization.

PENNSYLVANIA.

Philadelphia.

Bequests.—By the will of John E. Garrett the Philadelphia Home for Incurables receives \$5,000, and St. Agnes' Hospital, St. Mary's Hospital and the Methodist Hospital \$100 each.

Personal.—Dr. William Pickett was appointed professor of neurology and mental diseases in the Medico-Chirurgical College, succeeding the late Dr. F. Savary Pearce.—Dr. August F. Muller is seriously ill at his home in Germantown.

Honor for Dr. Chapin.—A banquet will be given Dr. John B. Chapin, chief physician of the Pennsylvania Hospital for the Insane, in honor of the fiftieth anniversary of his work among the insane, early in November. He will also be presented with a portrait of himself.

Health Report.—The total number of deaths reported for the last week reached 414. This is an increase of 34 over those of last week and of 27 over the corresponding period of last year. Pneumonia and diseases of the lungs caused the greatest mortality. Acute affections of the lung caused 36 deaths and tuberculosis 45. There was an increase of 20 cases of diphtheria, but a decrease in the other contagious diseases. In all there were 211 cases of contagious disease, with 23 deaths, as compared with 210 cases and 17 deaths the preceding week. One case of smallpox was reported.

Pure Food Indictments.—Twenty indictments for alleged violation of the pure food laws, involving nineteen persons, were found by the grand jury. The offenses named in the indictments were the selling of adulterated meats and milk, and oleomargarin for butter. Efforts are being made by the manufacturers of oleomargarin to have the 10-cent tax rate per pound repealed at the coming session of Congress. Dr. Warren, dairy and food commissioner, asserts that he will endeavor to combat their efforts and have the bill stand. The bill imposes a national tax of 10 cents a pound on colored oleomargarin, much of which has been sold for pure butter.

Railroad Teaches First Aid to Injured.—The Pennsylvania railroad has instituted a system for giving first aid to the injured. The plan includes the equipping of all baggage, mail, express, work and wrecking cars, terminal stations, yard offices, shops and important stations, with stretchers. Locomotives, terminals and important stations will also be provided with medical boxes containing first-aid material. The order also requires all brakemen, conductors, engineers, firemen and station employes to attend lectures by members of the medical staff on first aid. These lectures will be given every week. Dr. E. C. Town began his series of lectures here and classes of 300 and 400 members were instructed. The medical box contains six sterilized packets, each packet containing 1 large triangular bandage, 1 ordinary roller bandage, 2 compresses and 2 safety pins. Lectures were also delivered by Dr. H. W. Pownall to the employes at Altoona October 12.

GENERAL.

Warning Concerning a Fraud.—A physician at Elroy, Wis., has been victimized by a person purporting to be an agent of Schering & Glatz, New York. This person obtained money on

the representation that the firm would send a formalin lamp as a free sample to any physician who would pay the transportation charges. The firm announces that none of their representatives ask for or accept money under any circumstances from the physicians on whom they call and that anyone claiming to be their agent who does so is a fraud.

Panama Sanitation.—In a recent report to the President the Isthmian Canal Commission stated that between 200 and 300 engineers and from 1,000 to 1,200 laborers are engaged in engineering and construction work, and on sewerage and water supply. This number is exclusive of the sanitary force, which numbers over 500 and which is employed in cleaning the isthmus and putting it in good sanitary condition and as nurses and attendants in the hospitals. A reservoir is being constructed in the valley of the upper Rio Grande, which will furnish a minimum supply of 2,000,000 gallons daily for the city of Panama.

Dermatologists to Meet in New York.—The Sixth International Dermatological Congress will meet in New York City in 1907, under the presidency of Dr. James C. White, Boston. The congress of 1904 has just been held in Berlin and the invitation to the congress was extended by committees representing the American Dermatological Association and the Section on Cutaneous Medicine and Surgery of the American Medical Association. The invitation was accepted without objection from anyone and a successful session is anticipated. The committee of the American Dermatological Association was Dr. J. N. Hyde, Chicago, chairman; Dr. H. A. Stelwagon, Philadelphia; Dr. Gilchrist, Baltimore; Dr. J. A. Fordyce, New York City.

CANADA.

Antisanitarium League at Kamloops, B. C.—The proposition to erect a sanitarium for the care and treatment of cases of tuberculosis at Kamloops has resulted in the organization of an antisanitarium league in that thriving British Columbia city. Recently a deputation from the league waited on the provincial secretary opposing the establishing of a sanitarium at Kamloops, with the result that the provincial secretary promised to have the matter brought to the attention of his colleagues.

Appointments.—Dr. R. W. Bruce Smith, assistant physician at the Brockville, Ont., Asylum for the Insane, has been appointed inspector of prisons and public charities in Ontario, succeeding Dr. T. F. Chamberlain, who has resigned owing to ill health.—Dr. J. C. Mitchell of the Toronto Asylum succeeds Dr. Smith at Brockville, and Dr. Harris, at present relieving officer for the public institutions, will succeed Dr. Mitchell.—Dr. J. B. McConnell, Montreal, vice-dean of Bishop's College Medical Faculty, has been elected second vice-president of the College of Physicians and Surgeons of Quebec.—Dr. J. V. Anglin, assistant superintendent at the Protestant Hospital for Insane, at Verdun, Quebec, has been appointed medical superintendent at the Provincial Hospital for Nervous Diseases at St. John, N. B.

FOREIGN.

Cholera at Port Arthur.—A recent cable report states that cholera has appeared at Port Arthur. Up to September 19 there were only a few cases, but fears are entertained that the disease may become epidemic.

Cholera in the Trans-Caspian District.—Several cases of cholera have been reported from Merv, Askhabad, Bokhara and other towns in that region. These places are markets from which large shipments of wool to the United States are made through the port of Batoum.

Cholera in Persia.—A Russian exchange states that 10 per cent. of the population of Teheran has succumbed to cholera. All the papers published there, even the official organ of the government, have suspended publication. Nearly a quarter of a million persons have died from cholera in Persia since the epidemic began.

Decrease in Population of Manila.—A recent report of the board of health of Manila shows that in May, 1904, the deaths outnumbered the births by 146. Fifty-three per cent. of all deaths occurred in children under 1 year of age. On account of the prevalence of smallpox all officers and employes of the civil government were vaccinated.

Honors for Gaffky.—Professor Gaffky, until recently of Giessen, has now assumed charge of the Berlin University Institute for Infectious Diseases, in which he succeeds Robert Koch, his former master and collaborator. The city of Giessen has con-

ferred honorary citizenship on Gafky in token of his services in public health matters during his residence there.

Clinography.—This is the term coined by Professor Pensuti of Rome to express his method of bedside annotations. It is an ingenious system of graphic exposition in a condensed form of the symptoms, temperature and all the pathologic manifestations presented by the patient. Its simplicity and accuracy commend it for general adoption as a saving of time, and Baccelli, Alessandri and other Italian clinicians are already using it.

A Medical Editor Summoned to the Seat of War.—Dr. Rudolf Wanach, the editor of the *St. Petersburger medicinische Wochenschrift*, has left for the far east, and his place has been taken by Dr. E. Blessig. The last number of the weekly contains an article from Dr. Zoega von Manteuffel, dated August 14, written at Liaoyang. Later advices state that he with his "flying column," the field hospital and the 1,400 severely wounded inmates, were obliged to flee before the bombardment not long after, trains being placed at his disposal. The hospital is now settled on the railroad line to the north of Mukden.

Suits Against Physicians in Germany.—The editor of a Frankfurt paper was sued by a physician whom he had accused of "a lack of human kindness." The defendant was acquitted, as the judge decreed that he had established the truth of his statement by proving that the physician had refused to treat a sick housemaid. Another physician, in Cologne, was sued by a "nature healer" on account of the epithet "charlatan" (*Kurpfuscher*), applied to the latter by the former. The judicial decision was to the effect that this term is not necessarily always an insult, but in the case in question there was no doubt that it was such, both subjectively and objectively.

International Congress of Ophthalmology.—The tenth international congress of ophthalmology was held at Lucerne, Switzerland, September 13 to 17. It was opened by the chief executive of the country, who is a physician, Dr. Deucher. He greeted the 500 members on behalf of the state and also of the medical profession. The question as to the amount of indemnity in industrial insurance for the loss of an eye was referred to committees to be appointed in each country, as the conditions vary so widely in different lands. The notation of visual acuity was another subject discussed with great interest, but no final decisions were adopted. The next congress will be held at Naples in 1909.

International Congress of Dermatology.—The fifth triennial international congress of dermatology was held as announced, September 12 to 17, at Berlin, with a large and brilliant attendance. Among the more novel communications was one from Rizzo and Cippolina of Genoa, describing what they believe to be successful serum treatment of syphilis. Twelve patients in the secondary stage, not otherwise treated, recovered under the serotherapy. One patient with a tertiary nasal affection was cured after a dozen injections of serum. The principal addresses are being published in the specialist journals and will be duly abstracted in our current literature department as they appear. The next congress will be held at New York in 1907.

Retirement of the Medical Director of the Berlin Charité.—After eleven years of indefatigable service Dr. Schaper has retired from the medical leadership of the great Berlin Charité. He was also president of the National Public Health Association and served on the boards of several other hospitals. The reconstruction of the Charité has been conducted under his administration and many innovations are due to him which have advanced the progress of medicine. He has been connected with the Charité in some capacity for thirty-three years, and has written its history. In the management of their cities and hospitals the Germans certainly represent an unattainable ideal for countries under the dominance of the ward politician.

Disinfection of Public Library Books.—In its paternal care of the public health in every respect, except in protecting the public against quacks, the Prussian government has been debating the question of disinfection of public library books. No case of the transmission of tuberculosis to healthy subjects from such books is known, and as authorities differ in respect to the danger of infection from this source, and as it is so difficult and expensive to disinfect books thoroughly, the authorities have decided not to attempt it. All worn and soiled books will be withdrawn from circulation as soon as possible, but no disinfecting measures will be used, although the tests at the Institute for Infectious Diseases showed virulent tubercle bacilli on many books in use over two years.

Finsen's Funeral.—From the remote, icebound solitude and poverty of Iceland and the Faroe Islands to a crowded funeral

at 43, in one of the capitals of Europe, at which the mourners were crowned heads and an army of grateful patients—Finsen's career reads like a romance. His funeral was an imposing public ceremony, attended by the kings of Denmark and Greece, the queen of England, Prince Henry of Prussia as the representative of Kaiser Wilhelm, and numerous other princes and their representatives. The king of England was duly represented and sent an autograph letter of condolence to Finsen's widow. Queen Alexandra attended in person. The entire cabinet attended in a body with other high dignitaries, and the delegates from medical and scientific societies could scarcely be numbered.

Discrimination Against Young Candidates for the German Sanatoriums.—We learn that the great model sanatorium at Beelitz has found it impossible to keep the younger inmates from flirting. In spite of the restrictions and the segregation of the sexes, the young men and women found opportunities to meet, and their frivolity not only interfered with their own progress toward recovery, but annoyed the other inmates. Consequently the officials announce that as the applicants always far outnumber the places at their disposal, in future all below a certain age will be rejected. They base this measure on the grounds that there is much greater probability of a cure for an older than for a young person. Another sanatorium has reserved a department for young subjects, but this by no means supplies the demand.

Luacy in New Zealand.—In the annual report of the inspector of hospitals and lunatic asylums it is stated that in 1903 one person in every 284 of the population, exclusive of Maoris, was registered as afflicted with luacy; while in 1900 only one person in every 288, exclusive of Maoris, was so registered. This increase is not so great as during any recently preceding same number of years. In the final quarter of the nineteenth century the insane rate of the colony increased from 20 to over 32 in each 10,000 of the population, fully 60 per cent. The New Zealand reports give side by side the records of Europeans and natives. It is thus shown that the Maori is much less subject to insanity than the European. The comparative immunity of the natives is sufficient to reduce the rate for the total population of 850,000, to one in 296. The total cost for each patient for a year averages £30 (£150); the cost, less receipts, is only £17 (\$85).

Yellow Fever in Brazil.—Yellow fever is endemic in Para, Brazil, but not a single case has occurred in the interior of the state, the disease being strictly limited to the city of Para. Foreigners and, in general, new arrivals in the city form the greater number of victims. This is attributed to the complete neglect on their part of the proper prophylactic and hygienic measures supplemented by such imprudences as exposure to drafts while perspiring freely and drinking large quantities of iced beer. The *Stegomyia fasciata*, or so-called yellow fever mosquito, bites in the daytime and is attracted by the odor of human perspiration. As the mosquitoes with which strangers are familiar usually bite at night, they are not prepared for the attack of the stegomyia and merely complain of the inconvenience. They object to the use of mosquito netting during the daily siesta in complete ignorance of the danger incurred by not using it.

International Congress of Otology.—The seventh international congress of otology was held at Bordeaux in August. Politzer, Gradenigo and Delsaux presented a committee report on a formula for acumatic notation, but the matter was finally referred to the next congress, which will be held at Budapest in 1908. The Lenval prize was divided between Gellé of Ypres and Alexander of Politzer's clinic at Vienna. Delie of Ypres reported a dozen cases of neurosis to show the evil effects of the abuse of tobacco on the auditory nerve. Lermoyez and Bellin described 2 cases of acute otogenic meningitis treated by craniotomy and lumbar punctures (See page 924). The improvement was marked and permanent under these measures. E. J. Moure of Bordeaux was the president of the congress, and a full report was promptly published in his *Revue Hebdomadaire de Laryngologie*, Nos. 34 to 37. A number of Americans took a prominent part in the proceedings, including Dench, Knapp and Snow.

Hygienic Measures in France.—When the children reassembled this fall in the schools of France they found that china tablets had been placed on the walls giving various hygienic rules, especially cautioning against spitting on the floor. In the upper grades each pupil is expected to be weighed every quarter and the height and chest measure taken. A health record chart is given to each child, the chart accompanying him

from class to class and year to year. Similar rules are now enforced in the army. The men are to be weighed at certain intervals and those showing stationary or declining weight are kept under supervision and appropriate measures instituted, being temporarily dismissed from the service on suspicion of tuberculosis. The postoffice authorities have abolished dry sweeping and dusting. The floors must be swept with damp sawdust daily and wiped with 2 per cent. lysol once a week. A German exchange comments on these various measures that France is certainly taking the lead in civilization.

First Congress of the International Surgical Association.—The first congress of this new organization is to be held at Brussels in September, 1905. Prof. T. Kocher of Berne will preside, and it is announced that the discussions will be restricted solely to the six questions on the order of the day. W. W. Keen makes the first address, with Sonnenburg of Berlin, de la Torre of Madrid and Depage of Brussels, on the theme: "Value of the Blood Count for Surgery." The second question is "Treatment of Hypertrophied Prostate," with addresses by R. Harrison, Rovsing of Copenhagen and v. Rydysgier of Lemberg. The third theme is "Surgical Intervention in Non-Cancerous Stomach Affections," with addresses by Mayo Robson, von Eiselsberg, Mattoli, Montprout of Angers, Rotgans of Amsterdam and Jonnesco of Bucharest. The fourth subject is "Treatment of Tuberculosis of the Joints," with addresses by Bier of Bonn, Broca of Paris, Bradford of Boston, Codivilla of Bologna, and Willems of Ghent. The "Treatment of Peritonitis" will be presented by Lemander of Upsala, Friedrich of Leipzig, Lejars of Paris, McCosh of New York, Krogius of Helsingfors and de Isla of Madrid. The final theme is "Diagnosis of Surgical Renal Affections," with addresses by Albarran of Paris, Kummel of Hamburg, Giordano of Venice and Lambotte of Brussels. All communications for the congress and inquiries should be addressed to Dr. C. Willems, 6 Place St. Michel, Ghent.

Lead Poisoning from Wall Paper.—Professor Lefour of Bordeaux had occasion to treat a pregnant woman for obstinate intestinal colics and constipation, with the death of the fetus just before the seventh month. The husband also presented intestinal symptoms. Both husband and wife were previously healthy, and occupied a house which had been recently renovated and papered, the papers selected in Paris, Bordeaux and London with great care. After the abortion they traveled for a few months, both in good health, but as soon as they settled down again at home the symptoms reappeared. The idea finally occurred to the physician that the golden yellow velours paper on the wall might be the source of the trouble, and, in fact, 1.5 gm. of lead were found in each square yard. The paper in the adjoining rooms contained about one-third of this proportion of lead. Tests of eleven other papers from the stores showed from 1.2 to 7.68 gm. of lead per square meter in nine of the papers and copper in the others. The largest proportion of lead was found in the velvety style of papers. He does not hesitate to ascribe the death of the fetus and the illness of the parents to lead poisoning, and is confident that it is much more frequent than generally supposed. As lead poisoning has such a pernicious action on a pregnancy, he publishes his report in the *Obstétrique* for September to call the attention of obstetricians to the matter.

LONDON LETTER.

Contamination of the Atmosphere of Rooms by the Saliva.

The report of the medical officer of the local government board, which has just been published, contains a report by Dr. Mervyn Gordon on the contamination of the atmosphere of inhabited rooms by coughing, sneezing, singing and speaking, by which drops of mucus and saliva, impregnated with the bacteria of the mouth and air passages, and occasionally pathogenic microbes, are disseminated. He first examined the saliva of healthy persons to ascertain what microbes are most abundant therein and whether any bacterium by its abundance and constancy is to be regarded as characteristic of human saliva. He found that streptococci of various descriptions are very abundant and that the streptococcus brevis is commonly present to the amount of at least 10,000,000 to the cubic centimeter, and is readily detectable by the changes of color it produces on culture media. He found that minute quantities of saliva can be recognized by the presence of this streptococcus, and applied these facts in ascertaining the effects of loud speaking in disseminating droplets of saliva. He ascertained by means of Petri dishes charged with nutrient broth and set about the room that before "oration" the air did not contain

the streptococcus brevis nor other salivary streptococci in suspension. Then by similar distribution of culture media during and immediately after "oration" by a series of speakers he showed that droplets of saliva were disseminated throughout the air to a distance of 40 feet from the speakers. In this method of identifying the droplets Dr. Gordon has discovered a gauge of air contamination by people which may ultimately prove to be of great practical importance and far more trustworthy than the tests of mere gaseous impurity or of excess of CO₂ which has hitherto been relied on.

Professor Osler's Appointment to the Chair of Medicine at Oxford.

Professor Osler's appointment is received on all sides with the greatest satisfaction. The Oxford Medical School had fallen into decadence, from which it has begun to recover. This was due principally through the untiring efforts of the late Professor Acland, a predecessor of Professor Osler in the chair of medicine. In recent years the school has made great progress. But the appointment of Professor Osler is recognized as an impulse to its development the extent of which is difficult to exaggerate and which could have been obtained in no other manner. His almost unique combination of the highest qualities of the clinician and the scholar, his literary ability and his merits as a teacher have long been appreciated in this country, and peculiarly fit him for the chair, rendering him a worthy rival of the professor of medicine in the sister university of Cambridge, Dr. Clifford Allbutt, whose literary powers stand quite alone amongst the physicians of this country. The universal verdict is that the appointment is our gain and America's loss.

Trypanosomiasis.

The Liverpool School of Tropical Medicine has just issued an important series of reports on trypanosomiasis. The discovery of trypanosomes in the cerebrospinal fluid of cases of sleeping sickness by the commission of the Royal Society has previously been reported in *THE JOURNAL*. In 1901 Dr. J. E. Dutton while working in Gambia on one of the many expeditions sent out by the Liverpool School of Tropical Medicine for the investigation of tropical diseases, discovered trypanosomes in the blood of a European. In consequence an expedition consisting of Drs. Todd and Dutton was sent in 1902 by the school to Senegambia to prosecute further researches in trypanosomiasis. A valuable report was published in 1903 and contained the pathogenic trypanosomata of man and animals, with a description of several new species. Before the return of this expedition the discovery of trypanosomes in the cerebrospinal fluid of cases of sleeping sickness in Uganda caused the subject to assume great importance. In the Congo Free State the native population has from time to time suffered from fatal epidemics of the disease. The king of the Belgians, therefore, in 1902 sent an invitation to the school to send an expedition to that country. Drs. Todd and Dutton were recalled from Senegambia and left for the Congo in 1903, where they were joined by Dr. Christy, who had previously served on the Royal Society's commission in Uganda. A special hospital was erected by the state and facilities given for the study of a large number of patients. The results of the investigations are incorporated in the volume now issued. They show the distribution of sleeping sickness, trypanosomiasis, the symptoms in all stages, in both Europeans and natives, and the relation of sleeping sickness to trypanosomiasis. At the same time the school resolved to continue in Liverpool the researches began by Drs. Dutton and Todd in Gambia. Dr. Thomas was appointed to conduct the work, with the assistance of Dr. Linton. The two groups of observers have throughout worked together, and in order that comparable data might be obtained selected cases of sleeping sickness were, by permission of the Congo authorities, sent to Liverpool. Numerous observations show that the parasite identified with sleeping sickness in Uganda and the Congo does not differ from that described by Dr. Dutton in Gambia. The therapeutics receives considerable attention and experiments are in progress with a view to finding a remedy which may be as efficient as quinin is in ague. A variety of drugs has been used with more or less success. So far arsenic and trypan red appear to be the most useful. Under their administration the parasite disappears from the blood for a time and the life of the animal is prolonged, but a cure has not been obtained. A combination of the two appears to give the best results. A large number of animals infected with different trypanosomes is under treatment. The report seems to show conclusively that sleeping sickness is trypanosomiasis, although there are

severe and fatal cases of the latter disease in which somnolence does not occur. The symptoms and danger appear to bear some relation to the greater or less abundance of the parasites and to become more serious when these have gained access to the cerebrospinal fluid. The parasites may be present in the blood of deeply-seated organs when they are not discoverable in that drawn from a surface puncture. Their frequent temporary disappearance from the surface blood renders it difficult to be sure of their absence from the system. One of the most curious results of the expedition is the discovery of a blood-sucking larvæ of nocturnal habits which is abundant in many parts of the Congo and during the day is concealed in the cracks of the native floors, from which it may be dug out full of bright red blood, showing the abundance of its previous night's meal. It is the larvæ of the *Glossina* fly, which appears to be harmless in the imago stage.

The Institute of Hygiene.

The Institute of Hygiene which has been founded is a new department. The object is to advance various branches of popular teaching in hygienic matters and the first step has been the establishment of a permanent exhibition of hygienic products and appliances. It is in charge of a physician, who explains the character of the various exhibits. It has been opened by Sir Joseph Fayrer, who stated that it had been founded under the auspices of a medical council and pointed out that the permanent exhibition of hygienic products and appliances will be of advantage to doctors and others interested in hygiene by demonstrating the progress made in the various departments of manufacture auxiliary to their work. The value of every exhibit is investigated by an examining board and only those of high standard are admitted. It is recognized that any exhibit passed by the board may be used and recommended by doctors. A certificate is granted to exhibitors which constitutes a valuable award of merit. The exhibition is intended, 1, to supply medical men with practical information so as to enable them to keep abreast of the times in regard to the value and progress made in the various manufactured products and articles which affect health; 2, to supply nurses with useful knowledge in regard to products and appliances required by invalids; 3, to supply the general public and especially the large and increasing number who are interested in dietetics, clothing, appliances and articles affecting the health of the person or home with authoritative information as to their value and use. The exhibition is situated in Devonshire Street, Harley Street, in the heart of the medical center of London.

Marriages.

E. S. FITZMAURICE, M.D., Mohall, N. D., to Miss Alice Bryant of Chicago.

D. C. MARTIN, M.D., to Miss Annie E. Payne, at Stewartstown, Pa., October 5.

JOHN COLLISON JOYCE, M.D., to Miss M. Amy Knight, at Baltimore, October 4.

JESSE E. HERBERT, M.D., to Miss Claudia Rice, at Berkeley Springs, W. Va., October 12.

HARRY NORBERT McDEVITT, M.D., to Miss Isabel Carey Smith, at Baltimore, October 10.

C. NAEMANN McCloud, M.D., to Miss Agatha De Lambert, both of St. Paul, Minn., October 18.

GEORGE W. LAUTERBACH, M.D., to Miss Mary Alberta Heckman, both of Baltimore, October 18.

ALBERT B. CRAIG, M.D., Philadelphia, to Miss Frances Boyd Foster of Newton, Mass., October 12.

WILLIAM T. KIRBY, M.D., Chicago, to Miss Margaret Loretta Durkin of Waukegan, Ill., October 19.

THOMAS EDWARD SAMPLE, M.D., Crete, Neb., to Miss Christine Tuckey of Omaha, Neb., October 5.

CLARENCE T. HUTCHINS, M.D., to Miss Annette Elizabeth Northam, at Solomons, Md., October 11.

MARSHALL B. WEST, M.D., Catonsville, Md., to Miss Anne Evans Breeze, at Baltimore, October 11.

W. BRUCE GLOTFELTY, M.D., Sharpsburg, Pa., to Miss Edna Anna Hay, at Hagerstown, Md., October 5.

JOSEPH COLES BRICK, M.D., Philadelphia, to Miss Laura Brooke Clingan of Birdsboro, Pa., October 1.

LYLBURN HALL BEWLEY, M.D., Atlantic City, N. J., to Miss Bertha Bellis of Philadelphia, Pa., October 6.

H. F. TAYLOR, M.D., Ridley Park, Pa., to Miss Katherine Grace Manly of West Chester, Pa., October 12.

NATHAN WINSLOW, M.D., Baltimore, to Miss Margaret Kable Massey, at Sandy Spring, Md., October 5.

CHARLES SELLMAN McCOLLUM, M.D., to Miss Marie Elizabeth Turlington, both of Baltimore, at Wilmington, Del., June 8.

Deaths.

Richard Henry Thomas, M.D. University of Maryland Medical Department, Baltimore, 1875, dean and professor of diseases of the throat, nose and chest of the Woman's Medical College, Baltimore, also a prominent minister of the orthodox Society of Friends, son of the late Prof. R. H. Thomas, M.D., of the University of Maryland, died at his home in Baltimore, October 3, from chronic valvular disease of the heart, after an illness of eight months, aged 51.

Edgar D. Carr, M.D. Rush Medical College, Chicago, 1887, a member of the American Medical Association, and of the Decatur Medical Society, one of the most prominent physicians of Macon County, Ill., was found dead in bed from heart disease at his home in Argenta, October 11.

Gerhard Heinrich Eiskamp, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1892, a member of the American Medical Association, formerly a lecturer in his alma mater, died at his home in Washington, Iowa, October 9, from Bright's disease, aged 49.

Edward J. Belt, M.D. Harvard University Medical School, Boston, 1900, while delirious after a prolonged spree, shot and seriously wounded two of his friends, and then committed suicide by taking carbolic acid in his rooms in Springfield, Mass., October 8, aged 29.

Albert E. Mallory, M.D. McGill University Medical Department, Montreal, 1872, registrar of East Northumberland for 16 years and member of Parliament for Northumberland, died at his home in Calborne, Ont., October 4, after an illness of three days.

Thomas Devereux Hogg, M.D. Jefferson Medical College, Philadelphia, 1847, one of the oldest and most respected physicians of Raleigh, N. C., was run over by a locomotive near his home, September 30, and instantly killed, aged 80.

Upton Heath Belt, M.D. University of Maryland, Baltimore, 1850, of a Baltimore family, but a resident abroad for a great many years, died at Leghorn, Italy, October 15.

William Bishop, M.D. Howard University Medical Department, Washington, D. C., 1875, died from consumption, October 6, at his home in Annapolis, Md., aged 60.

Charles E. Elliott, M.D. Charity Hospital Medical College, Cleveland, 1869, died at the home of his son in Wellington, Kan., October 8, from consumption, aged 70.

William Wilmot Estabrook, M.D. Pennsylvania Medical College, Philadelphia, 1847, clergyman and surgeon, died at his home in Chicago, October 10, aged 77.

Rabin A. Burge, M.D. Medical College of Georgia, Augusta, 1902, of Graves, Ga., died in Brooksville, Fla., October 6, from typho-malarial fever.

Robert H. Daintree, M.D. Pennsylvania, 1875, died at his home in Lewiston, Maine, October 3, after a short illness, aged 53.

Isaac Newton Hugg, M.D. Philadelphia, 1869, died at his home in Camden, N. J., from uremia, October 15, aged 64.

William Hunn, M.D. University of Louisville, Ky., 1856, died at his home in Hustonville, Ky., aged 73.

Edward G. Nelson, M.D., died at his home in Baltimore, October 6, aged 57.

Deaths Abroad.

T. Carbone, M.D., professor of pathologic anatomy at Pisa, succumbed September 7 to the effects of a scarlet fever received at the necropsy of a subject with Malta fever.

A. Gombault, M.D., died at Ivry, September 20, aged 60. Although the name of Gombault is scarcely known outside of France, yet to him science owes some of its most important advances in the last quarter century. He was a specialist in pathologic anatomy and histology, but remained all his life an

enthusiastic laboratory worker and teacher, publishing very little over his own name. To his researches Charcot, Hanot, Debove and others owed the scientific basis for most of their brilliant work.

Book Notices.

THE CLINICAL STUDY OF BLOOD PRESSURE. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetrical Practice, with a Summary of the Experimental and Clinical Facts Relating to the Blood Pressure in Health and in Disease. By Theodore C. Janeway, M.D., Lecturer in Medical Diagnosis, University and Bellevue Hospital Medical College. Seventy-five illustrations in the Text in Many Colors. Cloth. Pp. 300. Price, \$3.00. New York and London: D. Appleton & Co. 1904.

Dr. Janeway's book on the clinical study of blood pressure is the first complete work on this subject. As the study of blood pressure outside the laboratory is rather new and the interest in it is rapidly increasing, this work is an important contribution to American medical literature. The book is divided into three parts: physiological, technical and clinical. In the first part the author discusses blood pressure in the normal man. He gives the general features of arterial circulation, the factors which determine blood pressure and the various elements influencing it. This chapter is especially valuable in showing how to recognize normal variations in blood pressure, a knowledge essential to the interpretation of blood pressure readings under pathologic conditions. In the chapter on technique, the author gives the development of the sphygmomanometer. He describes each of the modern instruments, giving the method of use, advantages, defects, maker and cost. Part three is devoted to the clinical side of the subject. The first chapter consists of a discussion of blood pressure in the normal man, followed by the blood pressure findings in diseases—medical, surgical and obstetric. Added clearness is given the subject by numerous cuts, diagrams, tracings and charts. The literature is carefully reviewed and all of the scattered facts on this subject are collected in a manner most convenient for reference. This book can not but impress one with the value of blood pressure determinations. It will doubtless be an incentive to the physician to make more use of the sphygmomanometer at the same time, as it will aid him to employ it in an intelligent manner.

MANUAL OF MATERIA MEDICA AND PHARMACY. Specially Designed for the Use of Practitioners and Medical, Pharmaceutical, Dental and Veterinary Students. By E. Stanton Mair, Ph.G., V.M.D., Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third Edition, Revised and Enlarged. Cloth. Pp. 192. Price, \$2.00 net. Philadelphia: F. A. Davis Company.

This book is interled primarily for the use of students, and as such will serve a useful purpose, although it has too many shortcomings to make it useful for the general practitioner. The general considerations which precede the part on materia medica are so short and "general" that it would have been better to have omitted them entirely. In order to understand this portion of the book, it is necessary for the student to consult a larger work or to have a previous knowledge of the subject. The author speaks of materia medica as consisting of four distinct divisions—materia medica proper, pharmacy, pharmacology and therapeutics. No mention is made of pharmacognosy nor of pharmacodynamics. We believe that all these should be classed as subdivisions of pharmacology, the term materia medica being more or less obsolete as applied to the whole subject. The text of the book is brief and concise, such as one would expect to find in a quiz-compend, and not in a work which is intended to be used as a textbook. Part III, which comprises about one-third of the book, is devoted exclusively to pharmacy. The book is interleaved, a very commendable feature, and one which will be appreciated by the student. For purposes of review or for use in conjunction with a larger book, the book will be found satisfactory.

THE PURIN BODIES OF FOODSTUFFS AND THE RÔLE OF URIC ACID IN HEALTH AND DISEASE. By I. Walker Hall, M.D., Assistant Lecturer and Demonstrator in Pathology, the Owens College. Second Edition, Revised. Cloth. Pp. 201-xiii. Price, \$1.50 net. Philadelphia: F. Blakiston's Son & Co. 1904.

This work gives the results of a painstaking study of the exogenous and endogenous purin bodies. The material is pre-

sented in such a manner as to be directly useful to the physician, especially from the point of view of dietetics. Here are given tables showing the amount of purin bodies in many foodstuffs, so that it becomes possible to determine the amount of endogenous urinary purin in many diseases. To facilitate accurate work in this line, a purinometer is described. A chapter is devoted to the study of the effects of daily injections of purin bodies in rabbits whose growth was hindered thereby at the same time as changes occurred in the liver and kidney and in the cellular relations in the blood and marrow. The book may be recommended to all physicians who desire to know the plain facts, so far as they have been unearthed, in regard to the relation between uric acid and food.

BERI-BERI. Its Symptoms and Symptomatic Treatment. An Essay Printed by the Board of Trinity College, Dublin, for the Author. By Percy Netterville Gerrard, B.A., B.Ch., B.A.O., M.D., Dublin University. Cloth. Pp. 95. Price, \$1.00. London: J. & A. Churchill. Philadelphia: F. Blakiston's Son & Co. 1904.

This little book contains nothing new concerning beri-beri, unless it be the statistical proof that other forms of treatment than the purely symptomatic are prejudicial. Those cases recover most rapidly that receive no other treatment than such as may be given for special symptoms. The arrangement of the matter in the book is peculiar. The great personal experience of the author should guarantee a reliable and complete clinical description of the disease.

Miscellany.

Serum Treatment of Whooping Cough.—M. Manicattide of Jassy asserts that a bacillus which he isolated from 83 cases of whooping cough is the true causal germ. He calls it the Z bacillus, and states that it is agglutinated by serum from whooping-cough subjects. He announces further in the *Zeitschrift f. Hygiene*, XLV, No. 5, 1903, that serum treatment is proving effectual.

Employ the Councilor.—The *Journal of the Kansas Medical Society*, asks: "Is the feeling among the physicians in your town unsatisfactory? Is there underbidding? Slander? Do the newspapers print all sorts of fakir advertisements and despise their 'home doctors'?" It advises, in case such conditions prevail, that the councilor for the district be informed of the state of affairs and his aid asked.

Paraplague Bacilli.—R. O. Neumann has isolated from rats at Hamburg a bacillus which closely resembles the plague bacillus both in shape and behavior; the pathologic findings are also closely similar to those of true plague. He describes it in detail in the *Zeitschrift f. Hygiene*, XLV, No. 5, 1903. It differs from the plague bacillus in the vital points that it can be injected with impunity subcutaneously or into the peritoneum of rats, but the smallest scrap of infectious material aspirated into the lungs is fatal. Agglutination tests were negative. These bacteria are capable of causing much confusion in the diagnosis of the plague.

The Parboiling Baths of the Japanese.—The newspaper correspondents have had much to say of the way in which the Japanese take their daily baths—"at a certain hour every day the entire nation is parboiled." There are a number of hot springs which are great resorts. The *Gaz. Méd. de Paris* describes those of Kusatsu, where the mineral waters have a temperature of 123 F., but are cooled down to 119 F. in the tanks. At the approach of the bathing hour a trumpet call summons the bathers, and they flock to the tanks in groups of 15 or 20, each group under the supervision of a bathing master. Each bather wets his head before stepping into the water, and the bathing master starts a song, calling out the minutes from time to time, until he announces that time is up, when all hasten out of the hot water. At another resort the waters are still hotter and are utilized for steam baths. On emerging from the steam room the bathers run across the street and plunge into a tank of cold water. The daily hot bath is usually taken in water heated with a charcoal burner placed in the water. This, with the frequent drinking of tea and large amounts of

water, is assumed to be the reason why arthritis and gout are so rare in Japan. The Japanese are said to recognize a European or other foreigner by the odor alone. Their houses are not built for cold weather, and the small portable charcoal heaters used are not able to take the chill out of the rooms. But the people shiver and bear the cold with their characteristic equanimity, although outraged Nature often punishes them with respiratory affections. This helplessness in respect to cold is liable to prove an important factor in the campaign in Manchuria during the winter, as the climate is much severer than that of Japan.

Indexing of Current Medical Literature.—Professor Huchard of Paris writes to the editor of the now defunct *Bibliographia Medica* to the effect that an index exclusively of titles is of no earthly use, not even for research work, as no one is able to sift the valuable from the worthless by the titles of the articles alone. An expensive publication giving merely the titles will never succeed. "You can have confidence in my long experience as a medical journalist," he adds. "What is needed is a journal costing about \$5 to \$6 a year, which gives summaries of all the important articles and merely the titles of the others. *In hoc signo vinces.*" Prof. H. Huchard was the founder and editor of the *Revue Clinique et Thérapeutique* and of the *Journal des Praticiens*, both able French journals, and has recently been "medaled" by his friends, as mentioned on page 617. The occasion was the completion of his great work on the pathology of the heart, and his promotion in the Legion of Honor.

Massage Cure for Obesity.—Ziegelroth proclaims in the *Archiv f. physikalisch-diätetische Therapie*, vi, No. 1, 1904, (according to an abstract in the *Allg. Med. Ct.-Ztg.*), that obesity will vanish like snow in the March sunshine if treated by appropriate massage. He ascribes the painfulness in certain cases of adipositas to direct compression of the sensory nerves by the masses of fat, and also by the serous impregnation of the tissues. Every obese subject suffers from actual dropsy of the tissues. In all probability the lymphatics which should carry off the surplus serous fluids are mechanically occluded by the masses of fat. The passages become impermeable and the circulation is more or less completely arrested. Besides these factors the heart action is usually more or less compromised in abnormally fat persons. The best means of combating obesity, adipositas dolorosa and cardiac incompetency from this cause is energetic massage. The obesity subsides like magic under it, probably because the local dropsy is thus relieved. The best evidence of this is the increased secretion of urine. The massage has also direct action on the masses of fat which are generally more or less empty of blood. Energetic massage induces a copious supply of blood through them. The pallid, cool masses of fat become warm and pink under the massage, local metabolism is promoted and the fat disintegrates and is absorbed. Large folds of fat on the abdomen should be taken up and squeezed, crushed, kneaded and pounded, but all without injury to the organs beneath. The best way is to take up a large fold and pound it horizontally with the other hand, remembering always that the organs below must not be disturbed. Less caution is required in massaging the thighs, hips, etc. In massaging the face the cosmetic results must be borne in mind and the lost tonus of the subderma be stimulated to avoid formation of wrinkles. Daily stroking massage is preferable here and the autovibrator may be found useful, but for double chin and similar accumulations of fat energetic squeezing and kneading is more rapidly effective.

Habit Pains.—Physicians are sometimes consulted by patients on account of a pain which recurs at a given day and hour, or at variable intervals but for some given trivial inciting cause. In both cases the pain seems to have become a habit. The pain recurs as a habit at a certain hour or in connection with a certain act or sight. Brissaud presented a communication on the subject at a recent medical congress, relating seven cases from his own experience to show the peculiarities of these *douleurs d'habitude*, as he calls them. His article is reproduced in the *Progrès Méd.*, xix, No. 2. He believes that the

subjects are victims of an actual obsession, a hallucination of pain when in reality there is no pain. As it is a subjective phenomenon, physicians are apt to accuse the subjects of a habit of complaining rather than a habit of actual pain. As these habit pains may be the only symptoms of ignored hysteria or neurasthenia, the differential diagnosis of these two conditions is frequently difficult. When material phenomena, vomiting, vertigo, spasms or visceral congestion demonstrate the actuality of the attack the physician must not be misled into treating the supposed organic origin. The narcotics alone are effectual unless the evil is of long standing. If it is, then psychotherapy is the only resource, for these habit pains are a manifestation of mental pathology. In 3 of his cases the nightly periodicity of the pain was a striking feature, suggesting what he has previously described as "nocturnal paroxysmal anguish"; the anguish sensation usually accompanied the habit pains. One patient was cured by opium, another by an emotion, interrupting the rhythm of the habit. In one case the pain recurred at 2 a. m. every night, always in the left leg from the calf to the toes, and lasted an hour, without any cramp contracture. In other cases the pain was in the trunk, head or neck. In one instance writer's cramp recurred whenever the subject tried to write, and always with the anguish sensation which distinguishes these habit pains.

Medical Missionary Work in China.—The prospectus has been received of the medical college recently opened in Canton, South China, under the auspices of the Medical Missionary Society (undenominational) in connection with the hospital at that place. The Chinese language is the medium of instruction used, and before entering the college students must present evidence of a good Chinese education and must be physically sound. The course consists of didactic and clinical lectures, graded for a period of four years. Each student, during the course, must spend periods of time, aggregating not less than one year in active hospital work. Dr. John M. Swan, surgeon in charge, has sent the last yearly report of the Canton Hospital, which shows it to be well equipped for the performance of successful surgical work, including x-ray and other electrical appliances. During the year 1,374 operations were performed on men and 1,127 on women. The operations on women included the following obstetric procedures: Craniotomies, 20; forceps deliveries, 57; operations for retained placenta, 19; transverse presentations (version and forceps), 28; perineorrhaphies, 20. Seven ovarian cysts were removed and amputation of the breast, with removal of the axillary glands for carcinoma, was done 21 times. One man was operated on for appendicitis. Seventy eye operations of various kinds were performed on men and 252 on women. There were 72 deaths during the year, 55 men and 17 women. The society announces that two additional foreign physicians are urgently needed for the work of the college and hospital combined. Apparatus, furniture and appliances, costing approximately \$5,000 are needed at once. Scholarships, costing \$300, are necessary for worthy students, who can take the course only in this way. An additional building, to be used largely for dormitories and costing about \$15,000, is also needed.

CLIPPINGS FROM LAY EXCHANGES.

GLYCOHEMIA.

In an advertisement of a much-exploited patent medicine, the following testimonial appears:

"It is with pleasure that I write this testimonial in behalf of my daughter, Lillian, who was very sick. Our doctors said her blood had turned to sugar at the critical time of womanhood. She could not walk or stand, but had to lie in bed almost all day for five long months. Our doctor did all he could for her, but she got worse all along. I was anxious about her; in fact, all our family were almost crazy to think she would die so young.

"I had heard and read so much of Dr. —'s blood and nerve remedy that I went and got a bottle. On the second day I saw an improvement in her condition. I was overjoyed and kept on and got another bottle, and when the second bottle was used she apparently came back to life."

REMOVED INSIDE OF EYEBALL—WHAT AN ABSCESS MAY CAUSE.

"Drs. — and — removed the inside of the ball of the left eye of the little . . . son of Billy — and wife the same being caused by an abscess forming on the eye."—*Anderson (Ind.) Herald*, April 21, 1904.

WHAT MILLIONAIRES CAN HAVE—OIA-PED-ES.

"—, . . . worth several millions of dollars, . . . came here . . . to recover from an attack of diabetes in the right foot."—*Atlantic Review*, Atlantic City, N. J., June 10, 1904.

FOR FURTHER PARTICULARS CONSULT HANDBILLS.

"NOTICE.—Dr. —, Dentist, — building, — and — streets, has returned from the bedside of his mother, who was ill, and is again ready to attend to the wants of his patrons."—*Johnston Democrat*, advertising columns.

READERS MAY TAKE THEIR CHANCE.

"At an early hour this morning — was resting fairly well, but was very restless."—*Johnston Democrat*, Aug. 20, 1903.

CARRY A PAINFUL WITH YOU.

"—, medical superintendent of the — School of Psychology, . . . proceeds to say: ' . . . in the treatment of acute or chronic appendicitis, it is best to take [water] . . . in small quantities, but [it] . . . should be taken frequently—say a good mouthful every five or ten minutes during the day.'"—*Seattle (Wash.) Times*, July 31, 1904.

TOO MANY (PTOMAINE) JOLTS FOR THE MILK.

"MILK POISONED BY JOLT.—Dr. —, secretary of the — State Board of Health, has completed his investigation into the cause of the ptomaine poisoning of . . . thirty . . . persons. . . . Dr. — is . . . convinced that the jolting of the milk over the road before it had been cooled produced a chemical action which introduced the poisonous properties into the milk."—*Doylstown (Pa.) Republican*, Aug. 4, 1904.

WHICH AIR CELL?

"—, . . . suffered two broken ribs and punctured an air cell of one of his lungs in a collision. . . . The doctor said the rupture of the air-cell is likely to induce pneumonia."—*Stamford (Conn.) Advocate*, July 28, 1904.

APPENDICITIS IN THE BOWELS OF A SHIP.

"Ship's Surgeon —, . . . diagnosed the case as appendicitis. . . . With none of the modern appliances of a surgical operating room, on board an ocean liner, deep in the bowels of the ship . . . these three skilled and daring surgeons set about to relieve the sufferings of a poor workman. . . . Without doubt the past annals of surgery can not show a more unique and daring operation."—*Burlington (Vt.) Free Press*, Aug. 17, 1904.

The Public Service.**Army Changes.**

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending Oct. 15, 1904:

De Witt, W., asst.-surgeon, leave of absence extended fourteen days.

Held, Peter C., asst.-surgeon, leave of absence extended fifteen days.

Wakeman, W. J., surgeon, granted leave of absence for ten days.

Wilson, J. S., asst. surgeon, ordered to accompany Fifteenth Cavalry from Fort Myer, Va., to Fort Ethan Allen, Vt.

Hoff, John Van R., deputy surgeon general, left post Fort Leavenworth, Kan., on seven days' leave of absence.

Craig, C. F., asst.-surgeon, having reported to the military secretary is ordered to return to his proper station, Presidio of San Francisco.

Duval, D. E., asst.-surgeon, granted leave of absence for fifteen days.

Waddell, Ralph W., contract dental surgeon, granted leave of absence for three months from Fort Leavenworth, Kan.

Van Kirk, Harry H., contract surgeon, granted leave of absence for one month from Fort Sill, Okla.

Wythe, Stephen, contract surgeon, left the transport *Buford* October 10 on leave of absence for two months.

Jenkins, Frederick E., contract surgeon, granted leave of absence from Fort Barrancas, Fla., for two months.

Brown, Henry D., contract surgeon, granted leave of absence for two months from Fort Ward, Wash.

Burke, S., contract dental surgeon, ordered from Fort Hancock, N. J., to Fort Slooem, New York, for two months' duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Oct. 15, 1904:

Cole, H. W., Jr., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant, junior grade, from Oct. 5, 1904.

Cowan, J., dentist, retired, ordered to the Naval Hospital, Fort Royal, S. C., for duty.

Smith, H. W., and Clifford, A. C., asst.-surgeons, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Oct. 12, 1904:

Stoner, G. W., surgeon, leave of absence for eight days from Sept. 19, 1904, under Paragraph 189 of the regulations, amended to read seven days only.

Wertenhaker, C. P., surgeon, granted leave of absence for one month from duty at receiving station at Ellis Island, New York.

Rosecan, M. J., P. A. surgeon, detailed to represent Service at meeting of the Committee on Antitoxin and Immunizing Sera of the Laboratory Section of the American Public Health Association at New York, October 7 and 8.

Sprague, E. K., P. A. surgeon, granted leave of absence for seven days from Oct. 11, 1904, under Paragraph 191 of the Regulations.

Foster, M. H., P. A. surgeon, relieved from duty at Port Townsend, Wash., and directed to proceed to San Diego, Cal., and assume command of the Service at that port, relieving temporary A. A. Surgeon B. V. Franklin.

Robinson, D. E., P. A. surgeon, relieved from duty at Port Townsend Quarantine, Washington, and directed to proceed to Port Townsend and assume command of the service at that port, relieving P. A. Surgeon M. H. Foster.

McClintic, T. B., P. A. surgeon, on being relieved at Tampico, Mexico, by P. A. Surgeon Joseph Goldberger, to proceed to Washington, D. C., and report at the Bureau for further orders.

Goldberger, Joseph, P. A. surgeon, relieved from duty at Monterey, Mexico, and directed to proceed to Tampico, Mexico, for duty, relieving P. A. Surgeon T. B. McClintic.

Amesse, J. W., asst. surgeon, to proceed to San Francisco and report on Oct. 21, 1904, to the chairman of board convened to determine the fitness of Asst.-Surgeon Amesse for promotion to the grade of P. A. surgeon.

Collins, G. L., asst.-surgeon, leave of absence for three days from Sept. 30, 1904, granted under Paragraph 191 of the Regulations, amended to read one day only.

Frick, John, A. A. surgeon, relieved from duty at Brownsville, Texas, and directed to proceed to Laredo, Texas, and report to the medical officer in command for duty.

Jackson, J. M., Jr., A. A. surgeon, granted leave of absence for 30 days from October 26.

LaGrange, J. V., pharmacist, granted extension of leave of absence for sixteen days from October 9.

APPOINTMENT.

John M. Bell, of Minnesota, appointed pharmacist of the third class.

BOARDS CONVENED.

Board convened to meet at the Purveying Depot, New York, Oct. 31, 1904, for the examination of such assistant surgeons as may present themselves to determine their fitness for promotion to the grade of P. A. surgeon. Detail for the board: Surgeon H. W. Sawtelle, chairman; Surgeon G. W. Stoner, P. A. Surgeon C. H. Lavinder, Recorder.

Board convened to meet at the Plague Laboratory, San Francisco, Cal., Oct. 31, 1904, for the examination of Asst.-Surgeon J. W. Amesse to determine his fitness for promotion to the grade of P. A. surgeon. Detail for the board: P. A. Surgeon Rupert Rhie, chairman; P. A. Surgeon H. S. Humbling; P. A. Surgeon D. H. Currie, recorder.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ending Oct. 15, 1904:

SMALLPOX—UNITED STATES.

Arkansas: Fort Smith, Aug. 20-27, 3 cases.

Illinois: Chicago, Oct. 1-8, 3 cases.

Indiana: Evansville, Oct. 10, 20 cases.

Massachusetts: North Adams, Oct. 1-8, 1 case.

Michigan: At 89 places, Sept. 24-Oct. 1, present.

Minnesota: Sept. 27-Oct. 3, Hennepin County, 23 cases; Washington County, 1 case.

Missouri: St. Louis, Sept. 24-Oct. 10, 20 cases, 1 death.

New York: Oct. 1-8, Buffalo, 1 case; New York City, 1 death.

Ohio: Cincinnati, Sept. 30-Oct. 7, 1 case; Toledo, Oct. 1-8, 1 case.

Tennessee: Nashville, Oct. 1-8, 3 cases.

Texas: San Antonio, Sept. 1-30, 1 case.

Wisconsin: Milwaukee, Oct. 1-8, 1 case.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Aug. 13-20, 1 case, 2 deaths.

SMALLPOX—FOREIGN.

Africa: Cape Town, Aug. 20-27, 1 case.

Belgium: Brussels, Sept. 17-24, 1 death.

France: Paris, Sept. 17-24, 10 cases, 2 deaths.

Great Britain: Sept. 17-24, Bristol, 1 case; Manchester, 2 cases; Newcastle-on-Tyne, 3 cases; Nottingham, 4 cases; Glasgow, Sept. 23-30, 1 case; Leeds, Sept. 10-17, 5 cases.

India: Bombay, Sept. 6-13, 1 death; Karachi, Sept. 4-11, 1 death.

Italy: Catania, Sept. 23-29, 1 death; Palermo, Sept. 17-24, 9 cases, 2 deaths.
 Mexico: City of Mexico, Sept. 17-24, 2 cases.
 Russia: Sept. 10-17, Moscow, 6 cases, 1 death; St. Petersburg, 9 cases, 1 death; Warsaw, Sept. 13-20, 20 deaths.
 Turkey: Sept. 17-24, Alexandretta, present; Beirut, present; Constantinople, Sept. 18-24, 19 deaths.

YELLOW FEVER.

Mexico: Coahuacalcos, Sept. 17-24, 15 cases, 4 deaths; Sept. 25-Oct. 10, Merida, 1 case; Tehuantepec, 1 case, 1 death.

CHOLERA.

India: Bombay, Sept. 6-13, 4 deaths; Calcutta, Aug. 26 Sept. 10, 10 deaths.
 Russia: Transcaucasian territory and Central Asia, Askabad, Aug. 19, 1 case, 1 death; Balcum Ali, Aug. 14-17, 8 cases, 4 deaths; Khabka, Aug. 12-19, 12 cases, 5 deaths; Merv, Aug. 18-19, 29 cases, 16 deaths; New Bokhara, Aug. 16, 1 case, 1 death; Tadjik, Aug. 12, 1 case, 1 death; Trans-Caucasia, Baku, Sept. 11, 5 cases.

PLAGUE—INSULAR.

Philippine Islands: Manila, Aug. 13-20, 1 case, 1 death.

PLAGUE—FOREIGN.

Egypt: Sept. 3-9, Alexandria, 9 cases, 8 deaths; Tuhk, 6 cases, 4 deaths.
 India: Bombay, Sept. 6-13, 62 deaths; Calcutta, Aug. 26 Sept. 3, 7 deaths; Karachi, Sept. 4-11, 6 cases, 2 deaths.
 Japan: Formosa, Aug. 20-27, 7 cases, 9 deaths.

State Boards of Registration.

COMING EXAMINATIONS.

Board of Medical Examiners of the State of California, San Francisco, October 25, Secretary, Charles L. Tisdale, M.D., Alameda.
 Nebraska State Board of Health, November 9-10, State House, Lincoln. Secretary, George H. Brash, M.D., Beatrice.

Illinois July Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, July 20-22, 1904. The number of subjects examined in was 11; total number of questions, 110; percentage required to pass, 75. The total number examined was 168, of whom 159 passed and 9 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Baltimore Medical College,	(1894) 85,	(1904) 87	
College of P. and S., Baltimore,	(1904) 87		
College of P. and S., Chicago, (1904) the grade of 77 was reached by one, 80 by one, 82 by one, 83 by three, 84 by three, 85 by three, 86 by two, 87 by four, 89 by one, 91 by two.			
Coll. of P. and S. Columbia University, New York, (1904)	83		
College of P. and S., St. Louis, (1904)	82		
Columbia University, Washington, D. C., (1903)	86		
Dearborn Medical College, Chicago, (1904) the grade of 76 was reached by two, 80 by one, 81 by one, 82 by three, 83 by two, 84 by two, 85 by two, 88 by one.			
Hahnemann Med. Coll. and Hosp., Chicago, (1904) 88, 88, 88, 86			
Harvey Medical College, Chicago, (1904) the grade of 80 was reached by one, 81 by two, 82 by one, 84 by four, 85 by four, 86 by one, 87 by one, 89 by one.			
Illinois Medical College, Chicago, (1904) 83, 82, 77, 83			
Jefferson Med. Coll., Philadelphia, (1880)	80		
Jenner Med. Coll., Chicago, (1904) 79, 81, 80, 82, 77, 85			
Johns Hopkins Med. School, Baltimore, (1904)	88, 87		
Kentucky Univ. Med. Dept., Louisville, (1904)	81, 82		
Louisville Medical College, (1904)	86		
Marion-Sims-Beaumont, St. Louis, (1897) 81, (1904)	82, 84		
McGill University, Montreal, (1904)	92		
Med. Coll. of Indiana, Indianapolis, (1904)	80		
Med. School, Harvard Univ., Boston, (1904)	86		
National Med. Univ., Chicago, (1904) the grade of 79 was reached by one, 80 by two, 81 by one, 82 by one, 86 by one, 87 by two, 89 by one, Athens, Greece, (1900) 81, (1902)	80		
Northwestern Univ. Med. School, Chicago, (1903) 86, (1904) the grade of 80 was reached by one, 82 by one, 83 by one, 85 by one, 86 by three, 87 by four, 88 by four, 89 by seven, 90 by one, 92 by one.			
Royal Univ. Vienna, Austria, (1898)	85		
Rush Medical College, Chicago, (1902) 89, (1903) 87, 91, 83, 83, (1904) the grade of 83 was reached by one, 84 by two, 85 by one, 86 by five, 87 by two, 88 by seven, 89 by five, 90 by four, 91 by one.			
Trinity Medical College, Ontario, (1894)	87		
Univ. of Michigan, Ann Arbor, (1903) 91, (1904)	86		
Univ. of Parma Italy, (1903)	79		
Univ. of Pennsylvania, Philadelphia, (1903) 91, (1904)	82		
Wisconsin College P. and S., Milwaukee, (1904)	86		

FAILED.

Chicago Homeo. Med. College, Chicago, (1903)	74
College of Med. and Surg., Chicago, (1904)	40, 72
Harvey Medical College, Chicago, (1904)	64
Louisville Medical College, (1891)	73
Miami Med. Coll., Cincinnati, (1904)	63
National Medical Univ., Chicago, (1904) 66, 69, 72	

The general average for all representatives of the College of Physicians and Surgeons, Chicago, who passed was 85; of Dearborn Medical College, 82.2; of Harvey, 84.1; of Jenner, 80.7; of National Medical University, 82.7; of Northwestern University, 86.7; of Rush, 86.2.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Hawaiian Territorial Medical Society, Honolulu, November 5.
 Oklahoma State Medical Association, Oklahoma City, November 9.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

Thirtieth Annual Meeting, held in the Hall of Congresses, St. Louis, Oct. 10-15, 1904.

Addresses of welcome were delivered by Governor Alexander M. Dockery, on behalf of the State of Missouri; by President David R. Francis, on behalf of the Louisiana Purchase Exposition, and by certain of the foreign delegates, after which Medical Director John Cropper Wise, U. S. Navy, delivered the presidential address, entitled "The Ideal Military Surgeon."

Organization of the Army Medical Department.

An abstract was submitted of the essay to which was awarded the Enno Sander prize, on "The Relation of the Medical Department to the Health of Armies." The plan contemplates the organization of the Army Medical Department on a new basis, recognizing the fact that medical officers, like other men, differ much in their capacity for performing properly the manifold duties which devolve on them, and that in their assignments their special abilities and experience should be taken into consideration. Few are or can become skilled operators, and few are or can become skilled sanitarians; hence the importance of putting these specially skilled men where they are most needed.

The Army Medical Reserve.

MAJOR AZEL AMES, U. S. V., reviewed the composition of the medical staff of the United States Army since 1846, in which the contingent fresh from civil practice has always necessarily been large and disproportionate. The acting assistant surgeon is a chief factor of this contingent, always of anomalous status; his very existence has been made impossible by the decisions of the Judge Advocate General and of the Secretary of War. As it is essential to supply his place with a commissioned competently trained officer, an adequate corps should be drawn from physicians in civil life. This corps should be made an adjunct of the Army, available on call, maintained at the minimum of expense and the maximum of efficiency, easily mobilized and always under training. To establish the means and standing of their instruction, Major Ames recommends the establishment of an army medical school, the adjunct and reserve medical corps being instructed and examined by the school, by means of the correspondence method now so successful in scientific educational institutions. Thus the unsatisfactory and anomalous position of the contract surgeon body would be taken by a homogeneous commissioned corps of competent medical men in civil practice, ready to take the field on call or to serve as needed in time of peace, viz., the Medical Reserve Corps of the United States Army.

The Russian-Japanese War.

MAJOR LOUIS L. SEAMAN, U. S. V., who has recently returned from the seat of war in Manchuria, declared that the United States is very far behind the Japanese in matters of military medical organization and sanitation. The Japanese are the first to recognize the true value of the army medical corps. As he saw the organization in operation, the care of the sick and wounded consumed but a small share of their time. The solution of the greater problem of preventing disease by the careful supervision of the smallest details of subsistence, clothing and shelter is their first and most important duty. Nothing is too small to escape their vigilance, nor too tedious to weary their patience, and everywhere, in the field with the scouts or in the base hospitals at home, the one great, prevailing idea is the prevention of disease. The medical offi-

cer will be found both in the front and in the rear. He is with the first screen of scouts, with his microscopes and chemicals, testing and labeling wells, so that the army which follows shall drink no contaminated water. When scouts reach a town, he immediately institutes a thorough examination of its sanitary condition, and if contagion or infection be found, he quarantines and places a guard around it. A medical officer accompanies foraging parties, and with the commissariat officers, samples the various food, fruit and vegetables sold by the natives before the arrival of the army. If the food be tainted, or the fruit overripe or the water require boiling, notice is posted to that effect. As a result of all this, the medical officer is not obliged to treat cases of dysentery and fevers that follow improper subsistence and neglected sanitation—diseases that have brought more campaigns to disastrous terminations than the strategy of opposing generals or the bullets of their followers. He stated that up to August 1, 9,802 patients had been received at the hospital at Hiroshima, of whom 6,636 were wounded, and that of the entire number only 34 had died.

Major Seaman also spoke of the contrast which he found on visiting the Russian lines, and told of the brutality, debauchery, apathy and criminal carelessness of the Russian officers.

(To be continued.)

CLEVELAND ACADEMY OF MEDICINE.

Eighteenth Regular Meeting of the Clinical and Pathological Section, held Oct. 7, 1904.

Dr. C. A. Hamann in the Chair.

Drs. W. T. Corlett and F. E. Bunts presented cases and Dr. J. J. Thomas showed a heart from a five-week-old child, in which the interventricular septum was incomplete, and the foramen ovale patent. The child showed slight cyanosis only at the conclusion of spasmodic attacks of dyspnea.

Albuminuria in Appendicitis and Hernia.

Dr. F. E. BUNTS reported 50 cases of appendicitis and 50 cases of hernia with reference to albuminuria. He contrasted the 50 cases of appendicitis as representing an intraperitoneal inflammatory condition, with the 50 cases of hernia, representing a non-inflammatory condition. The number of cases, though small, showed that in the inflammatory cases primary albuminuria was more frequent than in the non-inflammatory cases and that improvement or disappearance of albuminuria followed operation in 10 per cent. of the former and in but 4 per cent. of the latter. The statistics, being of but 100 cases, are meager, but suffice to emphasize observations made by Dr. John C. Munro that albuminuria is found in a large percentage of surgical cases, that it can not be considered on any ground yet established, that it is of itself a contraindication to operation; of the 100 patients reported, only two, both with acute suppurative appendicitis, having died.

Occlusion of the Bowel with Absorbent Cotton.

Dr. G. S. SMITH reported a case of pyrexia and reversed intestinal peristalsis, from mechanical irritation and temporary occlusion of the bowel, due to the presence of a large amount of absorbent cotton in the alimentary canal of a child aged 2½ years. For twelve hours after the cotton had been swallowed no symptoms appeared. Then suddenly signs of extreme prostration and drowsiness developed, with a temperature of 102. Tympanites was moderately pronounced over the epigastrium. In other respects physical examination was negative. The temperature steadily rose for twenty-one hours, finally reaching 105. At this time a large volume of bilious vomitus was thrown off, with no marked improvement. Later the colon was flushed and the cotton and a small amount of fecal matter removed. The symptoms of prostration and anorexia persisted for twenty-two hours longer, the temperature returning to normal by lysis. The recovery was finally as rapid as the onset had been nearly forty-eight hours previously.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting, held at Pittsburg, Sept. 26 to 29, 1904.

(Continued from page 1163.)

Tympanites.

Dr. J. C. O'DAY, Oil City, cited his unfortunate experience in his first case of obstinate tympanites in which operation was not done. While believing that needle puncture is unsurgical, he is convinced from an experience of two cases that the operation should be encouraged, because its dangers are nil, and many untrained in the use of the knife could resort to this simple procedure with successful result.

Autointoxication.

Dr. EDWIN W. MOORE, Franklin, said that the real cause of autointoxication is an unsolved mystery, and claimed that perverted nutrition and cell destruction afford sufficient cause to justify it a place as a causative factor in disease. He separated autointoxication from infection by giving to the infection theorists all conditions of exogenous origin, and to the autointoxication investigators those of endogenous origin. He admitted a large field of toxemias between these extremes as unclassified and of no known definite origin. He differentiated rheumatism, gout, many nervous diseases, jaundice from obstruction, Addison's disease and many gastroenteric conditions as autointoxications, and questions the right of investigators in claiming anemia as an infection.

Symptomatology and Treatment of Influenza.

Dr. SAMUEL WOLFE, Philadelphia, said that the history of influenza showed characteristic deviations from the clinical type, but that the affinity of the specific cause for mucous membranes and nervous structures is constantly demonstrated. There is reason to believe that certain symptoms are caused by the bacillus itself, and certain others by the toxin resulting from it, but strict differentiation is not yet practicable. The treatment aims at the control and mitigation of such conditions as fever, pain, catarrhal inflammations and central nervous derangements. Facilitating the elimination of the toxin must be regarded as important.

Pleurisy with Effusion.

Dr. J. E. RIGG, Wilkensburg, considered the frequency of pleurisy found at autopsies, the forms of pleurisy, tuberculosis as a predisposing cause, and cold, traumatism and infection as exciting causes. The value of blisters in the early stage was discussed, the optional use of the aspirator, with the positive signs for its prompt use. He also mentioned the value of tincture of aconite combined with belladonna.

Pneumonia.

Dr. JOHN R. MCCARTY, Fredonia, is at variance with those advocating the expectant treatment in pneumonia. From 32 years' experience, he considers spirit of chloroform a specific, when given early. Two cases were cited. The first, seen as soon as the patient emerged from a severe chill, received 20 minims every fifteen minutes for six doses, and every hour thereafter, and dismissed the next day. Case 2 was seen eight hours after the initial chill, and dismissed on the third day. The remedy is of no avail after bapuzation is established. He uses aconite in combination. Salicylic acid alone will cure and abort pneumonia by its antiseptic action. He gives it by absorption by dissolving it in gasoline and applying it externally. His mortality has been but 2 per cent.

Blood Analysis.

Dr. J. M. McNALL referred to the advantages of blood analysis, with its limitations and requirements. He defined leucocytosis, and gave its varieties, absolute and relative, and emphasized the importance of relative count and leucocyte curve.

Sea Bathing.

Dr. PHILIP MARVEL, Atlantic City, spoke of the great an-

tiquity of sea bathing as a curative of bodily ills. The influence of temperature, conditions of the atmosphere, the physical and mental condition of the individual, and the fact that the water is truly a mineral water, were facts not to be lost sight of. Observations were noted of the slowing or enfeeblement of the pulse of those submerged for hours in the sea and of those immersed for a time in water at a temperature higher than that of the body, with a lowering in the systemic resistance. He believes that sea bathing as practiced on the Atlantic coast is responsible for greater harm than good, and believes that physicians have been too long silent on the subject. They should impress on those under their care the advantages of a short exposure, not exceeding 30 minutes, and the necessity for prompt and positive reaction. Sea bathing is indicated in those weakened conditions where normal metabolism is inhibited or perverted nutrition exists, and is contraindicated where the arterial elasticity has been changed or lost, as in arteriosclerosis and capillary fibrosis; also in those cases in which the peripheral vessels have ceased to respond to reflex stimuli; in any condition in which the stimulation would favor internal hemorrhage; in cases of chronic heart disease, and in cases in which lowered resistance necessitates more than ordinary care of the patient's forces.

DISCUSSION.

DR. S. S. COHEN, Philadelphia, believed that sea bathing was abused, and that the responsibility for changing this lay with the physician.

Ulnar Palpation and Transmanual Auscultation.

DR. DAVID RIESMAN, Philadelphia, designated as ulnar palpation a method which he believes gives more satisfactory results than the one commonly employed. Dr. Riesman's method consists in applying the ulnar surface of the hand and little finger into each interspace, the hand being held perpendicularly to the chest. In the old method an area much larger than the seat of disease is often covered, and the fremitus of the diseased area is modified by that of the surrounding normal tissue. The method gives very accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces or corresponding areas of the two sides. It also shows accurately the upper level of an effusion and the limits of a plastic exudate. It is of most value in examining the front of the chest, but may be also used for the back. After speaking of the difficulties of the method of timing heart murmurs, and of the unsatisfactory results generally given by timing murmurs by means of the carotid pulse, Dr. Riesman described a method which overcame some of the difficulties. It consists in auscultating with the binaural stethoscope through the hand placed over the apex beat. By this method the apex beat is felt and the murmur heard at the same point, and timing becomes easy. The best stethoscope for the purpose is one provided with a diaphragm. Not only is it possible to hear murmurs plainly through the hand, but almost as satisfactory results can be obtained by placing a finger flexed at a right angle on the apex beat, and then resting the stethoscope on the finger. The principal advantage of transmanual auscultation is found in the differentiation of presystolic from systolic murmurs. It is also of use in timing musical and other peculiar murmurs that are heard over the entire precordia, or perhaps the entire chest. The successful application of the method presupposes the existence of a palpable heart.

DISCUSSION.

DR. S. SOLIS-COLEN thought this method of transmanual auscultation one of the greatest advances made in physical diagnosis and urged it on the attention of the members.

Myocardial Degeneration.

DR. ALBERT E. ROUSSEL, Philadelphia, stated that if the statistics of Schott were accepted, it would be found that diseases of the myocardium were more frequent than those of the endocardium in the proportion of 505 to 245. He believed that arteriosclerosis must be accepted as an important factor in many cases of cardiac degeneration, and considered it worthy

of note that at least partial occlusion of the coronary arteries due to this cause may be compensated through the vessels of Thebesius with avoidance of the otherwise resulting damage. Parenchymatous degeneration, fatty heart and allied conditions were considered, with their etiology and treatment. The diagnosis of many cases of fatty degeneration he believes more difficult than that of a fibroid heart and is confident that often cases of this disease are not recognized even after a physical examination. This is because the size of the heart in simple fatty degeneration is little changed, and the area of dulness presents no alteration.

Practical Points Concerning Smallpox.

DR. WILLIAM M. DAVIS, Pittsburg, emphasized the importance of taking into consideration the entire symptom complex. Contrary to some opinions, he believes the primary fever to be very contagious. The varieties of smallpox in reference to diagnosis and prognosis were discussed.

The Test for Occult Blood in the Feces, and Its Clinical Significance.

DR. J. DUTTON STEELE, Philadelphia, said that by occult is meant an amount of blood so small that it can not be recognized by the naked eye or by the microscope. It has been found by certain German observers that the old guaiac test for hemoglobin can be so modified as to detect exceedingly small amounts of blood in the feces. This is of special value in the diagnosis of gastric carcinoma and gastric and duodenal ulcers. The blood is constantly present in the stools of carcinoma and is intermittently present in cases of gastric and duodenal ulcer, and organic but benign stricture of the pylorus. Dr. Steele reported seven cases in which the test had been applied and in which it appeared to be as valuable as is claimed. He is of the opinion that the method is a distinct advance in the diagnosis of gastrointestinal diseases and will soon rank with such symptoms as the absence of hydrochloric acid in cancer or hyperacidity in ulcer.

DISCUSSION.

DR. J. A. LICHTY, Pittsburg, said that his knowledge of the subject lay in what he had read in Boas' publications, but that he would employ the test, which he believed would be of special value in revealing the cause of many cases of so-called primary anemias.

Tuberculosis of the Gastrointestinal Tract.

DR. J. A. LICHTY, Pittsburg, reported a case having perforation and partial stenosis of the bowels. The modes of infection of the gastrointestinal tract were given as primary: *a*, by inspiration; *b*, by kissing; *c*, by dirty objects or contaminated hands which find access to the mouth; *d*, food from infected animals, or food which accidentally became infected; or secondary, that is, from the swallowing of sputum which is tuberculous.

The Diagnosis of Cirrhosis of the Liver.

DR. ALFRED STENGEL, Philadelphia, stated that cirrhosis of the liver is usually recognized when the disease has reached a practically incurable stage. This statement, however, Dr. Stengel said, needs some modification, for occasionally cases not recognized until ascites and other signs of portal obstruction have developed recover from these striking symptoms and survive, which is probably due to the fact that with the terminal cirrhotic change in the liver there is always a considerable amount of cellular infiltration which is removable. He referred to a certain train of symptoms met in the earlier stages of cases of cirrhosis as well as in other conditions, and then proceeded to a discussion of the differential diagnosis. With regard to the occurrence of enlargement in the early stage of cirrhosis, he stated that, contrary to the opinion of Leube, he had watched cases of cirrhosis from a stage when the liver was enlarged to the terminal contracted condition. The symptoms in congestion are practically those that usually are seen, but there is always found some adequate circulatory cause for the congestion, some form of cardiac or obstructive pulmonary disease which prevents the proper circulation of

the blood; the congestion is found to fluctuate with the fluctuations in the underlying condition. Dr. Stengel referred to the chemistry of cirrhosis and stated that the only test that had proved of any value, and this merely confirmative, is that for urobilin. Among the conditions causing the train of symptoms met with, cirrhosis is the only one which regularly produces urobilinuria. Finally, in referring to the physical examination for cirrhosis in its more advanced stages, he warned against a too ready acceptance of the results of percussion as an indication of decrease in the size of the spleen, and advocated a more general appreciation of the value of splenic enlargement in the diagnosis of cirrhosis of the liver.

DISCUSSION.

DR. DAVID L. EDSALL, Philadelphia, referred to alimentary leucosuria as one of the chemical methods used in the diagnosis of liver disease. Strauss administered 100 grams of levulose on an empty stomach and determined that levulose appeared in the urine in a large proportion of cases of liver disease, but in only a small proportion of cases of disease of other kinds. Dr. Edsall, from his own results and those of others, is skeptical as to the diagnostic value of this test. He emphasized the ease with which the test for urobilinuria may be carried out when the method of Hammerschlag is used. The determination of large amounts of phenol in the urine is a test which he is inclined to regard favorably. He thought it would be worth while to determine to what extent the products of putrefaction escape into the general circulation and then into the urine in liver disease, as a loss of the liver's function more or less complete might be indicated by their escape in abnormal quantity. Of the various substances that Dr. Edsall has investigated in this connection he found that phenol alone seemed to show reasonably characteristic changes. While this substance is variable in liver disease, it seems to him that a very large amount of phenol in the urine is strongly suggestive of liver disease when other evident reasons for its presence are absent.

The Home Modification of Milk.

DR. THEODORE J. ELTERICH, Allegheny, emphasized a few general truths regarding the home modification of cow's milk without attempting to cover the work already done in this direction or to criticize the various methods in use at the present time. The percentages of the proteids and fat, very low at first, are gradually increased until they approximate the averages required at the end of the first year. The quantity for each feeding depends on the age of the child and the table recommended by Heit is usually followed.

Observations on Food in Typhoid Fever.

DR. JAMES I. JOENSTON, Pittsburg, said that in the management of typhoid fever the attention should be directed primarily to the nursing, care of the patient, efficient hydrotherapeutic measures and to proper feeding; secondarily, to the employment of drugs, usually for the relief of symptoms. He discussed the question of food, about which there is diversity of opinion, and quoted the case of Dr. Stuart Patterson of Pittsburg, in which the patient had no food for twenty-one days—water only being given. The course of the disease was very favorable and the loss of flesh and strength no more marked than usual. While not agreeing entirely with those who would give no food during the period when desire for it is absent, Dr. Johnston has restricted his patients at this time of the disease very greatly, and in a study of some fifty cases he thinks he has seen some advantage, at least in comfort to the patients, when compared with fifty other cases treated immediately preceding this group. In the class of cases in which limited feeding was employed during the period of anorexia the cases were less toxic, were no more emaciated than other cases, and made a quicker convalescence. There were but three relapses, no perforations and few hemorrhages. All had flat abdomens, one only required treatment for tympanites and few any treatment for diarrhea other than stopping nourishment for a brief period.

(To be continued.)

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, held in Cincinnati, Oct. 11-13, 1904.

The President, Dr. Hugh T. Patrick, Chicago, in the Chair.

The mayor of Cincinnati delivered an address of welcome, which was responded to by Dr. Dudley S. Reynolds of Louisville.

What Shall Be Done with the Criminal Insane?

DR. JOHN PUNTON, Kansas City, Mo., said that the conflict of authorities raging between law and medicine is responsible for much miscarriage of justice. A mutual conference to adjust differences of opinion and formulate conclusions relative to the medico-legal aspects of insanity in keeping with the more advanced state of medical knowledge, which can be used as a criterion in courts of law, is greatly to be desired.

DISCUSSION.

DR. A. RAVOGLI, Cincinnati, deprecated the tendency to generalize to much in discussing the criminal insane. He reported a case in which an epileptic committed several murders before his insanity was recognized.

DR. CHARLES W. HITCHCOCK, Detroit, said that this was a very delicate question for the medical profession to decide, and a case was reported showing that justice might miscarry, even where there was an institution provided for the incarceration of those not responsible under the law.

DR. G. FRANK LYDSTON, Chicago, said that the entire subject of criminology should be relegated to the medical profession, so far as the physical conditions and remedies therefor are concerned. Many irresponsible individuals are punished. Punishment for crime has proved a distinct failure. Both the sane and the insane criminals should be removed from our social system and isolated. The principle should be not punishment, but simply social self-defense. We have not yet come to the sterilization of these individuals, but we undoubtedly will.

DR. F. W. LANGDON, Cincinnati, said that the legal and medical professions have different points of view, and, therefore, their conclusions must vary. He agreed with Dr. Lydston as to the punishment of the sane and insane, and said that we should not arrogate to ourselves the fixing of the penalty that probably was never right.

DR. B. F. BEEBE, Cincinnati, stated that law has been coming to medicine on this question, because the prosecutors have been securing the assistance of medical men. Society must be protected, but the question is how and when and where to take care of the criminal insane. We must determine what constitutes responsibility or irresponsibility. While the laws of the various states do not agree, there is practical unanimity among those who have studied this subject from a medical standpoint.

DR. DUDLEY S. REYNOLDS, Louisville, spoke of the qualifications of the jury, requiring that they be not familiar with the facts and not opposed to capital punishment. Such qualifications do not require that the jury be really competent to decide these cases, and medical men are called in to testify as to the responsibility or irresponsibility of the defendant. Medical testimony is based not on an examination of the individual, as a rule, but on hypothetical questions constructed by the lawyers. The chief trouble is with the legislative conditions in the various states. Any person convicted of a felony should be unsexed rather than killed. No person in his right mind would commit a felony.

DR. SPRAGUE referred to the fact that the use of the asylum for the criminal insane is being rapidly extended throughout the country by the legal and medical professions. Often the attorneys for the prosecution and defense agree to rest the matter of commitment or trial with the medical commission of such an institution. Such a reference would be more frequent if there were more assurance that such a medical commission were composed of really expert medical men.

DR. LYDSTON in answer to a question stated that sterilization could be effected by obliteration of the fallopian tubes in the female, and by obliteration of the vas deferens in the male.

without any effect on the individual, save the arrest of the function of procreation.

Loss of Consciousness and Automatism in Inebriety.

Dr. THOMAS D. CROTHERS, Hartford, Conn., said that the claims of no recollection or consciousness of events by inebriates indicate a paralysis of certain brain sections during which the victim may act automatically and be without consciousness of the real condition. Histories of prominent cases confirm this fact, and many startling crimes have been committed in this condition. This new phase of irresponsibility has not been recognized by the courts and only recently has been studied by physicians. The defense of no recollection may be a reality in some cases, and should be recognized by physicians. Such persons are insane.

DISCUSSION.

Dr. B. F. BEEBE stated that the essential point is to prove the fact of the unconsciousness and the automatism. An idea can not exist if the brain cell is not in a condition to receive and retain an image. Whether unconsciousness is produced by alcohol or by any other poison, the result is the same.

Dr. JOHN PUNTON said that the medical profession ought to know the effects of alcohol on the nerve cells, but, when this question comes up in court there are as many opinions as there are physicians. It is not the individual's opinion the court asks for, but rather the consensus of opinion of the medical profession in reference to the question at issue.

Dr. HUGH T. PATRICK said that it is necessary to make a very fine distinction between alcoholic automatism and automatism in the alcoholic. In many degenerates or imperfects, there is a tendency to drink too much. The automatism and the drinking may be the result of a pre-existing condition.

Echinacea.

Dr. C. S. CHAMBERLIN, Cincinnati, made a plea for the recognition of echinacea as a valuable therapeutic agent. He gave a brief history and description of the drug, and protested against the suspicion with which the regular profession regards remedies introduced by irregular practitioners, and their reluctance to investigate the merits of the remedies. He cited brief reports of cases illustrating the therapeutic value of the drug as an alterative and antiseptic, and its range of application.

The Early Recognition of Important Eye Lesions by the Practitioner.

Dr. GEORGE F. SUKER, Akron, Ohio, pointed out the early diagnostic eye lesions in diabetes, chronic nephritis and locomotor ataxia. Reference was made to the diagnostic conjunctival spot in cases of measles. He spoke of the frequency in mistaking glaucoma for trifacial neuralgia; also the frequency with which simple, chronic glaucoma is confounded with cataract. He emphasized the need of recognizing the eye conditions as a factor in chorea, functional epilepsy, neurasthenia and hysteria. The relation between gastrointestinal derangements and certain eye lesions was pointed out, and the need of a thorough ophthalmic examination in the neurotic, chlorotic and patients of this character emphasized.

The Value of the X-Ray to the General Practitioner.

Dr. JAMES E. COLEMAN, Canton, Ill., stated that as the practice of medicine is still largely in the hands of the general practitioner, it makes it necessary for him to improve to the greatest extent his resources for diagnosing and combating disease. X-ray apparatus has become a necessary adjunct. To be satisfactory it must be first class. Every general practitioner should have one text-book on x-ray therapy. The mastery of the details and technic is not difficult when studied, but success depends on a knowledge of anatomy and proper interpretation of the screen and skiagraph.

Macular Atrophy of the Skin.

Dr. EDWARD H. SHIELDS, Cincinnati, said that this rare dis-

ease was first described by Jadassohn in 1892 and no other case has been reported. Dr. Shields presented the following history of a case: Eighteen months ago red macular lesions were found on the legs and thighs, with no subjective symptoms. Some weeks later the patches lost redness, became softer, depressed, and the skin over the diseased area became shriveled; atrophy continued for several weeks, when the atrophic spot became soft and pale. Owing to the marked irritability of the skin the atrophic lesions did not appear very pale immediately after the removal of the clothing, but after half an hour of absolute rest they became quite pale, resembling those of morphia. He stated that treatment was of little value, yet in due course of time the process was arrested.

Why So Many Errors in the Diagnosis of Exophthalmic Goiter?

Dr. J. H. STEALY, Freeport, Ill., showed what a remarkably large number of cases of this disease can be found if sought for. He discussed the percentage of symptoms, the diagnostic importance of each, and the symptomatology.

(To be continued.)

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Regular Meeting, held Sept. 26, 1901.

The President, Dr. Wendell C. Phillips, in the Chair

Summer Work of the Health Department.

Dr. JOHN J. CROXIN, assistant chief medical inspector, reviewed the work of this department since its inception in 1876. Pamphlets are now printed in several languages for distribution for mothers' instruction, with words of caution in regard to gastrointestinal diseases. There is house-to-house visitation, advice is given, and where sickness is severe a trained nurse is sent. When a child is found to be sick the store from which the milk was obtained with which it has been fed is inspected. Hot weather and ignorance are responsible for the high infant mortality. Flushing the streets after sundown would ameliorate the heat somewhat. One-third of the deaths occurred among children under two years of age, who were fed on condensed milk and prepared cereals during the month of August. The report of the inspectors during the past summer showed 215,997 families visited and the history card-numbering 35,187, all of children under one year of age.

Prevention of Spread of Disease in New York City Schools.

Dr. THOMAS DARLINGTON, commissioner of health of New York City, stated that the medical supervision of schools was undertaken in 1897. During the school year 1901-1902, 260,182 children attended and there were 9,703 exclusions. In September, 1902, the routine inspection of schools was begun by classes; the children passed by the inspector pulled down their own eyelids, etc., the inspector never touching a child. The inspectors found that many contagious diseases were not reported; during six months they found 561 cases of measles, 107 cases of German measles, 70 cases of scarlet fever, etc., unreported. The public libraries received daily lists of homes where contagious diseases existed. Eight trained nurses have been assigned the care of children suffering from skin and eye diseases. In 1903 there were cared for 156,186 cases of pediculosis, 106,257 cases of eye diseases, 3,307 of eczema, 3,498 of ringworm, 335 of scabies. It was recently discovered that 17 per cent. of the children were affected with trachoma.

Disinfection by the Health Department.

Dr. ROBERT J. WILSON, assistant bacteriologist of the New York City Department of Health, described the methods used in this work. During the past two or three years attempts have been made at bacteriologic control by placing in the room to be disinfected living bacilli (procyaneus) on threads. On the following day this was sent in for growth; if the cultures were positive the disinfection was well done. Sulphur dioxide and formaldehyd were the only two disinfectants allowed the Board of Health. In different parts of Greater New York there

were disinfectant stations where the germs which occupied the deeper parts of fabrics could be destroyed. Here a temperature of 225 degrees F. was employed for several hours.

Specific Treatment of Typhoid Fever.

DR. T. M. HACKETT, Champlain, N. Y., said that after fifteen years of experiment with blue mass and calomel in the treatment of typhoid fever he did not hesitate to make the statement that this remedy acted as a specific in the treatment of typhoid fever. As a result of his experience he has observed these facts: 1. In all cases of typhoid fever mercury is well borne by the system; it requires more mercury to get the constitutional symptoms of tenderness of the gums when typhoid fever was present than under any other circumstances. 2. In the administration of blue mass in typhoid fever gradually as the system is impregnated with mercury just so gradually are the bacilli disappearing from the system, so that by the time the mercury begins to affect the gums the bacilli are no longer active in the system. This is signified by a gradual reduction of temperature to normal and a rapid convalescence. 3. With the use of mercury the patient's blood is in a more healthful state; mercury maintains the red corpuscles and the system does not fall into that state of grave anemia so common to the disease. 4. The patient may begin taking solid food as soon as the temperature is normal without danger of relapse; this he attributed to the state of the blood consequent on the presence of mercury in the system. 5. A few days after the beginning of the administration of mercury in typhoid the tongue becomes moist, the breath becomes less fetid and there is a desire on the part of the patient to take the nourishment prescribed. The odor of the stools becomes less fetid. He has not had a dry tongue continue over three or four days after the treatment was begun. 6. The temperature of the patient thus treated did not go subnormal after the fever left. 7. It is unnecessary, unpardonable and unscientific to salivate a patient when using mercury in the treatment of typhoid. He has yet to observe any ill effects of the slightest nature from the use of mercury to the extent only of the soreness of the gums. He called attention to the temperature charts of several recent cases which were accompanied with certificates from the State Board of Health certifying that the Widal reaction was present. The charts showed that three weeks covered the whole period of illness and that the third week was a week of convalescence.

DISCUSSION.

DR. EGBERT LE FEVRE said that he had had some experience with the mercurial treatment of typhoid fever. He had noted that the temperatures were reduced, but the mortality was higher than under the present plan of treatment. He believed that any plan of treatment would offer results which varied according to the epidemics; in the later epidemics the disease ran a shorter course as a rule. He had endeavored to make the intestinal canal antiseptic and had failed, and he doubted if there was any agent which would place the blood in a condition to destroy the Eberth bacillus.

Travel Notes.

XIII.

THE MELBOURNE HOSPITALS.

NICHOLAS SENN, M.D.
CHICAGO.

FREMANTLE, AUSTRALIA, Aug. 15, 1904.

Man, the masterpiece of creation, the image of God, is subject to pain, disease and death wherever chance or circumstance may have fixed his abode in the world, as

"There is no mortal whom pain and disease does not reach." Cicero.

Primitive man has no, or at best only an imperfect, conception of the ways and means to protect himself against the disease-producing influences and he is powerless, or nearly so, when afflicted by accident or disease. For ages civilized man

has endeavored to ascertain the cause of diseases and to discover remedies for their prevention and successful treatment. In their primitive state the aborigines, living a natural life, are less exposed to injury and disease than civilized man living in luxury and intent on the accumulation of wealth or the gain of fame, for

"Increased means and increased luxuries are the two civilizers of man."—Disraeli.

Civilization and the conditions and circumstances attending and following it have bred the most destructive diseases unknown to the primitive races. Firearms, commerce, increase of travel and the various industries incident to civilization are productive of accidents from which the natives in their original state were almost exempt. On the other hand, civilization has always been concerned in establishing effective sanitary measures and in devising rational and more successful treatment of injuries and disease. The principal functions of every intelligent and humane government consists in protecting its citizens, so far as possible, against disease and in making ample provisions for its indigent sick. Australia has met these two duties in a most creditable manner, as is so well shown by its well-organized effective Boards of Health, the many excellent hospitals and other numerous charitable institutions. The public hospitals are managed and supported nearly in the same manner as the hospitals in England. It is an inflexible rule that none of these hospitals should provide for private patients. They are supported by donations, life and annual subscribers, by government appropriations and pay patients. The medical men give their services gratuitously; the internes and nurses receive small salaries. The churches of different denominations, societies and individuals in all the states contribute liberally toward the building and maintenance of hospitals. Protestant denominational hospitals are unknown.

Melbourne is the capital of the state of Victoria. It is a beautiful city, built on the undulating hills on both sides of Yarra river, with a population of nearly half a million. Its streets are well paved, clean and well lighted with electricity, and its system of cable trams affords an easy and rapid means of reaching all parts of the city and almost every public institution. The many well-kept public parks, botanical and zoological gardens, museum and library furnish ample proof of the public spirit of its citizens. Nearly all of the business buildings and residences are either solid stone or brick structures. There is no private residence without its garden ornamented with subtropical trees, flowering shrubs and flowers. The Australian takes as much pride in his garden as he does in his house, and this applies equally to rich and poor, large residences and small houses. The city in its general aspects bears a close resemblance to Belfast, Ireland. The water supply and sewerage are now in a satisfactory condition and have contributed much in reducing the former frequency of typhoid fever.

THE MELBOURNE HOSPITAL.

The Melbourne Hospital is the principal general hospital of the state. It is centrally located. It is a two-story sandstone building with a wide front and several pavilions, enclosing a square in the rear of the main building. Viewed from without it presents a somewhat stern, antique and very massive appearance. One of these pavilions is devoted to diphtheria cases and stands isolated from the remaining buildings. The hospital can accommodate 300 patients. It is in this hospital that the medical students of the University of Melbourne receive their clinical instruction. It has no gynecologic staff, all gynecologic cases being referred to the attending surgeons. The more legitimate specialties are well represented. The medical and surgical cases are under the care of four physicians and an equal number of surgeons, whose services are continuous throughout the year. The resident staff consists of a medical superintendent and eight internes. The latter are selected from the graduates of the university who have the highest standing; they remain for one year and serve in the different departments by being transferred every three months. The nursing is in charge of several sisters and 92 pupil nurses. The operating amphitheater is small but well lighted and on elevated seats

guarded by iron bars provides standing room for the medical students and visitors; it contains all the essential equipments for surgical asepsis and necessary instruments. I visited the hospital under the guidance of Mr. Fred. D. Bird, one of the attending physicians and professor of surgery in the university. He showed me many cases of great surgical interest, among them several cases of intestinal and gastric surgery and the usual number of appendix operations. I was shown a case in which Mr. Bird had excised a perforated gastric ulcer of the small curvature of the stomach, four years ago, near the pylorus, in a young woman. The patient made a satisfactory recovery, but returned recently to receive treatment for obscure digestive symptoms. In another case, a fourth operation for echinococcus of the omentum in a young woman had been successful a few days ago.

In all aseptic cases the wounds had healed or were healing by primary intention. All the wards were made comfortable and cheerful by fires in open grates and a liberal supply of flowers placed on the center tables and small bouquets for each bed, gifts of the Flower Mission. Cyanid gauze for dressing retains its reputation in this institution. Fine silk has almost entirely displaced the absorbable suture in the practice of Messrs. Bird and Syme. In the absence of contraindications chloroform is used as the routine anesthetic administered with an Esmarch mask. The great work this hospital is doing for the sick of Melbourne and the state of Victoria can be seen from the last report, 1903-1904. The total number of patients treated was 22,925, and of these 4,328 were received into the wards. The number of casualties treated in the out-patients' department was 7,544. In the infectious diseases department 338 cases were treated, of which 162 were diphtheria. Although the antitoxin treatment is in constant use, intubation was performed on 39 and tracheotomy on 14, for the relief of urgent symptoms, and only two of the tracheotomies succeeded in saving life. This unfavorable experience in the treatment of this disease was due to the fact that many of the children, when admitted, were in a condition beyond the curative power of the specific treatment. One hundred and seventy-one cases of typhoid fever were treated during the year, with a mortality of 18. Pneumonia appears to have been very virulent, as 63 out of 133 cases died, a mortality of nearly 50 per cent. The surgical showing of this hospital is excellent. Exploratory laparotomy was made 39 times without a death. Of 32 cases of hydatids of the liver operated on 4 died; of 11 cases of abdominal hydatids all recovered; of 15 cholecystotomies one died; of 102 cases of appendicitis subjected to operative treatment 15 died, and in 40 cases the disease was complicated by suppuration. Ovariectomy was performed 19 times without mortality. Of 10 cases of hysterectomy 3 died; 11 cases of tubal pregnancy with one death; 11 operations for pyosalpinx without a death; 99 operations for malignant tumors, 79 were relieved, 14 not benefited and 6 died; in 100 cases of radical operation for hernia, of which number 77 were inguinal, 2 died. Of 7 cases of prostatictomy 5 were relieved and 2 died. Two cases of perforated typhoid ulcer operated on died, and of 7 cases of perforated gastric ulcer operated on only one recovered. This hospital, the oldest and largest in the city, is always overcrowded and lacks many features of a modern institution, all of which should appeal strongly to the charitably disposed citizens and an appreciative generous government to provide it with ample means to carry out its humane intentions on a larger and more efficient scale in the future.

RADICAL CURE FOR INGUINAL HERNIA.

Australian surgeons, as a rule, prefer Bassini's method in operating for the radical cure of inguinal hernia. Professor Bird is in favor of a small incision parallel with and at least one inch above Poupart's ligament. He is careful not to injure the fibrous expansion of the superficial fascia and external oblique any more than is absolutely necessary to reach the hernial sac. Instead of using the knife freely, as is usually done, he makes liberal use of blunt dissection, thus separating instead of cutting resisting fibers. He never divides the external ring and insists that if we divide it, no suture, however deft, will make it nearly as strong as before; "we divide fibers

whose integrity we can never replace." He incises the external ring only in young subjects to procure room to carry out the necessary manipulations in the canal. He believes that the unnecessary division of the strong fibers of the external ring is responsible for many relapses. He is likewise cautious not to divide any of the muscular fibers of the internal oblique and cremasteric muscles, insisting that the integrity of all these structures should be respected. The infundibuliform fascia is torn through with a pair of dissecting forceps, and the sac, carefully isolated and separated from the cord, is then proceeded with, the isolation being commenced from above and behind. The sac must be cleared as far up as the deep epigastric artery. The sac is then tied with catgut at the point where it is continuous with the parietal peritoneum and excised below the ligature. He is of the opinion that when the operation is performed in this manner deep Bassini sutures are not only unnecessary, but actually harmful. Suture of the inguinal canal after excision of the sac he only resorts to when the hernia is old and large and when the obliquity of the inguinal canal is much impaired. The suggestions made by Professor Bird are based on anatomic facts and should receive the earnest attention of surgeons.

PROSTATECTOMY.

This operation has found much favor in Australia. The suprapubic and perineal routes have each their advocates. Mr. G.



Fig. 1.—Australian aborigines.

A. Syme, lecturer on anatomy in Melbourne University and one of the surgeons to the Melbourne Hospital, performed his first prostatectomy in September, 1897. He resorted to Freyer's method—suprapubic intravesical enucleation of the gland. Two vesical calculi were removed at the same time and the patient made a speedy and perfect recovery. In the next case he found enucleation impossible and he had to excise the projecting middle lobe with scissors. In his fourth case the enucleated mass weighed seven ounces and had to be fragmented to permit its removal through the vesical wound. In the fourth case previously operated on for enlarged prostate, he removed through the suprapubic route four phosphatic calculi and excised the projecting middle lobe. A third operation became necessary, and at this time another stone was removed and the entire gland enucleated. All these patients recovered with satisfactory functional results. He is a strong believer in the superiority of the suprapubic over the perineal route and quotes statistics from Melbourne Hospital to substantiate the correctness of his position. He advises operation in all cases in which the obstruction is caused by the adenomatous form of prostatic enlargement.

ALFRED HOSPITAL.

This hospital, somewhat remote from the center of the city, has a beautiful location and occupies the middle of ample grounds made attractive by trees, shrubs and flowers. It was

founded in 1874 and consists of two-story brick pavilions arranged around an open court. The wards are large, airy and well lighted and ventilated. The main operating room answers all modern requirements and has a small amphitheater for students, who receive here the benefit of extra mural clinical teaching. Three physicians and three surgeons constitute the attending staff. The consulting staff is made up of one physician and one surgeon. The surgeons attend to all gynecologic cases.

The surgeons on duty at the present time are: H. O'Hara, Esq., F.R.C.S., I. M., and L.R.Q.C. P. 1.; John Cook, Esq., M.R.C.S. Eng.; R. H. Russell, Esq., F.R.C.S. Eng. As in all Australian hospitals, the outdoor department has separate attending staffs and anesthetists, electrician, dentist, masseurs, masseuses, dispenser and pathologist, complete the list of regular hospital attendants. Three resident internes are appointed for two and a half years from the graduating class of the University of Melbourne, their merits being gauged by their class standing. The junior internes are paid \$250 a year, the senior internes \$500. The children's ward in this hospital is one of the finest I have ever seen. The upper part of the walls are frescoed, the pictures representing fairy tales, and at the foot of each bed is suspended from an erect curved wire a small conical tin cup which visiting relatives, friends and the Flower Mission supply regularly with fresh cut flowers. I was shown here a number of cases of liver hydatids recently operated on. It is the experience of surgeons that these cysts seldom rupture into the stomach and that, as a rule, they do not give rise to adhesions. Hydatid of the kidney is very rare. This hospital has an enviable record in the surgical treatment of perforating typhoid ulcer. During the last two years six cases were operated on and of these only one died. In about half of the cases this accident is initiated by a sudden fall of temperature. Chloroform is the anesthetic of choice. Silk, kangaroo tendon, catgut, silkworm-gut and horsehair are all in use, according to the indications presented by the wound under treatment. The government appropriation for this hospital amounts to from \$15,000 to \$25,000 a year and the subscriptions from \$10 to \$45,000. Patients who can pay are charged from 50 cents to \$7.50 per week, the latter figure being the maximum. This is one of the few hospitals in Australia supplied with a steam-heating apparatus. The training school for female nurses connected with this hospital has 50 pupils who serve for three years and have to pass two satisfactory and quite rigid examinations before they receive their certificate. In this connection it is worthy of notice that in each hospital the nurse's garb differs in color, all shades of blue, and gray and black, with white caps of the strangest designs, distinguish the nursing staffs of the different hospitals.

During the last year 1,910 patients were admitted to the wards and 4,750 out-patients with 2,058 casualties were cared for in the outdoor department. It is noteworthy in looking up the records of the hospital in reference to the religious convictions of the patients that out of 2,077 cases only one confessed that he had no religion, and only one placed his confidence in Confucius. Out of 122 cases of typhoid fever treated in the hospital during the last year 11 died, and of 90 cases of pneumonia 6 proved fatal. Aneurism appears to be much more common than in our country, as this hospital received 8 cases during one year. Abdominal hysterectomy has a doleful record in this hospital, as in 10 cases only 2 were discharged cured, 1 relieved, 3 remained in the hospital and 4 died.

MELBOURNE HOSPITAL FOR SICK CHILDREN.

The Melbourne Children's Hospital is an institution that reflects much credit on the state of Victoria and the city of Melbourne. The hospital is beautifully located and consists of a number of two-story brick pavilions. The wards are large, airy and flooded with an abundance of light. Flowers, palms and evergreen plants impart to all of them a cheerful appearance, which is greatly accentuated by the presence of tidy, smiling nurses. It receives substantial government appropriations and is well supported by voluntary contributions in the form of legacies, donations and subscriptions. It can accommodate 100

children. The medical and surgical staff is made up of ten members, with Charles S. Ryan, M.B., (Ch. Edin., M.B. Melb., L.M. Dublin), at the head. Mr. Ryan is also at the head of the medical department of the military forces of Victoria with the rank of colonel. The hospital has two internes and 45 nurses, who remain in training for three years. The convalescents are sent to the convalescent home for children, Brighton, in charge of Sister Danaher, a branch of this institution. I visited the hospital in company with Professor Bird, with Dr. W. H. Snammons, a member of the attending staff for the outdoor department, as chaperon. The operating room is perfect and supplied with all modern improvements and appliances. We found here Dr. Mackay operating for hydatid of the liver in a boy 13 years old who had been afflicted with this disease for five years. The cyst, the size of a man's fist, occupied the under surface of the liver in the region of the suspensory ligament. The incision was made vertically, from the border of the costal arch downward. The cyst was incised, opening of cyst drawn into the abdominal incision with the index finger, contents emptied and margins of cut sutured to the abdominal wall, after which the lining membrane was grasped with a broad blunt forceps and extracted with ease. Two drains and a small absorbent aseptic dressing finished the operation. I was somewhat surprised at the extent to which the Thomas splint is used here in the treatment of tubercular coxitis and spondylitis, as its usefulness can not be compared with the plaster-of-paris fixation splint in the former and the Rauchfuss sling in the latter. During the last year the hospital cared for 1,302 sick children and the outdoor department had attendances amounting to the astonishing number of 67,489, of which number 10,930 were new cases. Three cases of hydatid were operated on, 4 of the liver, 2 of the lung and one of the brain, all recovered. Of 78 cases of rheumatism 12 proved fatal from complications. One out of 2 cases of hemophilia died. Seventeen cases of cleft palate were operated on without a death, also 10 cases of congenital dislocation of the hip by the bloodless operation without mortality. In 27 cases of chorea one died of endocarditis. Of 33 cases of empyema, 6 died. Of 146 cases of pneumonia, 7 died, while the disease proved fatal 5 times in 24 cases of bronchopneumonia, and 5 times in 32 cases of endopericarditis and endocarditis, and no fatality in 6 cases of pericarditis. Twenty-two cases of appendicitis were operated on, with 4 deaths, among them one with perforation; and 6 radical operations for hernia, with 3 deaths. In 11 cases of intussusception, the operation failed to save life in 6. Of 2 cases of cirrhosis of the liver, both died. Of 50 cases of tuberculosis of spine and larger joints, one died. No mortality in 43 fractures of the limbs, and one death in 4 fractures of the skull.

ST. VINCENT'S HOSPITAL.

This is the only denominational hospital in Melbourne. It is conducted by the Sisters of Charity, a religious order, with the mother house at Dublin, Ireland. The present hospital is a private residence reconstructed for hospital use. It can accommodate 30 patients. Two surgeons, Mr. G. A. Syme and Dr. William Moore, and two physicians constitute the attending staff, to which must be added the different specialists, four anesthetists, the pathologist and the members of the outdoor department. Last year the Sisters received a government appropriation of \$3,500. The Catholic clergy are the most liberal subscribers. A small training school for nurses is connected with the hospital, in charge of the seven sisters. One interne answers for the resident staff. An elegant four-story brick building, with all modern improvements, and which will cost \$150,000, and which will accommodate 200 patients, is now in process of construction. The new building when completed will be the best hospital in Melbourne. Last year 10 cases of hydatid were operated on, all successful; 32 cases of appendicitis, with 2 deaths, in 8 the disease was complicated by suppuration; 25 cases of radical operation for hernia, without a death, and 6 cases of suprapubic cystotomy, with no mortality. The whole number of operations during the year amounted to 498, of which number 490 were relieved and only 3 died, a mortality of 1.6 per cent, a record which can not be surpassed and

which does great credit to the surgeons who performed the operations. I can not quit Melbourne without giving a brief description of a trip.

A TRIP TO THE GIANT EUCALYPTUS TREES.

On his arrival at Sydney the traveler's attention is attracted at once by two of the characteristic trees of the country, the wild fig tree and the eucalyptus tree. Two species of the former, the *Ficus australis* and the *Ficus macrophylla*, the Moreton-Bag Fig-tree, both of them indigenous through a great part of East Australia, the grandest of Australian avenue trees. They resemble each other very closely in appearance; the latter, however, is a larger tree and has broader leaves. The stems are short, the crowns broad and the roots wide-spreading. There is a dense foliage of evergreen leaves, which are oblong, with a deep green shiny upper and a pale green lower surface. The fruit is in the form of a miniature fig, with very small seeds, the favorite food of the wild pigeon. These trees are the principal shade trees in this and other Australian cities. The eucalyptus tree is the monarch of the Australian forests. It is found everywhere, on the coast, the plains, and invariably crowns every hill crest and all mountain peaks. It is an intolerant, jealous, selfish, anarchistic tree, its greatest virtue being its unconquerable patriotic sentiments. Diversity of climate and soil have succeeded in the course of thousands of years to break up the original family into nearly 400 species. Baron von Mueller has described 72. It is a strange tree. It never removes its green turban of pale green, long, narrow, pointed, aromatic leaves, but instead throws off its ragged garment of rough bark once a year, in order to exhibit its new, gay, grayish-white juvenile dress. I never lost sight of this tree during my 1,000 mile railway journey through the coast districts of Australia. The air everywhere was perfumed with the ethereal aromatic exhalations of this ubiquitous tree. I had heard much of the immense forests of giant eucalyptus trees of Australia, and was extremely anxious to satisfy my curiosity to see one of them. This desire was gratified Sunday, August 7. Accompanied by Professor Bird, his son, and Prof. G. A. Syme, we left Melbourne by rail at 11 a. m. and arrived at Healsville, 40 miles distant, two hours later. Healsville is at the foot of a range of mountains that rise to a height of from 2,500 to 3,000 feet above the level of the sea. The village is the terminal point of the railroad. The road passes through a prosperous agricultural and pasturage plain, from which the mountain ranges can be seen in the distance. The eucalyptus tree attains its largest size in the moist fertile ravines and summits of the mountains, where the rainfall is most abundant. A carriage awaited us at the depot, and we at once ascended the excellent zigzag road which leads over one of the mountain passes. From the very beginning we entered a forest of eucalyptus, with an almost impenetrable undergrowth of shrubs and bramble. Rabbits shot across the road with the speed of lightning, and the little Australian quail sought, slowly and thoughtfully, shelter in the inaccessible jungle. Magpies and the laughing jackass (Australian kingfisher) watched our progress and defied us in a language replete with mockery. It is a great treat to see a virgin forest of eucalyptus trees. As we ascended the steep, tortuous incline the trees became larger and larger, until we reached the highest elevation, when we were face to face with the patriarchs who were born centuries ago and had nearly reached the limits of their lives. Here were trees 250 feet in height and 33 feet in circumference. These veterans had not forgotten their customary habits: old and decrepit, they were engaged in throwing off their old clothing that had served them for fully a year. They began the divestment of their dilapidated clothing near the top of the evergreen crown, from where the rags were hanging down in streamers swayed to and fro by the mountain breeze, and many of them were lying in disorder at the foot of the rejuvenating veteran monarchs of the forest. They were not premature in changing their clothing. The bare parts of their bodies and limbs were already protected by a brand new coat and sleeves of a smooth silvery-white investment. The tree that lifted its head high above everything around it and reached

the greatest dimensions was the *Eucalyptus amadalina*, the giant gum tree. In some localities this tree attains a height of over 400 feet and a circumference of more than 60 feet. About the only other tree that is congenial to these anarchistic mountaineers is the fern tree. The pale green foliage and black, rough stem of the latter is in strong and pleasing contrast with the dark green crowns and white, smooth, bare trunks of the former. We found here three species of fern trees, the *Alsophila australis*, with a low, thick stem and a terminal scanty tuft of short cut leaves, the *Dicksonia antarctica* and the *Dicksonia davalliacea*, the high fern trees with a slender stem from 20 to 30 feet in height and an immense umbrella at its top made of fronds of enormous length. The *Dicksonia* in some localities is known to reach a height of 60 feet. The blue gum tree (*Eucalyptus globulus*), grows in abundance in Victoria. It attains exceptionally a height of 300 feet. It grows with unparalleled rapidity and yields a tough wood admirably adapted for shipbuilding and other purposes for which a durable and strong material is required. Shipbuilders can get keels of this timber 120 feet long. It is from this tree that eucalyptol and the various eucalyptus preparations are most profitably obtained. F. H. Faulding & Co., Adelaide, are the principal manufacturers of the eucalyptus preparations used as antiseptics in internal and external medicaments. We found in this forest a great number of one of the most beautiful of the ornamental trees of Australia—the golden wattle (*Acacia pyrenantha*), opening its blossoms of golden yellow in the form of long, drooping tassels. When in full bloom the evergreen leaves are almost obscured by this golden drapery. The tree attains a maximum height of about 30 feet; its long, slender trunk is branchless almost to its very top, and when, with the earliest indications of approaching spring, it decorates itself with a crown of gold, it presents a lovely sight even in the shadow of the giants of the eucalyptus race. The sight of a eucalyptus forest intermingled with the fern trees and the golden wattles and sprinkled with the fresh and brilliant early spring flowers is inspiring and leaves a pleasant impression which time can never erase from memory.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Insufficient Motility of Stomach.

Fulton, in the *N. Y. Med. Jour.*, gives the following treatment for this condition:

The diagnosis must be made of insufficiency due to atony or to obstruction. In both, stagnation of the stomach contents is to be prevented, and in both a diet must be given that spares the motor powers of the stomach. Aside from these common indications, different procedures must obtain in the atonic and in the obstructive forms. In the obstructive form early diagnosis indicates removal of the obstruction, this being practically the only method of treating such cases. In the atonic cases to improve the muscle tone and motor powers of the stomach is the indication.

DIET.

In those cases with reduced motor power a diet is selected on the basis of the more feeble the motility the more liquid the diet. Milk preparations, soft eggs, gruels, soups, and the various articles of concentrated food are to be chosen. A common error is to allow the patient too much liquid food at feeding. Liquids are both heavy and bulky, and if taken in this way add to the distension and discomfort. The feeding should be small and frequent. In cases of but slight motor insufficiency, if an

analysis reveals a fairly normal gastric juice solid foods, meats, purée of vegetables, toasts, etc., may be allowed. In these cases the best results are obtained by giving the patient but two meals a day. In weak, emaciated patients the stomach is usually unable to dispose of enough nourishment for the day on the two-meal plan; such patients do better on five or six smaller meals.

MEDICINAL TREATMENT.

The author states that relief for the distress of the patient is the chief result to be obtained by medicinal treatment. Strychnin gr. 1/24 should be given three times a day. The following prescription is of service in improving the peristalsis and fermentation after meals:

R. Creosoti	gr. ss-i	| 03-06
Puly, rhei		
Puly, saponis, aa	gr. i	| 06
M. Ft. pil. No. i. Sig.: One such pill after meals.		

Or:
 R. Bismuth. subicyclatis.....gr. x | 65
 M. Ft. chart No. i. Sig.: One such powder after meals.

Medicinal measures are also of value in correcting symptoms arising from abnormalities of the gastric juice. In all cases of this sort careful analysis of the state of the secretion is to be made, and the medical and dietetic efforts must be governed thereby. In the absence of HCl in gastric juice the dilute HCl given, freely diluted, in from 10 to 20 drop doses, through a glass tube, after meals, and repeated two or three times, is of decided value in some cases. If excessive acidity exists the following prescription is of value:

R. Magnesi levis .....		| 4
Sodij bicarbonatis, aa	ʒi	
M. Ft. chart No. i. Sig.: Give in one dose two hours after eating, and repeat if necessary to relieve the cardialgia.		

MECHANICAL MEASURES.

Lavage.—Lavage is indispensable in all cases in which there is abnormal retention of food. After food has lain in the stomach several hours longer than normal, and becomes thereby a decomposing, fermenting mass, its further retention and passage through the twenty feet of intestines can result only in further harm to the patient, by the absorption of toxins and disturbance of intestinal digestion. The author recommends washing the stomach daily, night or morning, in all those cases where food is found in the stomach before the morning meal. In less severe cases lavage may be practiced once or twice a week.

Results of Lavage.—1. Immediate relief from distress. 2. Improvement of the tone of both the secretory and motor mechanisms of the stomach. 3. Lavage should be controlled by the physician, otherwise its usefulness may become an abuse.

The author has used internal faradization of the stomach in fourteen atonic cases with undoubted improvement in all. He is uncertain, however, how much improvement may have been the result of the electricity, since the other measures mentioned above were also used.

Epilepsy.

Shoemaker, in the *Medical Bulletin*, outlines the treatment of this condition as follows:

TREATMENT OF THE ATTACK.

In cases preceded by an aura, a fit may sometimes be averted by encircling the limb with a moderately tight ligature. The patient may be instructed to carry with him constantly a girdle for this purpose. The inhalation of amyl nitrite may also do good at this stage. Pearls containing this agent can be provided by the patient and crushed in a handkerchief at the instant of warning of an impending attack. When the spasm is established the patient should be given an abundance of fresh air by keeping back the crowd, if the fit occurs in a public place, or opening the windows if it occurs indoors. The head should be raised, clothing loosened and measures taken to prevent him from hurting himself in his contortions. A piece of soft wood, rubber or roll of linen should be placed between the teeth to prevent biting the tongue. Allow the patient to sleep after the convulsion.

PREVENTION OF THE ATTACK.

Hygiene.—Fresh air, absolute cleanliness, a properly selected diet, moderate exercise in the open air (never carried to the point of exhaustion), moderate intellectual employment, avoid mental strain, strict temperance in all habits of life. Excesses of all kinds should be absolutely prohibited. Alcohol, tobacco, tea, coffee and condiments should be avoided. Constipation should be overcome.

Causative Treatment.—Each case should be studied to discover any exciting cause, and when such cause is found the next effort will be to remove it.

Medicinal Treatment.—Of the remedies used in this condition the author gives preference to the bromids and of these the potassium salt. All the other bromid salts have been tried, both alone and in various combinations. The following so-called Brown-Séguard antiepileptic mixture has found much favor:

R. Potassij iodidj	ʒi	4
Potassij bromidj	ʒiiss	30
Ammon. bromidj	ʒiiss	10
Potassij bicarbonatis	gr. xl	2 60
Spiriti chloroformi	ʒi	8
Infus. calumbe, q. s. ad	ʒvi	180

M. Sig.: Two teaspoonfuls morning and noon and three teaspoonfuls at night, diminishing the quantity after the convulsions cease, but continuing the remedy at intervals, especially at the time when the fits are liable to recur. If the patient be weak, the infusion of digitalis may be substituted for the calumbe.

When the bromids are prescribed for epilepsy it is best to begin with 10 or 15 gr. thrice daily and to increase the amount gradually until troublesome evidences of bromism supervene or until the daily dose necessary to hold the spasm under control has been found. The administration of Fowler's solution in 4 to 5 drop doses will often prevent the bromid eruption. Care should be taken to prevent, so far as possible, the disordered digestion, weakened heart action and impaired mentality which sometimes result from the long-continued use of the bromids. The oxid and valerianate of zinc are agents which may be employed in the treatment of epilepsy.

Borax has recently been proposed as a substitute for the bromids, and in some cases has given encouraging results. It is advised to be administered in doses of 10 grs. after meals, gradually increasing to a dram. Borax has the disadvantage of causing rashes on the skin, conjunctivitis and edema. The administration of the bromids must be carefully watched for both good and bad effects.

Bathing During the Menstrual Period.

At the recent meeting of the American Gynecological Society J. C. Edgar presented the following conclusions on this subject: 1. All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by caution and gentle progression, but not for every woman does this hold good, and surf bathing where the body surface remains chilled for some time should always be excepted. 2. A daily tepid sponge bath (85 to 92 degrees F.) during the menstrual period is not only a harmless proceeding, but is demanded by rules of hygiene. 3. In the majority of, if not all women tepid (85 to 92 degrees F.) sponge bathing after the establishing of the menstrual flow, namely, second or third day, is a perfectly safe practice. 4. Furthermore, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired.

Medicolegal.

Sufficient Evidence of Employment of Physician.—The Supreme Court of California affirms, in the case of Scott vs. the Superior Sunset Oil Company, a judgment for \$1,200 for several surgical operations and some 61 days' attendance on an employe of the company who was shot through the knee and

through the lung while protecting its land against jumpers. A majority of the company's board of directors, including both a director who was its secretary and treasurer, and the vice-president, actively participated in employing the physician and consulting with him concerning the care and treatment of the patient, all of which was done avowedly on behalf of the company. This, it is held, was sufficient to charge the corporation. It was not necessary that the employment should be made or ratified by action of the board at a regular meeting. The separate assent of a majority of the board was all that ought to be required under the circumstances presented by the evidence. Furthermore, there was no error, it is held, in admitting evidence of the knowledge of the directors in regard to the employment of the physician by its secretary, acting for the company. Such evidence was clearly proper when coupled with evidence of the express assent to the employment by a majority of the board.

SOME 1904 IOWA LEGISLATION.

Against Bringing Certain Drugs into Certain Places.—Chapter 134 of the Laws of Iowa of 1904 provides that any person, not authorized by law, who shall bring or pass or cause to be brought into any penitentiary, reformatory or industrial school of the state, or the grounds thereof, or into any enclosure, building, quarry, farm, garden or other place used in connection with any such institution in which prisoners or other inmates are required or permitted to be, any opium, morphin, cocain or other narcotic, or any intoxicating liquor, etc., shall be punished by imprisonment in the penitentiary for a term not exceeding five years. An attempt to do any of the acts prohibited shall be subject to the same punishment as the completed act.

Provision for Bacteriologic Laboratory.—Chapter 101 of the Laws of Iowa for 1904 provides that the bacteriologic laboratory of the medical department of the State University at Iowa City is thereby established as a permanent part of the medical department of the university work, and it shall, in addition to its regular work, perform all scientific analyses and tests, chemical, microscopic or other scientific investigations which may be required by the State Board of Health, and it shall make prompt report of the results thereof, under such rules and regulations as the said State Board of Health may from time to time adopt. The professor of bacteriology of the medical department of the state university shall be the director of said laboratory and shall make, or cause to be made, all such analyses, tests and investigations as shall be required by the State Board of Health as above provided, causing the same to be made without delay and giving such analyses, tests or investigations the preference of the point of time over all other work, and shall make prompt report of the result thereof to the Board of Health, or to such person or persons as the Board of Health may by rule or designation designate.

Registration of Births and Deaths.—Chapter 100 of the Laws of Iowa of 1904 provides that, for the complete and proper registration of births and deaths for legal, sanitary and statistical purposes, the State Board of Health is constituted state registrar of vital statistics. Local registrars of vital statistics shall be the health officers of cities and the clerks of townships. Each local registrar shall at once, on his election or appointment, appoint a deputy, subject to the approval of the State Board of Health, and the State Board of Health may also appoint, as sub-registrars, the clerks of all incorporated villages and not more than three other persons in each township, to file certificates of births and deaths, transmit them to the township registrars, and to issue burial and removal permits. The undertaker or person in charge of the funeral shall cause a certificate of death to be filled out, and, with a statement of the cause of death by the attending physician, or, in his absence, by the health officer or coroner, and file it with the proper local registrar. A certificate of birth of the standard form adopted by the United States census shall be made out by the physician, midwife or other person attending the birth of every child born in Iowa, or in default of such person, by the parent, householder, superintendent of an institution, or other responsible person, and filed with the local registrar of vital statistics

within ten days after the birth. In case the child is not named, the registrar shall deliver a supplementary blank for report of given name to the person filing the certificate, to be filled out and returned as soon as the child shall be named. The Secretary of State shall furnish blank certificates of birth and death to physicians, undertakers and local registrars. Any physician, midwife or other person violating any of the provisions of this act, or failing to properly register a birth or death as herein required, shall, on conviction, be considered guilty of a misdemeanor, and shall be fined not less than \$5 and not more than \$100, or be imprisoned not more than 60 days, or be subjected to both such fine and imprisonment, at the discretion of the court. The State Board of Health shall endeavor to see that the act is uniformly and officially executed throughout the state.

Removal of Persons Sick with Infectious Diseases.—Chapter 99 of the Laws of Iowa of 1904 provides that no person known to be infected or sick with any contagious disease dangerous to the public health shall move or be removed from one city, town or township to another city, town or township except as therein provided and by written permission of the local board of health of the city, town or township to which such person is to be removed. If any person known to be infected or sick with smallpox or other contagious disease dangerous to the public health shall, with the knowledge or consent of any member of the local board of health of the city, town or township in which he resides, be removed from said city, town or township to another city, town or township, either with or without the permission of the local board of such city, town or township to which he is removed, all expense of quarantine or care of such person incurred by the city, town or township to which he is removed shall be paid by the city, town or township from which such person was so removed. If said person be so removed to another county, said expenses shall in the first instance be paid by such county and recovered from the county from which such person had been removed. When it is determined by any physician or health officer that any person is sick with smallpox or any other contagious disease dangerous to the public health while in any city, town or township other than the one in which he resides, provided the distance be not to exceed 15 miles from his place of residence, then and in that event, if the person so diseased elect to be moved to the city, town or township in which he resides, he may be so removed by private conveyance along the least frequented highways, under escort of a health officer, to his abode immediately on determining that he is so diseased; and every such vehicle shall carry as a signal of warning, conspicuously displayed, a yellow flag not less than two feet square. All expenses of removal, care and quarantine of such person shall be paid by the city, town or township to which he is removed. Any person who shall move, or any physician or any member of a local board of health who shall cause or assist any person known to be infected or sick with smallpox or any contagious disease dangerous to the public health, to be removed from one city, town or township to another city, town or township, contrary to the provision of this act or of any regulation of the State Board of Health, shall be guilty of a misdemeanor and be punished by a fine not exceeding \$100 or imprisonment not exceeding 30 days, or both, at the discretion of the court.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

October 8.

- 1 *Gastroptosis, with Special Reference to the Surgical Treatment. Henry D. Beyer.
- 2 The Differential Diagnosis of Gastric Ulcer. Henry W. Bergmann.
- 3 *The Mild and Abortive Forms of Typhoid Fever. John B. Briggs.

- 4 *Penetrating Gunshot Wounds of the Abdomen, with Report of Cases. J. W. Long.
- 5 Dilation of the Stomach, with Special Reference to 48 Cases. John J. Gilbride.
- 6 Lessons Learned in Abdominal Postmortems. Byron Robinson.

1. **Gastroptosis.**—Attention is called by Beyea to the operation of gastropexy practiced by him for the relief of gastroptosis. The principle of the operation is that by placing three rows of interrupted silk sutures from above downward and from right to left through the gastrophaptic and gastrophrenic ligaments, a single, broad transverse fold or plication is formed in the ligaments, shortening these ligamentary supports and elevating the stomach to its normal position without in the least disturbing the physiologic mobility of the organ. No abnormal adhesions are formed between other structures; there is no fixation of the stomach, and with the formation of a broad surface of adhesion between the surfaces plicated, sufficient strength is gained in the shortened ligaments to maintain the stomach permanently in normal position. That this is true Beyea has determined by the physical examination of one patient three and one-half years and another one and one-half years after operation. Eleven cases have thus far been operated on by this method—5 by the author, 2 by Martin and 4 by Bier. All had suffered for from five to fifteen years with the characteristic and very severe symptoms of gastroptosis. The convalescence in each case was normal and easy. The patients were kept in bed in the recumbent position for four weeks after operation and on a special diet. In every case the improvement in health has been most remarkable and the relief of symptoms complete: food of any character is taken without restriction. In no instance, regardless of the time which has elapsed since operation, has the stomach changed its position. The author concludes that the completeness of the relief, the simplicity of the operation and the fact that it is practically free from danger (the estimated danger being not greater than a fourth of 1 per cent.), strongly recommend this operation in every case of gastroptosis in which the suffering is great. It is well to note, however, that the patients thus far operated on represent but one class, those with gastroptosis and without relaxation of the abdominal walls or diastasis of the recti muscles.

3. **Mild and Incomplete Typhoid Fever.**—Briggs has made a careful study of cases in the literature and concludes therefrom that it is altogether probable that mild typhoid is affecting a large number of people every autumn and winter, and that it is certain that in the majority of instances the disease is not recognized. Very few of the patients present themselves for hospital treatment; while in private practice the absence of striking features in this type of the disease accounts for its attracting less attention than the much rarer fulminant, hemorrhagic and other extraordinarily severe forms. The paucity of symptoms makes thorough physical examinations and frequent collections of blood for Widal tests apparently unnecessary. Five cases are cited and the symptoms discussed in detail.

4. **Gunshot Wounds of the Abdomen.**—The value of timely surgery in the treatment of penetrating gunshot wounds of the abdomen is shown by Long, who operated on 5 cases, with 3 recoveries. In one case death occurred nine hours after operation, probably due to hemorrhage from the liver. In the other case the patient died on the fourth day, death probably being due to overlooked bladder perforations. As points worthy of consideration he mentions the following: 1. Consider all abdominal wounds as penetrating until the contrary is proved by exploration. 2. Consider all penetrating wounds as having injured the viscera, and operate. 3. Operate promptly at the first possible moment. 4. Inspect carefully every viscus that could possibly be injured. 5. Make a careful toilet of the peritoneum. 6. Use salt solution freely in the abdomen, under the skin and in the bowels.

Medical News, New York.
October 8.

- 7 *The Incidence of Gastric Ulcer in America. Campbell P. Howard.

- 8 *The Condition of the Blood and Urine in Gastric Ulcer. Thomas B. Fitcher.
- 9 *The Pathologic Anatomy of Gastric Ulcer. Harlow Brooks.
- 10 *Complications and Sequelae of Gastric Ulcer. Morris Manges.
- 11 *Symptomatology and Course of Gastric Ulcer. Max Einhorn.
- 12 Further Remarks on Orthoform in the Diagnosis of Gastric Ulcer. Frank H. Murdoch.
- 13 *Castor Oil and Salts. Edward P. Carlton
- 14 Internal Antiseptics. J. X. Hall.

7. **Incidence of Gastric Ulcer.**—A careful study of the hospital records of cases of gastric ulcer with reference to their geographic distribution leads Howard to conclude that both clinically and pathologically gastric ulcer is less frequent in America than in London and on the continent. And, that both clinically and pathologically, ulcer is more common in the northeastern than in the more southern regions of America, with the exception of San Francisco.

8. **Blood and Urine in Gastric Ulcer.**—In the past fifteen years 77 cases of gastric ulcer and 5 cases of duodenal ulcer were admitted to the Johns Hopkins Hospital. Fitcher presents the blood and urinary findings of the cases in which such examinations were made. The red cells were counted in 44 cases. The highest count was 6,780,000; the lowest, 1,912,000; the average of 67 counts in these 44 cases was 4,071,000. The leucocytes were counted in 45 cases. The highest count was 40,000; the lowest, 1,100; the average of 263 counts was 7,500. The hemoglobin was estimated in 44 cases. The highest was 105 per cent.; the lowest, 12 per cent.; the average of 62 separate determinations was 58 per cent. The average color index was .72. The blood picture in the series was that of a secondary or chlorotic anemia. The alterations that may occur in the urine are neither striking nor constant, and may occasionally be accidental and due to some other cause. Albumin and casts were present in 14 cases; a trace of albumin alone in 7; in 55 the urine was negative so far as albumin and casts were concerned, and in 5 no record was made. If dilatation be considerable and the fermentations due to micro-organisms increase, the urine may contain an excess of ethereal sulphates and indican. Acetone and diacetic acid may occur in the urine in gastric ulcer.

9. **Pathologic Anatomy of Gastric Ulcer.**—Brooks believes that primarily gastric carcinoma frequently arises in the healing lesions. Two of his cases of gastric cancer showed this distinctly, both in their clinical history and from the subsequent anatomic findings.

10. **Complications and Sequelae of Gastric Ulcer.**—In 52 cases studied by Manges the following complications were noted: Hematemesis, 10; perforation, 4; perigastritis, 2; intestinal obstruction, 1; thrombosis of splenic vein, subphrenic abscess, gangrene of spleen, abscess of liver, and necrosis of lung, 1. The sequelae were, carcinoma, 4; pyloric stenosis, 6; recurrence, 2.

11. **Course of Gastric Ulcer.**—In Einhorn's experience the percentage of seemingly permanent recoveries from gastric ulcer is much larger than the figures quoted by others. He suggests that this may be due to the way the patients live after a cure has been obtained. Those leading a rational life, avoiding too coarse foods, and violent exercises, have a greater chance of remaining well than those who can not have the much desired care. The percentage of recurrence is greater in hospital patients than in private practice.

13. **Castor Oil and Salts.**—In order to overcome the repugnance to these two remedies Carlton prescribes them as follows:

R. Vanillin	.....	xx	112
Oleol. menth. pip.	.....	5j	4
Garantose (saccharin)	.....	5jss	6
Alcohol	.....	℥iij	100
Tinct. persicosis	.....	5ss	16
Oleol. ricini, q.s. ad. one-half gallon	.....		2000

Dissolve the vanillin, oil of peppermint and garantose in the alcohol. Add the tincture of eucubar to the oil and shake thoroughly. Finally mix the two mixtures. Carlton says that this mixture keeps well, looks nice, is pleasant to take,

does not leave a bad after-taste, and for all practical purposes is a disguised oil.

Medical Record, New York.

October 8.

R Magnesium sulphatis	.....	℥ssiii	1000
Flint, cardamom, comp	.....	ʒi	64
Vanillin	.....	gr. xx	1 3
Garantose	.....	ʒi-iv	8-16
Alcohol	.....	ʒi	64
Glycerin	.....	ʒi	64
Coffee, roasted and ground	.....	ʒi	64
Aque q.s. ad. one-half gallon	.....		2000

Stir the ground coffee in half a gallon of boiling-hot water and allow it to stand for from ten to twenty minutes. While still hot add enough of it to the magnesium sulphate to make about three and one-half pints. Dissolve the vanillin in the alcohol, add the glycerin and then the cardamom. When the first solution is cooled somewhat add the second mixture to it. After shaking thoroughly add the garantose and enough of the coffee infusion to make one-half gallon. Filter through a covered filter. An ounce of this solution contains half an ounce of magnesium sulphate. The solution is said to keep well, has a dark, whisky-like color, a nutty odor, and is easy to take, warm or cold. It should be taken with twice its volume of water.

New York Medical Journal.

October 8.

- 15 *Dupuytren's Finger Contraction. Clarence A. McWilliams.
- 16 *A Vesical Calculus of Unusual Size. A. B. Wright.
- 17 Respiratory Education in the Treatment of Lung and Heart Disorders. J. Madison Taylor.
- 18 The Present Condition of Tenotoplasty. (Concluded.) Professor Vulpis.
- 19 The Economics of Tuberculosis. John B. Huber.
- 20 Vulvovaginitis in Little Girls; a Clinical Study of 190 Cases. (To be continued.) Sara Welt Kalkel.
- 21 Observations on Carbolic Acid Poisoning. Charles V. Burke.
- 22 Case of Syphilis, in a Boy Six Years of Age, Contracted by Coitus. G. Frank Lyndon.

15. Dupuytren's Contraction.—McWilliams reports a case which was operated on with the result that the patient had a hand which was as useful as it ever had been. The sensation was perfect in all the fingers except in an area the size of a lead pencil on the center of the palmar surface of the last phalanx of the little finger, where there was some numbness and insensibility. The principle of the operation was the excision of the fascial bands. It is described by McWilliams as follows:

Tourniquet about lower arm. Incision longitudinally along the palmar band continued on the first ring finger phalanx. Two incisions made from near the extremity of the first incision, one over the band going to the middle finger, the other to the little finger. Skin edges dissected away on both sides of the incision from the dense underlying fascia. Small cut flaps connecting the fascia and the skin had to be divided. The prominent longitudinal band was about two-fifths of an inch wide and of the consistency of cartilage. It could only be cut away piecemeal, as it was intimately adherent to the tendon sheath beneath, which latter was with difficulty recognized and was opened in one place by mistake. The digital nerves were not clearly identified until they were traced back into the palm from the sides of the fingers. After the palmar band had been excised, the fingers still resisted extension. This was found to be due to accessory bands extending to the sides of the fingers. It was impossible to dissect these all away, so that it was necessary to be content with transverse division of them, thereby running the risk of dividing the digital nerves. The fingers finally could be straightened after stretching the skin, which cracked slightly in one or two places. The opening in the tendon sheath was closed with catgut and the skin brought together with fine silk, an opening being left in the middle of the palm for a small gauze drain. The tourniquet was removed, a copious dressing applied, and the hand with the fingers perfectly straight bandaged to firm splints, anterior and posterior.

Careful post-operative treatment, says McWilliams, is highly essential. Splints should be applied until healing has taken place. At the end of two weeks they may be removed each day for gradually increasing periods, when massage and passive motions should be instituted. No greater degree of extension should be applied immediately than can be employed without too much tension being exerted on the wound for fear of gangrene. In bad cases it may be well to have the patient wear at night for some time some form of splint or retentive apparatus to hold the fingers in full extension.

16. A Vesical Calculus.—The stone in this case was found in the bladder of a boy aged 7 years and measured 2½ inches in length and 1 inch in thickness. It was composed of ammonium and magnesium phosphates and weighed 14.96 grams. The patient recovered.

- 23 Perineal Prostatectomy, with Report of Ten Cases. Henry H. Morton.
- 24 Hospital Notes on Epidemic of Cerebrospinal Meningitis. José M. Escobar.
- 25 *Early Cirrhosis of the Liver and Its Treatment. Hubert Richardson.
- 26 *Case of Strangulated Umbilical Hernia with Unusual Features. J. J. Buchanan.
- 27 Case of Supposed Primary Tuberculosis of the Pharyngeal Tonsil. D. M. Barstow.
- 28 *Diabetes in Two. Leonard Weber.

25. Treatment of Cirrhosis of the Liver.—After a brief discussion of the physiology of the liver and its relation to the etiology of cirrhosis, Richardson considers the treatment. He advises the following: Attention to gastrointestinal digestion, because if the food supply of the organism is perverted or reduced, it can not be expected to recuperate. The elimination of bile from the liver should be increased by the administration of sodium glycocholate with the addition of small doses of mercury. The ductility of the bile can be increased by the administration of alkaline mineral waters with sodium salicylate. Biniodid of mercury with iodid of potassium has a very beneficial effect in many cases of nephritis which are associated with hepatic insufficiency. Hepatic cirrhosis is the result of a toxemia and its treatment must, therefore, consist in the removal of the cause of the intoxication, with, at the same time, stimulation of the liver, so that it may do its part in the oxidation and elimination of the poisonous substances.

26. Strangulated Umbilical Hernia.—The case reported by Buchanan was complicated by gangrene of the abdominal wall overlying the hernia, and destruction of the free surface of the cecum, the ascending and transverse colon, with the distal border of the splenic flexure. After excision of the gangrenous portion of the bowel the ileum was implanted into an opening in the side of the sigmoid by simple continuous suture. The patient made an uneventful recovery.

28. Diabetes in Two.—Weber reports three instances of this kind where the husband became rather acutely affected with diabetes after the wife had been a sufferer from it for ten years or so. There was neither consanguinity nor similarity of constitution, disposition or temperament; indeed, the two partners were mentally and physically about as different as could be. Their domestic life, however, their habits and the kind of food consumed had been the same for many years. They had always slept together. Weber suggests that it is not desirable that a diabetic and a non-diabetic person should habitually sleep in the same bed. The acetone exhaled with the breath and the sweat of the diabetic might possibly, in the course of years, affect the physiologic functions of the liver and pancreas, with regard to dextrose, through the blood and nervous system. Then, too, the hopeless state of health of a beloved person might affect a sympathetic partner.

Boston Medical and Surgical Journal.

October 6.

- 29 Gastric Ulcer in Children. (To be continued.) Elbridge G. Cutler.
- 30 Pericemental Abscess. D. D. Smith.
- 31 *A Comparison of Anesthetics: Results from Chlorotone. Theodore C. Beebe, Jr.
- 32 Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (To be continued.) Percy Musgrave.
- 31. Comparison of Anesthetics.—Beebe presents the statistics obtained from 214 cases, in 65 of which gas and ether were used, in 34 ethyl chlorid and ether, in 110 anesthol and ether, and in 5 anesthol alone. He finds that there does not seem to be any class of cases in which ethyl chlorid has any advantage over either gas or anesthol, while its expense is a distinct disadvantage in a large clinic. Its record for safety has not proved equal to gas and anesthol. In a large clinic where speed is required gas is by far the more desirable. The absence of odor also tends to make gas the more popular. In alcoholic or powerful individuals who take gas poorly, or where there is some heart or lung complication, anesthol is a very efficient adjunct. Anesthol causes least disturbance of the pulse and

respiration rate, gas next, and ethyl chlorid most. Gas is the quickest to produce its effect, ethyl chlorid next, and anesthol last. On the other hand, profound anesthesia may be obtained with safety for a greater time with anesthol than with either of the other two drugs. During administration of the anesthetic there is the least struggling with anesthol, next with gas, and the most with ethyl chlorid. Beebe also noted the results obtained from the administration of chlorotone to prevent nausea and vomiting after anesthesia. Chlorotone, in amounts from 5 to 36 grains, given in 5-grain capsule, was used in 164 cases. The best results were obtained in adults with 10-grain doses given twenty to thirty minutes before starting the anesthetic. If given inside of twenty minutes the patient is liable to vomit soon after the anesthetic is started, thereby losing all benefit of the drug. While chlorotone has not always proved a reliable specific in preventing nausea and vomiting, it has been a great aid. The patients made a quicker recovery than when nothing was given. Vomiting, when present, usually took place before the return to consciousness, so that the patient had no distinct recollection of the occurrence. In more than half of the cases there was no conscious nausea or vomiting.

Cincinnati Lancet-Clinic.

October 8.

- 33 *Strontium Bromid. Joseph Eichberg.
34 The Discharging Eye. Mark D. Stevenson.

33. **Strontium Bromid.**—Eichberg advocates the use of strontium bromid in 10-grain doses three times daily as a diuretic, particularly in the nephritides. If necessary the dosage is steadily increased until the patient passes between three and four pints of urine; then the dose is reduced to 5 grains. Although strontium bromid is less serviceable than digitalis as a diuretic, there are many persons who bear digitalis badly or in whom the drug is contraindicated, and in such the strontium salt may render most valuable aid.

St. Louis Medical Review.

October 8.

- 35 Remarks on the Surgery of the Biliary Passages. (Concluded.) Maurice H. Richardson.

American Journal of the Medical Sciences, Philadelphia.

October.

- 36 *Acute Leukemia in Early Life. Frank S. Churchill.
37 A Case of Acute Lymphatic Leukemia. R. C. Rosenberger.
38 Experimental Arthritis and Endocarditis Produced by a Streptococcus Isolated from the Blood of a Case of Rheumatism, Endocarditis and Chorea. M. J. Lewis and W. T. Longcope.
39 Operations for Primary Carcinoma of the Liver. Leonard Freeman.
40 *The Shape of the Chest in Health and in Pulmonary Tuberculosis. L. Brown and E. G. Pope.
41 *Pulmonary Streptothricosis. Alfred S. Warthin and Herbert S. Olney.
42 *Tuberculosis and Heart Disease. George Wm. Norris.
43 Hemagglutinins of Bacterial Origin. Richard M. Pearce and Charles K. Winne.
44 Report of an Anomalous Lateral Sinus and a Case of Thrombosis of the Lateral Sinus. Barton II. Pettis.
45 A Case of Glioma in the Cella Turcica. F. H. Howard and E. E. Southard.
46 Diabetic Glycosuria. Heinrich Stern.
47 *An Unusual Ovarian Condition. Lewis Schooler.
48 Studies on the Capsule of the Kidney. H. Emerson.
49 On the Early History of Cerebral Localization. John E. Donley.

36. **Acute Leukemia in Early Life.**—Churchill cites 14 cases culled from the literature and adds one from his own practice. The patient, aged 4, always had good general health and did not have any of the acute diseases of childhood. The family history showed a tubercular taint. Illness began a few months before advice was sought, but the only symptoms were a loss of appetite and a gradually increasing waxy pallor. The blood count showed 3,500,000 red cells, 10,000 white cells; hemoglobin, 75 per cent. There were no signs of hemorrhage anywhere and no tenderness over the long bones. On the seventeenth day of the illness the spleen was felt one inch below the ribs. The pulse rose gradually to 134, but was strong and regular, except at night, when some irregularity was noted. Blood appeared in the stools on the twenty-seventh day, and continued to appear until death ensued on the twenty-ninth day. The bacteriologic examination of the blood revealed

streptococci. The day before death occurred the blood findings were: Red, 1,280,000; white, 8,000; hemoglobin, 15 per cent. A differential count was made of 1,000 white cells. Of these 98.2 per cent. were mononuclears, 1.55 per cent. polynuclears, .3 per cent. eosinophiles, 1 normoblast and 1 myelocyte (?). At the autopsy there was noted in the organs and tissues generally an infiltration with lymph adenoid cells, closely resembling the small mononuclear lymphocytes seen in the blood during life. The bone marrow was replaced by a reticulum filled with blood containing large numbers of nucleated red cells, but few giant cells were found. Churhill concludes that all cases of leukemia are myelogenous in origin and that the acute variety is more apt to be of the lymphocytic type. Although the disease is rare in early as well as in later life, it is probably more common than has been supposed, 22 cases of the acute or subacute variety having been recorded since 1898, while previous to that date only 7 cases are on record. The course of the disease in children differs from the adult type only in minor details; hemorrhages are fewer and less severe; the lymphocytosis is more apt to be of the small variety. The disease is always fatal.

40. **Chest in Pulmonary Tuberculosis.**—Brown and Pope have made a very careful study of the shape of the chest and its changes in disease, especially in pulmonary tuberculosis. They find that the measurements of the normal chest up to this time have not been determined with sufficient accuracy to allow of very positive conclusions. Race, age, occupation and altitude are factors that must be considered in determining the normal measures and relations. The chief impression they gained from their study is that the chest, which is subnormal in its diameters and normal or supernormal in its length, is the chest more subject to pulmonary tuberculosis, though whether in many cases the disease liability and the shape of the chest are not both results of the same conditions and not casually connected is an open question. Influences which tend to improve the development of the chest tend also to prevent consumption, and this may account for the relative immunity of the well-developed chest. The anteroposterior diameter of the chest in health may be stated to be about 20.5 cm. at the level of the nipples, the transverse diameter about 28 cm., giving an index of 73. In the early stages of pulmonary tuberculosis the anteroposterior diameter at the level of the fourth costal cartilage is about 19.5 cm., the transverse about 27, giving an index of 72. In advanced stages the figures are about 19 cm. and 25 cm. and the index 76. The chest index is readily changed within certain limits in the individual. The female chest shows a tendency to a lower index than the male. Pulmonary tuberculosis has a tendency to reduce the diameters of the chest, and it seems as if it also reduced length. The progress of the disease probably tends to increase the index, though further data are necessary before this can be confidently stated. The authors also found that there seems to be some tendency for the chest in pulmonary tuberculosis to acquire a larger or smaller index—that is, to divide into two types, one flat (index 68 to 70), and one deep and round (index 78 to 80), but both reduced in size. The relation of the diameters does not appear to have any prognostic value, as at either extreme there is no tendency in early cases of pulmonary tuberculosis to show an unduly large proportion of extreme indices. The change of index in pulmonary disease is probably not due to emaciation, but to change in bulk of the lungs. The chests of patients receiving sanitarium treatment showed that there is a marked increase in both expansion and respiratory movements, more striking in advanced than in incipient cases.

41. **Pulmonary Streptothricosis.**—Among the recently reported cases of human infection with streptothrices there stands out prominently a small but exceedingly interesting group of pulmonary cases presenting the clinical picture of tuberculosis, broncho-pneumonia or gangrene, but in which the infective agent appears to be some form of streptothrix differing from *Streptothrix bovis communis*. Warthin and Olney add to the casuistics of this subject one case. The patient, aged 45, a

farmer, has always been well, although not strong. His present trouble began with an attack of grip, after which a moderate cough and expectoration persisted. He became very much weakened and emaciated and finally was obliged to go to Colorado, a diagnosis of tuberculosis being made. Chest expansion was normal; there were no areas of dullness and no signs of cavities. Re-piration was labored. On auscultation, blowing breath sounds and dry crepitant râles were heard all over the chest. The sputum was muco-purulent in character, had no disagreeable odor, but was raised with difficulty. The temperature ranged from 102 to 103. The clinical picture suggested a chronic bronchitis or broncho-pneumonia of tubercular origin. The sputum contained great numbers of minute grayish granules, which proved to be masses of a filamentous organism closely interwoven and branching freely. With 25 per cent. sulphuric or nitric acids they were "as acid-fast as the tubercle bacillus," but gradually lost their stain when washed in 95 per cent. alcohol. A very thorough search was made for the tubercle bacillus, but none were found. With Gram's the branching threads stained beautifully. Streptococci and staphylococci were present in small numbers. The organism showed true branching and beading. The existence of such a condition as the one in the case cited is of great importance insofar as the question of the differential diagnosis of tuberculosis is concerned. It was impossible to make cultures in this case so that an absolute identification of the species of streptothrix is impossible. The authors believe, however, that it is the *Streptothrix eppingeri*, or a very closely related species.

42. **Tuberculosis and Heart Disease.**—Within the last year Norris examined all the postmortem records at three hospitals, aggregating a total of 7,040, and collected the data from all those which showed tuberculous lesions of the lungs, pleura, pericardium, heart and great vessels, with a view of studying their frequency and relationship. Of these autopsies, 1,764 were tuberculous cases. Norris also reviewed the literature, and had access to 1,276 clinical histories. Statistics have also been gathered from 57 successive cases of valvular heart disease which have come to autopsy. All this work was suggested by the teachings of Rokitsky that valvular disease of the heart, especially when affecting the mitral or aortic valves, as well as aneurisms of the large vessels, hydrothorax and even scoliosis lessen the tendency to pulmonary tuberculosis. Norris suggests that the increased resistance to tuberculosis in individuals with scoliosis probably exists not by reason of venous stasis, but because patients who have recovered from an attack of tubercular bone disease have usually developed an inhibitory capacity to tuberculosis of considerably greater potency than that possessed by an unaffected organism. In view of the frequency with which tuberculosis of the lungs has been found to be associated with valvular heart disease, Norris concludes that the latter exerts but very slight influence, if any, on the former, either as an inhibitive or curative influence, even if satisfactory compensation is maintained. Considering the relative frequency of valvular lesions in general, mitral stenosis does not seem to be less often coincident with tuberculous disease of the lungs than other varieties of heart lesions. Stenosis of the pulmonary orifice, however, seems to favor the development of tuberculosis of the lungs, and a very large proportion of these cases die of the latter disease. It is doubtful whether smallness of the heart predisposes to pulmonary tuberculosis to a greater degree than is explainable by the general systemic underdevelopment and lack of resistance which such individuals often exhibit. It is a fact, however, that small hearts, either as a result of wasting or hypoplasia, are commonly found at tuberculous autopsies, while large hearts are not often encountered in uncomplicated cases. Arterial and endocardial thickening is a common result of tuberculous intoxication, but it is doubtful whether this process attains a sufficient degree to produce valvular incompetency. Tuberculous endocarditis and myocarditis, particularly the former, occur with considerable rarity; but pericarditis, especially the chronic forms, very frequently

owes its existence to the presence of the tubercle bacillus. Tuberculosis of the aorta also is rare; the condition may result in the formation of an aneurism. The cardiac muscle undergoes various forms of degeneration in pulmonary tuberculosis, fatty and fibroid changes being very common, a fact which explains the signal failure of digitalis and certain other heart stimulants to benefit these cases. Uncomplicated cases of pulmonary tuberculosis often exhibit such striking differences in resisting power, and frequently evince such a remarkable tendency toward recovery, even in seemingly hopeless cases, that we should accept only the most absolute evidence as proof that either the coincidence of another pathologic condition or the administration of a special remedy has conferred a benefit on the patient.

47. **An Unusual Ovarian Condition.**—In the case reported by Schooler, an enlarged fallopian tube extended from the uterus to the enlarged and displaced spleen, and was so firmly attached as to admit of no displacement. The spleen was at least six times its normal size, black, and glistened like an old blood clot, but was firmer. The structures were divided between two ligatures and the abdomen closed. Obstruction of the bowels followed in nine weeks, and operation showed extensive adhesions almost the entire length of the descending colon. The patient recovered. Previous to the second operation, Schooler believed that this was a case of floating spleen, but the findings at the last operation caused him to abandon that theory. He offers no solution of these findings.

St. Paul Medical Journal.

October.

- 50 The Relationship of the Minnesota State Board of Health to Water Supplies. F. F. Westbrook.
- 51 Tuberculosis a Preventable Disease, with Especial Consideration of Distribution of Tubercle Bacilli and the Usual Avenues of Infection. J. Frank Corbett.
- 52 Causes and Treatment of Acute Articular Rheumatism. E. A. Hensel.
- 53 The Surgical Treatment of Epithelioma of the Lip. J. Clark Stewart.
- 54 The Indications for Operation on Enlarged Cervical Glands. Warren A. Dennis.
- 55 Surgery in General Practice. W. A. Gerrish.
- 56 Medical Department of the U. S. Army. E. B. Frick.
- 57 The Inebriate, a Medical and Social Problem. J. W. Dunning.

51. **Distribution and Prevention of Tuberculosis.**—Corbett gives a general review and cites the statistics taken from 84 cases of tuberculosis in Minneapolis, which are as follows: Tubercular history, no contact with tubercular members of family, 8; tubercular history and contact with tuberculous members of family, 20; no tubercular history and no contact with tuberculous members of family, 36; no tubercular history, contact with tuberculous members of family, 7; tubercular history and contact with tubercular associates, 3; no tubercular history and contact with tubercular associates, 7. The following rare and unusual methods of infection were discovered: 1. Infection from a coat. A Scandinavian mail carrier, previously healthy, developed tuberculosis soon after wearing a fur coat which had formerly been worn by a man who died from this disease. 2. Infection from husband apparently cured, to wife and brother. 3. Infection from house. Case 1 developed consumption and died. The rooms, with furnishings, were rented to Case 2, who also developed the disease and died. Case 3 rented the room, and after an attack of the disease went south and recovered completely. After the house had been thoroughly fumigated and cleaned, no new cases developed. 4. Infection following close on syphilis as general military tuberculosis. Developed in secondary stage. Three cases. 5. Infection following typhoid. At a postmortem examination lesions of typhoid and tuberculosis were found. 6. Infection of a family, father, mother, son and daughter, who had been in intimate contact. No disinfectants were used. 7. Infection of nurse, orderly, and scrubgirl. The prophylactic measures advocated by Corbett for the prevention of tuberculosis are those with which all physicians are familiar, and, therefore, need not be repeated at this time.

New Orleans Medical and Surgical Journal.

September.

- 58 An Interesting Case of Nephrectomy and Nephrolithotomy. G. Frank Lydston.

October.

- 59 *Removal of the Lens in High Myopia. Henry D. Bruns.
60 *Silver Nitrate Injections in the Treatment of General Pyogenic Infections. Joseph Hume.

59. **Removal of Lens in High Myopia.**—Bruns says there are three classes of myopes for whose benefit this operation may be considered: 1. Extreme myopes of elderly or middle-age in whom the pathologic changes do not exceed the production of cones. In these the operation is unnecessary, except for particular reasons, such as the relief of recurring attacks of pain with injection of the eye, a condition that renders existence more or less miserable. They can usually be assured of useful vision, that will outlast the remainder of their lives, by properly adjusted glasses. As a rule, the danger of the extraction will outweigh the benefits conferred, for these persons will be least appreciative of the improved vision that may be obtained. 2. Extreme myopes of elderly or middle-age, in whose eyes extensive pathologic changes have taken place. Here the operation is virtually contraindicated, and only exceptional and imperative reasons should lead to its being undertaken. The dangers of extraction are very great. 3. Extreme myopes between the ages of 10 and 25. The prophylactic value of the operation is very high, for without it the patient is almost surely doomed to a purblind middle and old age. The operation can be very safely and painlessly done by cautiously repeated dissections. Vision is usually at once greatly improved as to kind and degree. Length of time is not to be considered in comparison with the horror of destroying a healthy, useful eye in an attempt to improve vision, or obviate a danger that the patient may never live to encounter. One eye only should be operated on at a time, and a long interval should elapse before the second eye is operated on, so that every opportunity may be afforded to judge of the degree and permanency of the result.

60. **Silver Nitrate Injections.**—Hume has utilized this treatment in 11 cases of pyogenic infection, with two deaths, one thirty-three days after the patient was reported doing well, and this death was due to an intercurrent affection. The other death was the result of embolism occurring in the course of malignant endocarditis. The silver injection was given 20 times, all the cases, with one exception, being *in extremis*. The injections were given as a last resort. In all the injections a characteristic reaction followed. In typhoid fever the leucocytes rose from about 5,000 to 20,000; the reds decreased about 800,000, and the hemoglobin fell about 10 per cent. In acute military tuberculosis the white cells before injecting numbered 4,000; they disappeared after the injection, and then reappeared and rose to 10,000. The solution was given over fifty times with no untoward results save a localized phlebitis twice, which Hume subsequently was able to avoid by handling the vein less. The injection has no influence on wound healing, nor does it interfere with kidney function. The urine is usually increased in amount, and in one case of acute nephritis of toxic origin the urine, which contained no casts, blood cells and albumin, became normal in quantity within forty-eight hours after the silver injection. Hume uses 1 cc. of a fresh 10 per cent. solution of silver nitrate in 1,000 cc. of sterile or sterile distilled water, each 100 cc. of the solution containing 10 milligrams of silver. As a rule, he injects 500 cc. at a time, although weaker and stronger solutions may be used. It is advisable to use only freshly made solutions at a temperature of 110 or 115, and they should be used rather slowly, so that 100 cc. are introduced into the vein every two or three minutes. Any superficial vein of sufficient size may be selected, but the median cephalic, or basilic, are the most suitable. The injection is made under the usual antiseptic precautions. Immediately after there is a rise in temperature, followed by a gradual decline, which is accompanied by the most profuse sweating which lasts for hours but does not weaken the patient. Within twelve hours the temperature is usually about normal, and the general condition of the patient is considerably improved.

Carolina Medical Journal, Charlotte, N. C.

September.

- 61 Dermoid Tumors of the Conjunctiva. Richard H. Johnson.
62 The Nephritides; a Review. Robert E. Mason.

- 63 *Gelatin Treatment in Aneurism. E. G. Williams.
64 Report of Injuries of the Brain and Cord. P. M. King.
65 Some Notes on the Symptoms and Diagnosis of Cholelithiasis. Stuart McFuire.

63. **Gelatin Treatment in Aneurism.**—An aneurism of the abdominal aorta was treated by this method by Williams, six injections being given in seven weeks, 90 cc. in all, of a solution containing 6.5 grams of gelatin and .4 of a gram of calcium chlorid. At this time the patient felt very well, was free from pain and was able to walk about with comparative ease. The aneurismal mass was firmer and the bruit less distinct and of a higher pitch. The injections of gelatin were continued through the following eight months at intervals of about two weeks, but larger injections were given, from 20 to 60 cc. of the solution. The patient died ten months after the beginning of the treatment, the injections failing to give relief from pain and discomfort toward the end. At the autopsy a dense laminated anemortem clot, crescent-shaped and thickest in the middle, was found to occupy the anterior wall of the sac, but did not appear to be closely adherent to the wall. Microscopic examination of the clot showed it to consist of a dense mass of fibrin, apparently deposited in layers at different times. The aneurism ruptured posteriorly. Another case was given three injections, 30 to 40 cc. of a solution containing 10 per cent. gelatin, but died within a month. Two other cases of suspected aneurism of the thoracic aorta were subjected to the same treatment, but without result, except that the patients believed that the pain was temporarily relieved. Williams urges that the treatment is one that should be given a thorough trial. It is practically painless, if given with due care, and so far it seems to be harmless, if the solution is properly sterilized. The gelatin undoubtedly increases the coagulative power of the blood, but its use is of value only in cases of sacular aneurism. Gelatin injections doubtless are of great value in many cases of hemorrhage and other conditions where a prompt increase in the coagulative power of the blood is desired.

Virginia Medical Semi-Monthly, Richmond.

September 23.

- 66 *Treatment of Typhoid Fever. William S. Gordon.
67 Treatment of Malaria. Robert M. Sterrett.
68 Pain—Its Importance in Health and Disease. R. D. Garcia.
69 Present Status of the Flexible Rectal Tube. Samuel T. Earle, Jr.
70 Gastric Ulcer in Children. E. G. Cutter.
71 Recent Impressions of the Medical Society of Virginia. Herbert Old. Proposed Reorganization of the Medical Society of Virginia. Richard T. Still.
72 Ibid. Wm. S. Stankley.
73 Ibid. Landon E. Edwards.
74 Male Neurasthenia. E. Cutter.

66. **Treatment of Typhoid Fever.**—The routine treatment of typhoid fever is reviewed by Gordon, who, in closing, calls attention to certain mistakes which ought to be guarded against, such as friendly but damaging visits; too much or too frequently repeated feedings; feeding too often at night; too much temperature recording; too little water; disregard of antiseptics in the mouth, nose and pharynx; failure to examine the urine at intervals, and to see that the patient sleeps sufficiently.

69. **Flexible Rectal Tube.**—Earle refers to the use of the long, flexible rectal tube, which usually coils on itself in the lower portion of the rectum between the first of Houston's valves and the anal margin. In order to overcome this, he suggests the following procedure: With the patient placed in the knee-chest position, with the head and shoulders lowered (if the patient is too weak, then in Sim's position, with the hips elevated on a pillow), the high enema can be given with the most positive results by using the short rectal nozzle. Even in cases of impaction the water so introduced can be made to distend the bowel and to get beyond the point of obstruction by sufficiently elevating the bag containing the water. By using a large quantity of water, says Earle, it can be made to run round as far as the ascending colon, so that in every conceivable condition calling for the high enema this procedure is the most certain, simple means for accomplishing the desired end. Still another desirable object is obtained by this method, both in the use of high and nutrient enemata, and that

is, the water is not allowed to accumulate in and distend the lower portion of the rectum and thus bring on the expulsive efforts before the desired quantity of water has been introduced. In the case of nutrient enemata, they are retained more easily and are spread over a much larger surface for absorption.

Medical Age, Detroit.

September 25.

- 75 Gastroptosis. M. E. Corbett.
- 76 New Therapeutic Agent of Value in the Treatment of Epilepsy, with the Report of a Case. Hugo Erichsen.

Columbus Medical Journal.

September.

- 77 Treatment (a) of Diffuse Suppurative Peritonitis Following Appendicitis, (b) of Intestinal Obstruction Following Laparotomy. Dudley P. Allen.
- 78 Open Air Treatment of Tuberculosis in Northern Ohio. John P. Sawyer.
- 79 Next Advance in Medical Education. John Inglis.
- 80 Some Observations by a General Practitioner. H. B. Gibson.
- 81 Hygiene in Maternity. J. S. Hanson.

Alabama Medical Journal, Birmingham.

September.

- 82 Mental Abnormalities. J. T. Searcy.
- 83 Acute Lobar Pneumonia—Some Remarks on Its Prevalence, Diagnosis and Treatment. Cabot Lull.

Fort Wayne Medical Journal-Magazine.

September.

- 84 The Tonsils: Their Use and Abuse. John North.
- 85 Role of Chemical Pathology in Relation to the General Practice of Medicine. A. P. Euckman.

American Practitioner and News, Louisville.

September 15.

- 86 *Surgical Treatment of Ulcer of the Stomach and Duodenum. William H. Wathen.
- 87 Atrophic or Lardaceous Kidney. Byron Robinson.
- 88 Constipation. W. T. McKinney.

86.—This article has appeared elsewhere. See THE JOURNAL of July 30, title 71, page 355.

Dominion Medical Monthly, Toronto.

September.

- 89 President's Address—Canadian Medical Association, 1904. Simon J. Tunstall.
- 90 Treatment of Prostatic Hypertrophy. T. K. Holmes.
- 91 Group of Cases of Malignant Disease—Infection or Coincidence? R. N. Fraser.
- 92 Pain in the Upper Abdominal Zone—Its Causes and Diagnosis. George Hodge.
- 93 The Enlargement of the Prostate. F. W. E. Burnham.

Annals of Gynecology and Pediatrics, Boston.

September.

- 94 Secondary Abdominal Section. Ernest W. Cushing.
- 95 The Circulation of the Ureter. Byron Robinson.
- 96 Pathology of Uterine Fibroid. Mary A. Dixon Jones.

Colorado Medical Journal, Denver.

May.

- 97 Tuberculosis and Appendicitis. Charles George Cumston.
- 98 Pulmonary Tuberculosis in the Aged. J. A. Wilder.
- 99 Tuberculosis and Pregnancy. (To be concluded.) T. Mitchell Burns.
- 100 Suprapubic Cystoscopy. Donald Kennedy.
- 101 Notes on Physical Chemistry. Edward C. Hill.

Journal of Medicine and Science, Portland, Me.

September.

- 102 Physical Economics Comprising a Mathematical Formula for the Normal Earning Ability of the Body, Based on an Analysis Which Considers Its Functional, Its Technical and Its Competing Ability, by Which a Person May Be Rated and Damages to His Body from Injury or Disease and an Indemnity to Be Allowed Thereof May Be Determined in a Manner Alike Equitable to All Concerned. Ernest E. Holt.
- 103 Acne Vulgaris. W. L. Hunt.
- 104 Protargol in the Treatment of Gonorrhoea. P. F. Gardiner.

Pacific Medical Journal.

September.

- 105 Prevention and Treatment of Typhoid Fever. J. R. Smith.

Kansas City Medical Record.

September.

- 106 Cancer of the Stomach; Report of a Case with Gastrectomy. H. C. Crowell.
- 107 Crushed Injuries of the Extremities. A. L. Fulton.

Western Medical Review, Lincoln.

September.

- 108 Review of Recent Typhoid Fever Epidemics and Their Lessons. S. R. Towne.
- 109 Variola Hybrida (Happel) and Vaccination. A. S. V. Mansfeldt.

Southern Practitioner, Nashville, Tenn.

September.

- 110 Surgical Measures in Difficult Digestion. Richard Douglas.
- 111 Aortic Regurgitation. W. H. Witt.

Texas Medical News, Austin.

September.

- 112 The Prophylaxis of Tuberculosis. William S. Carter.
- 113 Medical Ethics. J. W. McLaughlin.

Mobile Medical and Surgical Journal.

September.

- 114 Prostatectomy—Its Indications and Technic. W. R. Jackson.
- 115 Gynaecoma. L. C. Edelman.

New Yorker Medicinische Monatschrift, New York.

August.

- 116 Die Tragweite des Röntgenverfahrens. Carl Beck.
- 117 Ein Gutachten über den Heilmagnetsimus. Albert Moll.

Oklahoma Medical News-Journal.

September.

- 118 Excision of the Parotid Gland—Report of Cases. A. L. Breen.
- 119 Tonsillitis. C. L. Zug.
- 120 Is It Mental Trauma? S. Grover Barnett.

Clinical Review, Chicago.

September.

- 121 Present Status of Orthopedic Surgery. John L. Porter.
- 122 Hemiplegia Progressiva Ascendens Acuta. (Report of a case.) G. B. Hassin.
- 123 Hemiparalys Migraine. L. Harrison Mettler.

Journal of Nervous and Mental Disease, New York.

September.

- 124 An Account of the Care of the Insane in Belgium, and Particularly Those in the Colony of Ghel. Paul Masoin.
- 125 Reduplicative Paramnesia. (To be continued.) Isador H. Coriat.
- 126 "Automatic" and Intelligent Activities. Henry R. Marshall.

Wisconsin Medical Journal, Milwaukee.

September.

- 127 Osteomyelitis. N. P. Mills.
- 128 Albuminuria During Pregnancy. O. L. Hansen.

Medical Fortnightly, St. Louis.

September 26.

- 129 Abscess of the Brain. F. E. Walker.

Journal of Comparative Neurology and Psychology, Granville, Ohio.

September.

- 130 Retrograde Degeneration in the Corpus Callosum of the White Rat. S. Walter Hanson.
- 131 Early History of the Olfactory Nerve in Swine. Edgar A. Bedford.
- 132 Relation of the Chorda Tympani to the Visceral Arches in Mice. Victor E. Emmel.

Old Dominion Journal, Richmond, Va.

September.

- 133 Methods of Purification of Public Water Supplies, with Special Reference to the Water of James River at Richmond. Ernest C. Levy.

- 134 Prognosis of Malignant Disease. B. M. Randolph.
- 135 Fractures and Dislocations. John T. Crebbin.
- 136 Enterocolitis as Seen in Children. J. A. Rucker.

Providence Medical Journal.

September.

- 137 Colica Mucosa and Its Treatment. James L. Wheaton, Jr.
- 138 On the Early Diagnosis of Tabes Dorsalis, with Report of a Case. John E. Donley.
- 139 The Harmfulness of Over Eating. W. F. Morrison.
- 140 I. Gunshot Wound of Abdomen. II. Cancerum Oris. W. D. Alsever.
- 141 Extrauterine Pregnancy. Joseph C. O'Connell.

Medical Herald, St. Joseph, Mo.

September.

- 142 Syphilis and the Nervous System. H. Douglas Singer.
- 143 Appendicitis. Carl J. Holman.
- 144 Gonorrhoea in the Male. M. E. Silver.
- 145 The Importance of Early Diagnosis in Diseases of the Rectum. Prince E. Sawyer.
- 146 The Ocular Manifestations of Neurasthenia. F. E. Franchere.
- 147 Gallstones. John T. Rogers.
- 148 Starch Digestives. P. B. Cleaves.
- 149 Pyuria; Its Significance and Some Remarks on Its Treatment. F. Kreissl.
- 150 Cystoscopy and Catheterization of the Ureters. A. C. Stokes.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

October 1.

- 1 Address on the Historical Relation Between Surgery and Medicine. T. Clifford Allbutt.
- 2 President's Address. H. B. Symonds.
- 3 *Discussion on the Present Position of Aseptic Treatment of Wounds. Burghard, Redman, MacEwen and others.

- 4 *Present Position of Aseptic Surgery. W. Watson Cheyne.
 5 *Cysts in the Median Line of the Front of the Neck. G. H. Edington.
 6 *The Operative Treatment of Hernia in Infants and Young Children. Harold J. Stiles.
 7 *On the Remote Results of Operations for the Radical Cure of Oblique Inguinal Hernia. Robert Kennedy.
 8 Two Cases of Renal Calculus in Which the X-rays Failed to Indicate the Presence of a Stone. R. Clement Lucas.
 9 Hepatic Drainage. John R. Deaver.
 10 *Carcinoma of the Mammary Gland; Early Diagnosis and Radical Operation Necessary for Its Cure. W. L. Rodman.
 11 On Certain Defects in the Present Operation for Mammary Cancer. W. Samson Handley.
 12 On Foreign Bodies in the Control of Hemorrhage During Operations on the Extremities and in Interscapulo-thoracic Amputations. J. Lynn Thomas.
 13 The Intravesical Separation of the Urines Coming from the Two Ureters as an Aid to Diagnosis in Surgical Disease of the Kidneys. R. A. Bickersteth.
3. See abstract in THE JOURNAL of August 27, p. 624.

4. **Aseptic Surgery.**—Cheyne's paper considers the destruction of bacteria by heat and chemical disinfectants, the disinfection of the skin, towels, instruments, sponges, ligatures, dressings, etc. The methods spoken of are those commonly employed for purposes of sterilization and disinfection.

5. **Cysts of the Neck.**—Edington cites a series of illustrative cases, giving in detail the operative measures employed, the histologic report, and subsequent history.

6. **Operation for Hernia in Young Children.**—The Bassini operation as a routine procedure in children is condemned by Stiles, who says that the indications in performing the radical cure in the young are to isolate and ligate the neck of the sac with the least possible damage to the inguinal canal. The operation he prefers is practically the one introduced for adults by Sir Mitchell Banks. After disinfecting the skin the day before the operation, a boracic poultice or a sterilized gauze dressing should be applied over night. Carbolic poultices should not be used, especially in children, as they are likely to produce severe general depression or even fatal collapse. The incision, which is made a little above and parallel to Poupart's ligament, should not extend down into the scrotum. After exposing the spermatic cord and the pillars of the external abdominal ring, the former, along with its coverings, is freed from the surrounding subcutaneous tissue. The coverings of the cord are caught up laterally at the lower part of the wound by two pairs of forceps, and are then divided longitudinally, layer by layer, with a sharp knife. By turning aside this fascia and grasping its cut edges with the catch-forceps, the pampiniform plexus of veins, covered by the thin fascia transversalis, can be seen on its lateral aspect. The peritoneum of the patent funicular process is exposed by incising the transversalis fascia parallel and just internal to the plexus of veins. This fascia, along with the veins, is stripped off the sac by means of a blunt dissector or by dissecting forceps. The vas deferens and its vessels are treated in the same way. The fascia transversalis is next stripped off the inner aspect of the funicular process, which is finally freed around its entire circumference. The separation of the above structures is continued downward until the fundus of the sac is isolated and drawn out of the wound. Should the sac extend well into the scrotum or be continuous with the tunica vaginalis testis, it may be cut across a little below the external ring. The sac is grasped with forceps and held on the stretch while the constituents of the cord are being separated from it in an upward direction as far as the internal abdominal ring. Except when the neck of the sac is unusually wide and the walls of the canal weak, it is unnecessary to fix the stump to the anterior abdominal wall; the ends of the ligature applied to the neck of the sac may be cut short, and the latter allowed to slip back up the canal. If the sac be properly freed at its neck and put well on the stretch the ligature will be applied high enough to avoid leaving a funnel-shaped depression at the level of the internal ring. The canal is closed by introducing a single catgut suture through the outer pillar close to Poupart's ligament, superficially to the cord, and then from within outward through the conjoined tendon and the inner pillar of the ring. By reducing the size of the external ring and including the conjoined tendon in the suture, the liability to the development

of an acquired hernia in after life is diminished. It is important to avoid the use of a drain in children. Hemorrhage must be carefully arrested. The space beneath the subcutaneous tissue of the somewhat undermined wound must be obliterated by the introduction of one or two buried catgut sutures or a single silkworm gut mattress suture through the skin and subcutaneous tissue. The skin wound is closed by horsehair stitches. The after-treatment which has given the best results in Stiles' hands is to smear the wound with iodoform out of a 1 in 1,000 sublimate solution, and dust with boracic acid powder, no further dressing being applied. The infant is kept in bed, flat on its back by means of a strap passed behind the shoulders and through the armholes of a flannel band passing across the front of the chest. A metal cage is placed over the child's body to keep the bedclothes from coming in contact with the wound. The nightdress is pinned up and covered with a binder so as to leave the lower part of the abdomen exposed. A piece of boracic lint is pinned around the lower edge of the folded-up gown. All that is necessary is to keep the wound thickly dusted with boracic acid, or, if preferred, with a mixture of boracic acid and iodoform. The average duration of the child's stay in the hospital after operation was rather less than a fortnight.

7. **Radical Cure of Oblique Inguinal Hernia.**—Kennedy gives the remote results obtained in 103 cases, most of which were operated on by a method practiced by him and which may be described briefly as follows: An incision is made over the inguinal canal in the usual way until the tendon of the external oblique muscle and the external ring are exposed. The contents of the scrotum are withdrawn, the sac isolated, and the testicle and cord returned to the scrotum. The sac is dealt with after Kocher's latest method, that is, it is invaginated into the abdomen and brought out through the abdominal wall, the peritoneal surface out, ligatured and cut off, and the internal oblique and transversalis stitched to the deep aspect of Poupart's ligament. The cord passes directly into the abdomen at a point opposite the external ring. The youngest patient on whom the operation was performed was six months old, a case of strangulated hernia, and the oldest was 74 years old, the operation being called for on account of the presence also of a large hydrocele. Both these patients are now well and free from recurrence, the older patient after four years. In 45.63 per cent. of the cases the hernia was due to non-obliteration of the funicular process. In six cases the contents of the sac consisted of the caput cecum and appendix. In one case, a girl of 8 years, the sac contained the ovary and tube. All the cases recovered except one child, who, some weeks after the operation, died of tuberculous meningitis. The operation in this case was undertaken on account of the large size of the hernia and the difficulty, and at times impossibility, of reducing it; strangulation being, therefore, feared. Of 70 cases operated on by the author's method 54 have been traced six years after the operation. Only one case recurred. Operated on by the Bassini method, 10 cases; number traced, 8; recurrences in 2. Operated on by Kocher's method, 3; traced, 3; recurred, none. Operated on by Macewen's method, 20; traced, 11; recurred, 2.

10.—See abstract in THE JOURNAL of August 27, p. 625.

The Lancet, London.

October 1.

- 14 Case of Sacculated Aneurism of the Arch of the Aorta Treated by the Introduction of Silver Wire and by the Passage of an Electric Current. Hamilton A. Wallace.
 15 Case of Bant's Disease. J. F. Strickland, J. F. Hodgson and W. B. Anderton.
 16 *The Medical Treatment of Deep-seated Hemorrhage. Francis Hare.
 17 *The Treatment of Constipation by the Injection of Olive Oil. Geo. Hirschell.
 18 A Retropharyngeal Blood Cyst in a Case of Purpura Hemorrhagica. Harold Stanley Baker.
 19 The Distribution of Fat and Strychnin in *Nux Vomica* Seeds. H. Wippl Gadd and Sydney C. Gadd.
 20 *Three Cases of Skin Disease. Robert Saundby.
 21 Uncomplicated Myocarditis in a Girl in Her Eighth Year Associated with Stems of Cardiac Failure and Followed by Sudden Death. George Carpenter.
 22 Case of Aniline Poisoning. P. G. Harvey.
 23 Cervical and Thoracic Portions of the Uterus Obstructing Labor; Cesarean Section; Supravaginal Hysterectomy. H. T. D. Acland.

- 24 Lithotomy in Egypt for Large Stones. Frank Milton.
 25 Some Observations Pointing to an Intracapsular Stage of Development in the Trypanosome. E. J. Moore.

16. **Treatment of Deep-Seated Hemorrhage.**—Hare adds four cases of hemoptysis to those already published in which amyl nitrite caused immediate cessation of the hemorrhage. (See abstract in THE JOURNAL of September 10, [14, p. 761.]) Adding these four cases to those already published gives the following results: Of 13 attacks of hemoptysis (12 phthisical and 1 cardiac) treated by inhalations of amyl nitrite, all save one ceased within three minutes, the one referred to being delayed to ten minutes. Hare says that if amyl nitrite is unobtainable it would be rational to immerse the patient in a hot bath, thus producing vasodilation of the cutaneous area, a diminution of resistance in the aortic outflow, a fall of blood pressure in the left auricle, and a reduction in the pulmonary blood pressure. At the same time the mouth and nostrils should be protected from inhalation of the hot air. He believes that the deliberate provision of cold air for inhalation would aid in securing hemostasis.

17. **Constipation Treated by Injections of Olive Oil.**—According to Herschell, the methodical use of oil injections is one of the most useful procedures at our command for the treatment of muco-membranous colitis and constipation. In order to succeed, however, cases must be selected and injections given in the proper manner. The injection of olive oil as a matter of routine in all cases of constipation will prove disappointing and discredit the method. Gratifying results can be obtained in cases depending on chronic colitis; constipation associated with spasm of the bowel, such as is so frequently found in neurasthenia, and in atony of the intestines, used conjointly with the electrical treatment. The method consists in the injection of from 3 to 10 ounces of warm olive oil at bedtime. This is retained during the night and usually results in an evacuation after breakfast on the following day. The oil should be introduced slowly so as not to create an immediate desire to evacuate. The apparatus used by Herschell consists of a glass funnel provided with a metal loop, by which it can be suspended at a convenient height above the bed on which the patient lies while taking or receiving the injection. It is fitted with about 27 inches of rubber tube of large caliber and terminates in a nozzle of special construction. This nozzle has a large bore to allow the ready passage of the oil, and has the end of the bore well rounded so that even when roughly and unskillfully used it is impossible to damage the mucous membrane of the rectum, and from its shape it is self-retaining. The outflow of oil is controlled by a spring clip, which is so contrived that when opened it will remain so until a catch has been released. The measured quantity of oil is heated by standing the beaker containing it in a basin of hot water before it is injected. It is best to commence with five or six ounces and to reduce the dose daily until the smallest amount which will produce an action of the bowels is found. The effect may be then tried of using the oil on alternate nights, and so on, the intervals being lengthened gradually until the oil is no longer necessary.

20. **Cases of Skin Disease.**—The cases described by Saundby are one of acute pemphigus, an occupation rash caused by bichromate of potassium, and a case of orthostatic purpura (caused by assuming the upright position).

Annales de Dermatologie, Paris.

Last indicated XLII, page 1397.

- 27 (V. No. 5.) Metabolism in Lichen Plaigus and Mode of Action of Arsenic. F. Radelli.—Nouvelles recherches sur les échanges organiques dans le lichen plan et sur le mode d'action de l'arsenic.
 28 Nouvel appareil photothérapique à arc électrique. T. Marie.
 29 Nouvelle installation pour rayons X et haute fréquence sans interrupteur, construite par Galfie, Brocq and Belot.
 30 (No. 6.) *Les réactions nerveuses au cours des herpes génitaux. P. Ravaut and Darré.
 31 Recherches bactériologiques sur la balanite vulgaire. H. Vincent.
 32 Skin in Organotherapy. H.allopeau.—Essai d'opothérapie cutanée. From society report.
 33 (No. 7.) *Sur la radiothérapie des teignes (de alopecia areata, tinea, etc.). R. Sabouraud.
 34 *La radiothérapie dans les affections cutanées. Belot. (Commenced in No. 5.)

30. **Nerve Reactions in Genital Herpes.**—Ravaut and Darré report 27 cases of genital herpes, mostly of the neuralgic type. In another type the nervous symptoms are less pronounced, but still sufficiently marked. The pains are permanent, but remain localized without presenting the character of neuralgic pains. In both types the nervous troubles precede the appearance of the vesicles, and in both they are liable to vanish while the eruption is still at its height. In still another type the nervous symptoms are less evident and are usually restricted to pruritus. Lumbar puncture in 26 cases showed more than 20 figured elements in the cerebrospinal fluid to the field in 5 instances; from 7 to 20 in 10, and from 4 to 6 in 6. The patients showing the most marked reaction in this respect were always those with the severest nervous disturbances, exhibiting besides the genital pains, headache, rachialgia and neuralgias. The nervous system seems to react to the primary cause in the same way in both genital herpes and zona, although this primary cause is probably different for each. Every case of genital herpes with nervous symptoms was always accompanied by some modification of the cerebrospinal fluid.

33. **Radiotherapy of Alopecia Areata.**—Sabouraud's method of treating parasitic tinea by the x-rays was described in THE JOURNAL, page 983, of vol. xlii. The x-rays are of a strength equivalent to 4.5 to 5 Holzknicht units. This is followed in fifteen days by the falling out of the hair over the part. The hair grows again, and each hair is then healthy. It commences to grow in about ten weeks, and the growth is normal in ten weeks more. The contagiousness of the affection vanishes with the falling out of the last diseased hair, usually about twenty-five days at most after the exposure. In the last six months of 1903 57 children with cryptogamic tinea were cured by this treatment, and in the last six months 134 have been cured. The number includes 120 cases that had proved absolutely rebellious to all other measures. They required treatment of the entire scalp. As each exposure is only of a patch about 9 cm. in diameter, from 12 to 13 sittings were required in these extensive cases. They represent the dregs of the last four or five years of ordinary treatment, the cases left over, that had proved absolutely intractable. Two hospital schools were established in Paris some years ago exclusively for children with these affections. One of them has already been evacuated by the prompt curing of all the inmates. Radiotherapy is proving equally effectual for both favus and tinea tonsurans. During the entire number of 2,200 exposures only 6 cases of radiodermatitis were observed, and these occurred before the present mode of measuring the rays was adopted. The more penetrating rays, the greater their number, and hence the harder the tube the more penetrating its rays. When a radiodermatitis occurs it entails permanent baldness of the part, and hence the operator should carefully avoid anything of the sort. Permanent baldness is also entailed by repetition of the standard exposure after two or three weeks' interval. Consequently, it is of the utmost importance to have the first exposure complete in every respect. It is also extremely important in treating two separate patches not to allow the action of the rays in the second exposure to impinge on the part already treated in the first exposure, or permanent baldness is liable to result from the superposed action of the rays. The behavior of the tube varies from day to day with the electric tension of the atmosphere and other factors. The Holzknicht radiometer has certain disadvantages, which he enumerates. He has modified it to a certain extent, using instead of the Holzknicht pastilles slips of paper impregnated with an emulsion of barium platino-cyanid in an amyl acetate collodion—the prepared paper used for the spectroscope. It has the advantage of cheapness: the same slip can be used over and over again at need. The tint is modified only by the x-rays, and ceases to change as soon as the latter are withdrawn, and the tints are more distinct and more easily compared with the standard tint on the water color test card than the Holzknicht tints. The platino-cyanid paper loses its tint on exposure to the air, and it also requires to be placed at half the distance of the skin to be treated. By using it and keeping within the limits of the

proper tint there need be no fear of dermatitis, while the results of radiotherapy have amply demonstrated its great superiority to all other measures in the treatment of tinea and favus.

34. **X-Rays in Treatment of Cutaneous Affections.**—This extensive monograph issues from Brocq's laboratory at the Paris Broca-Pascal Hospital. A dozen pages are required for the bibliographic references alone. All the various skin affections that have been treated by the x-rays are reviewed in turn, with the particulars of the cases treated by Brocq or his assistants. The indications, technic and results attained are given in detail. Among the cases of cutaneous epithelioma 14 have been objectively cured and 6 nearly cured, while 8 are still under treatment, and 4 have abandoned treatment. The form most rapidly modified by the x-rays is always that with a central ulceration, surrounded by a hard border.

Semaine Médicale, Paris.

- 35 (XXIV, No. 37.) *La bacilémie tuberculeuse. A. Jousset.
 36 *Close Connection Between the Circulation of Blood and Contact Sensibility. N. Vaschide. Abstract.
 37 *Local Treatment of Rheumatic Arthritis by Intra-articular Salicylate Injections. A. Santini. Abstract.
 38 Electrolysis in Treatment of Pterygium in Early Stages. P. Pansier. Abstract.
 39 *Treatment of Puerperal Fever with Mixture of Quinin and Salicylate. P. Ovary. Abstract.
 40 Antidiphtheria Serum in Treatment of Whooping Cough. A. Passalacqua. Abstract.
 41 (No. 38.) Evolution et complications des kystes dermoïdes de l'ovaire. F. Léjars.
 42 Formule urinale dans la pleurésie tuberculeuse (polyurie, pyrechlorurie et albuminurie de convalescence). P. Courmont and J. Nicolas. Abstract.

35. **Tuberculous Bacilæmia.**—Jousset comments on the exceptional character of the positive findings and the rarity of virulence of the blood in the course of spontaneous tuberculosis in animals and its transient character in induced experimental infection. His own research has established that positive results are reliable only when a large amount of blood is examined, and, whether the blood is tested by inocopy or by inoculation, the fibrinous clot is the part to be investigated. Subcutaneous inoculation of a guinea-pig with this clot, followed by the development of a specific adenopathy, even without generalization, are the only reliable proofs of tuberculous bacilæmia. He has studied the blood of 35 subjects and in only 11 could the tubercle bacillus be discovered, and these were mostly acute cases. Tuberculous bacilæmia is as rare in chronic tuberculosis as it is frequent in the acute forms. There do not seem to be any general manifestations of the bacilæmia except the fever. It generally coincided with a continuous and high fever, and was never found in connection with the remittent, hectic fever. Albuminuria is nearly constant in case of this bacilæmia. Whenever there were symptoms suggestive of typhoid fever in this bacilæmia, granulations were found in the intestines. He has encountered one case of the attenuated or gastric form. He has also observed cases in which the infection of the blood with the tubercle bacillus and arthralgias constituted the entire disease, the prelude to the "tuberculous rheumatism with granulations" described by Poncet. Dyspnea may likewise be the only manifestation of the specific septiciæmia. The dyspnea in one case coincided with the appearance of the bacilli in the blood and subsided as they were eliminated. At times the dyspnea assumed the character of true asthma. Fever and albuminuria accompanied the close of the periods of bacilæmia. The meningeal and cerebral forms of tuberculous bacilæmia have not yet been studied. Between the meningitis with actual granulations and toxic meningitis there is probably a phase of pure and simple bacillary infection of the nerve centers and their coverings. Two of the 3 cases of primary tuberculous bacilæmia terminated in recovery, and Sticker has observed a similar case. The bacilæmia is liable to terminate by elimination of the bacteria through the kidneys and complete recovery, or the bacilli may proliferate and granular implantation result. The bacilæmia is in these cases pregranular. The localizations of the lesions in bacilæmia may be legion, but the endocardium and the kidneys are the most frequent sites.

37. **Local Treatment of Rheumatic Joint Affections.**—San-

lini injects directly into the joint 3 to 5 c.c. of a 3 per cent solution of sodium salicylate. The pain is arrested and the joint can be moved without pain. The effusion is then gradually absorbed. In recent cases the absorption is complete in the course of the same day. The fever and other general symptoms are liable to persist somewhat longer. When they keep up unduly long endocarditis is probably present.

39. **Quinin and Salicylates in Puerperal Fever.**—Ovary mixes equal parts of quinin sulphate and sodium salicylate, and gives .6 gm. of the mixture every three hours. Three or four doses are generally sufficient to arrest the puerperal fever. In his experience with 28 cases thus treated there were 26 recoveries. He believes that the two drugs combine in the stomach to form nascent quinin salicylate, leaving sodium sulphate, which acts on the bowels.

Archiv f. klinische Chirurgie (Langenbeck's), Berlin.

Last indexed XLII, page 1523.

- 43 (LXXIII, No. 1.) *Isolated Inflammation of Bladder Diverticulum. J. Englisch.—Isolierte Pflanzündung der Blasen- divertikel nebst Peritonitis.
- 44 Study of Balleis. A. P. Morkowitin (Tomsk).—Ueber die Deformation der Panzer-Kugel des russischen 3-Linien-Gewehres.
- 45 *Fall von temporärer Aufklappung beider Oberlider nach Kocher zum Zwecke der Entfernung eines grossen Nasen-Rachen-Fibromes (turning back upper jaw). J. Hertle.
- 46 Experimentelle Studie über Enteroanastomose resp. Gastroenterostomie ohne operative Eröffnung des Darm-Lumens (without opening the intestine). T. Sato.
- 47 Zur Appendizitis-Frage auf Grund von 114 Operations-Fällen. A. Hoepfl.
- 48 *Zur Kenntnis der Desinfektion der menschlichen Haut (of skin). H. W. Sikemeier (Amsterdam).
- 49 *Zur Fractur-Behandlung durch temporärer Annagelung (nailing). P. Niehans (Bern).
- 50 *Ueber Appendicitis in Inguinal-Hernien bei Männern. M. A. Wassilow (Warsaw).
- 51 Early Operating in Appendicitis and Infection of Mesentery of Small Intestine, and Origin of Ileus in Connection with Appendicitis. Wette (Weimar).—Ueber die Früh-Operation der Appendicitis, etc.
- 52 Resultate bei den penetrierenden Bauchverletzungen des Friedrands (stab wounds of abdomen). Drehm (Riga).
- 53 Remarks on A. Dean Bevan's Article on Surgical Treatment of Descended Testicle. Bayer.
- 54 (No. 2.) *Ueber operative Treatment of Tuberculosis Kidneys. Krönlein (Zurich).—Ueber Nieren-tuberkulose und die Resultate ihrer operativen Behandlung.
- 55 *Appendicitis. T. Jonnesco (Bucharest).
- 56 *To Increase Resisting Power of Peritoneum Before Operations v. Mikulicz.—Versuche über Resistenzvermehrung des Peritonæums gegen Infektion bei Magen- und Darm-Operationen.
- 57 *Ueber die Iod-Reaktion der Leukoeryten und ihre chirurgische Bedeutung. H. Küttner (Tübingen).
- 58 Bone Arteries. Lexer.—Weitere Untersuchungen über Knochenarterien und ihre chirurgische Bedeutung.
- 59 *Subcutaneous Feeding in Practical Surgery. P. L. Friedrich (Greifswald).—Die künstliche subcutane Ernährung in der praktischen Chirurgie.
- 60 *Ueber Prostata-Abszesse. F. Hinrichsen.
- 61 *Soap Spritz (3) Disinfection of Skin. R. Falck.—Darstellung und Anwendung konsistenter Spiritus-Solzen zur rationellen Reinigung und Desinfektion der Haut, besonders von anliegenden Schimmelpilz-Sporen.
- 62 Lympho-Sarkom der Thyms bei einem 4-jährigen Knaben H. Coenen.
- 63 Rib Resection for Old Emphyema. E. Voswinkel. Weitere Erfahrungen über die Behandlung veralteter Emphyeme durch ausgedehnte Rippen-Resektion.
- 64 Zur Kenntnis der Tuberkulose und Osteomyelitis der Patella (V. Ripke (Jena)).
- 65 Zur Kenntnis des congenitalen Schulterblatthochstandes (high shoulder). H. J. Laméris (Utrecht).

43. **Isolated Inflammation of Bladder Diverticulum.**—Englisch has observed 6 cases of inflammation in a bladder diverticulum and its complications. Peritonitis is more apt to follow inflammation in the absence of a stone than with it. Palliative treatment by rinsing and draining is less successful than extirpation of the diverticulum. In case of a stone the diverticulum should be removed with the stone. He bases these conclusions on his own experience and an analysis of the literature. He has collected 250 cases of concrement formation in a diverticulum, and 57 cases of isolated inflammation without a stone. They include 17 in which the pocket was involved in a hernia.

45. **Access to Naso-Pharyngeal Cavity By Turning Back Jaw.**—Hertle adopted Kocher's technic, and found that it afforded remarkably fine access to a large fibroma growing in the naso-pharynx. The hemorrhage was readily controlled by tamponing. The temporary turning back of the entire upper jaw was preceded by tracheotomy and introduction of the tampon canula.

46. **Enteroanastomosis Without Opening the Gut.**—Sato's experimental research has already been mentioned in these columns. He found that freshened surfaces of mucosa approximated for a gastroenterostomy or enterocenterostomy, did not result in any perforation unless the approximated surfaces were cauterized with heat or silver nitrate. When this was done the communication between the two lumina was invariably established within two or three days in all his experiments on dogs and monkeys. Interesting illustrations accompany the article.

48. **Soap Spirits for Disinfection.**—Sikemeier's experiences confirm the value of soap spirits for disinfection of the skin. It was particularly effectual when the skin had been scrubbed with soap beforehand. He washes for five minutes with potassium soap under a stream of warm water, then scrubs for five minutes under the same, and then scrubs for five minutes with soap spirits, terminating with ether and sublimate.

49. **Temporary Nailing of Fractures.**—Niehans has treated several cases of supracondylar fracture of the humerus by temporarily nailing the stumps together. The olecranon is exposed through a side incision, detached at the base and turned back with all the muscles. This exposes the fracture, which is then reduced, and two long nails are driven through both stumps until their heads just project above the level of the skin. The flap is then replaced and the soft parts sutured. The nails were removed the fourth to the seventh day. He has also treated on the same principle fractures of the upper end of the humerus. The radiograms show the two nails inserted to form an acute angle, their points nearly touching. He uses nickel-plated steel nails with a four-sided point. He gives the details of 6 cases. In one the nails were 9.5 cm. long.

50. **Appendicitis in Inguinal Hernia.**—Wassiljew adds another to the 62 cases of appendicitis in inguinal hernia in men. Besides reviewing the literature he portrays the symptoms, diagnosis, prognosis, treatment, etc.

54. **Tuberculous Kidneys.**—Kronlein has operated in 51 cases of tuberculosis of the kidneys, which is about a third of all his surgical work on the kidneys. He performed nephrectomy in 34, and the results have convinced him that this is the operation to be preferred in such cases. The affection is much more common in women than in men. In 92 per cent. it was restricted to one kidney. The infection is always by way of the blood, never urogenic. The tuberculosis was solitary in the kidney in only 12 of his 34 cases; in the others the kidney affection was associated with a tuberculous process in the lungs in 9, in the bladder in 12, in a joint in 9, and in 4 the entire urogenital apparatus was invaded. Twenty-four of his 34 nephrectomized patients are still living. Eight died within eight months of the intervention. None died with indications of insufficiency of the remaining kidney. Nine of the 10 subjects who died were examined postmortem and nothing abnormal could be detected in the remaining kidney. He is getting up an atlas on renal tuberculosis, and has collected a quantity of valuable material. He distinguishes between the fluid and the solid form, the latter including the solid caseous and the diffuse solid varieties. There is also a tuberous form with unfavorable prognosis, as Israel has already proclaimed. The list concludes with the embolic form, of which he describes a typical example. The methods of functional diagnosis now in vogue can none of them be implicitly relied on. He regards extirpation of a tuberculous kidney as one of the most successful of all operations.

55. **Appendicitis.**—Jonnesco has collected and compares the published results of internal treatment of appendicitis with those of operation later, and proclaims that they are much better than the results of immediate operation. His own statistics confirm this view. He has had 44 per cent. mortality in his cases operated on early, and only 5.2 mortality in those treated by internal measures and surgical intervention later. He never resects the appendix unless it presents; he advises against searching for it. His rule now is to commence with internal treatment (opium, ice, no food, copious subcutaneous or intravenous saline infusion, lavage in case of excessive vom-

iting, no purgatives). When the signs of generalized peritonitis change to those of a circumscribed peritonitis, with adhesions or suppuration, usually about the eighth to the twelfth day, he proceeds to operate. An operation is indicated, of course, at any time if signs of aggravation are noted.

56. **To Enhance Resisting Power of Peritoneum Preliminary to Operations.**—Mikulicz's method of inducing high leucocytosis before attempting any gastrointestinal operation has been described in these columns, page 1242 of the last volume. He injects nucleic acid under the skin, using a 2 per cent. solution. He also advocates copious rinsing of the abdominal cavity with salt solution, having changed his views in this respect. The increased leucocytosis which follows is a valuable aid in enhancing the resistance of the parts. He has applied these procedures in 34 cases, and the leucocytosis increased by 17 to 45.2 per cent. in the various cases, as he describes in detail. The by-effects were trivial.

57. **Iodin Reaction of Leucocytes.**—Küttner does not ascribe much diagnostic importance to Ehrlich's iodine reaction. The only information to be derived from either the positive or negative findings, in his opinion, is that the prognosis generally proves bad when the iodine reaction is marked.

59. **Subcutaneous Artificial Feeding in Surgery.**—Friedrich's experiences were reviewed in these columns, page 1456 of the last volume.

60. **Prostatic Abscess.**—The points learned from a study of 35 cases are reviewed. In 76 per cent. the abscess was of gonorrhoeal origin. Three mild cases healed spontaneously after perforation into the urethra. Incision through the rectum is advisable only when perforation into the gut is impending. In all other cases the perineum is the preferable route.

61. **Soap Spirits for Disinfection of Skin.**—Falck has been making an extensive study of various modes of disinfection, and gives the preference over all others to soap spirits. For various reasons which he enumerates, it is better to have the soap spirits in a solid form. He mixes 15 parts sodium soap with 15 parts water and 70 parts alcohol. The soap is softened with a little water and rubbed into the skin in the air. It is then foamed up by putting the hands in water, the disinfection concluding with a solution of sublimate or lysol, applied after all the particles on the skin have been stirred up by the foaming soap spirits. Mechanical scrubbing is an important part of every disinfection.

Beiträge zur klin. Chirurgie, Tübingen.

Last indexed XLII, page 452.

- 66 *XLII, No. 1.) *Die Resektion des tuberkulösen Knie-Gelenkes und ihre Resultate. Auf Grund von 400 Operationen an der von Bruns'schen Klinik. C. Blauer (Tübingen).
- 67 *Beiträge zur Aetiologie der Appendicitis. M. v. Brunn (ibid.).
- 68 *Zur Frage der cerebralen Blasenstörungen (Bladder disturbances). E. P. Goldmann (Freiburg).
- 69 Bloodless Treatment of Irreducible and Old Hip Joint Luxations. Ibid.—Zur unblutigen Behandlung von irreponiblen und veralteten Hüftluxationen.
- 70 *Extensive Mobilization of Urethra. Ibid. Die ausgiebige Mobilisation der Harnröhre.
- 71 *Alteiled Parasites (Cysticercus cellulosae) in Röntgen-Bilder. A. Stieds (Königsberg).
- 72 Zur Kenntnis der Sesam-Beine der Finger und Zehen (sesamoid bones of finger and toes). Ibid.
- 73 Hernie der Regio pubis mit Durchtritt durch den M. rectus abdominis. M. Brandt.

66. **Resection of Tuberculous Knee.**—Blauer states that 343 out of the 400 patients operated on can be regarded as completely cured. In 17 a secondary operation was necessary. About 15 per cent. died later from general tuberculosis. The proportion of successful resections was 87.9 per cent., in striking contrast to the 45 per cent. reported in König's statistics as cured by conservative treatment of tuberculous knee affections (126 out of 288 cases). He urges that operative radical treatment should be accepted as the standard procedure for all severe cases in both children and adults, and also for the mild ones when good conservative treatment is not promptly beneficial or is impracticable for any reason.

67. **Etiology of Appendicitis.**—Brunn attributes the etiology of appendicitis to bacteria in the appendix, their numbers being in such contrast to the thinness of the wall of the appendix and its small size.

68. **Bladder Disturbances of Cerebral Origin.**—Goldmann's patient exhibited bladder disturbances which vanished permanently after evacuation of an epidural collection of pus compressing the cortex, due to tuberculous osteitis. The post-central convolution was the site of the lesion, which partly involved also the superior and inferior parietal lobe and the superior temporal convolution. There were no other motor disturbances. Psychic depression had existed for three months before the retention was noted. The desire to urinate was felt normally, and the retention was intermittent and not accompanied by any exaggeration of the psychic depression.

70. **Extensive Mobilization of Urethra.**—Goldmann asserts that defects in the urethra up to 8 cm., or even more, can be repaired by stretching the mobilized urethral stumps. The distal stump can be extensively mobilized, and the central stump is so elastic that it can be stretched to bridge the gap. The stretching is realized by extension of the legs, with traction at the ankles. He has treated 2 patients in this way, with excellent results. The stricture in the first case was the result of a cavalry accident, the resected portion measuring 3 cm. in length. In the second case, 6 cm. were resected to do away with an impassible gonorrhoeal stricture. The functions of the organ do not seem to be impaired in either instance.

Deutsche Zeitschrift f. Chirurgie, Leipzig.

Last indexed XLII, page 1375.

- 74 (LXXII, Nos. 13.) Zur Wertschätzung der Jejunostomie nebst Bemerkungen über die Gastroenterostomie. H. Kossike (Kiel).
- 75 100 Cases of Cosmetic Subcutaneous Removal of Tuberculous Lymph Glands in the Neck, in Front of the Ear and Behind the Jaw. J. Dollinger (Budapest).—Die subcutane Entfernung der tuberkulösen Lymphdrüsen des Halses, des Nackens, der Preauricular- und der Submaxillargegend, 18 cuts.
- 76 Zur Diagnose der Wurmfortsatzentzündung (incarceration of appendix). Sprengel (Braunschweig).
- 77 Coincidence of Gallstone Cysts and Hydatid Cysts in Liver. C. Beyer (Greifswald).—Das Zusammentreffen von Gallensteinen und Leberechinokokkus.
- 78 Zur Frage der Cholecholethodenostomia interna. Ohl, zur Kiehl'schen (de Jure). Herold (Altona).
- 80 Zur Behandlung von penetrierenden Brustwunden (stab wounds of chest with suture of lung). Grunert.
- 81 Fall von Darm-Cysten (in intestine). Püschmann.
- 82 Zur path. Anatomie der Cysten am Pankreas. H. Küster.
- 83 Zur Kenntnis der Rotz-Infektion beim Menschen (glanders in man). A. Jenckel.
- 84 Fall von Bursitis subdeltoides. K. Kreuter.
- 85 Die Lytische femoris infratrochantäre. W. Wendel.
- 86 General Infection in Surgical Infections Affections. Bertelsmann (Hamburg).—Die Allgemeinfektion bei chirurgischen Infektionskrankheiten.
- 87 Double prolapse of Intestine After Tuberculous Peritonitis. P. Feiglensdorf (Berlin).—Ueber Hammerdarm und Bauchfellhernie.
- 88 Ein seltener Fall von primärer Typhilitis mit sekundärer Epityphlitis. O. Hartmann (Cassel).
- 89 Zur Casuistik der traumatischen Epiphysen-Lösung am anderen Oberschenkelende (detachment of epiphysis at lower end of femur). E. Summa.
- 90 Drücknekrose bei konzentralem Klumpfuß (pressure necrosis with club foot). Bauer, Leipzig.
- 91 Origin of Free Bodies in Joints. Grüder.—Zur Entstehung der freien Gelenkkörper durch Osteochondritis dissecans nach König.
- 92 Mikroskopische Findings. F. Bering (Kiel).—Ueber diagnostische Irrtümer bei Durchleuchtung mit Röntgenstrahlen, nebst Beitrag zur Kenntnis der Fibula-Frakturen.
- 93 The Photo-Raum Process. H. Strebel (Munich).—Das Lichtbrandverfahren.
- 94 Fall von traum. doppelseitige Luxatio perinealis. Wohlberg.
- 95 (Nos. 4-5.) *Ueber diabetische Extremitäten-Gangrän. Hildebrandt.
- 96 Experimentelle Untersuchungen zur Genese der Sternum-Fraktur bei Wirbel Frakturen (of spine). V. Otz (Borne).
- 97 Zur Kenntnis der Füsseelenk-Luxation durch Rotation nach aussen mit hoher Spiral-Fraktur der Fibia (mechanism of outward luxation of ankle with high spiral fracture of tibia). W. Schubert.
- 98 *Operative Reposition of Old Dislocation of Hip Joint. A. Brüning (Giessen).—Zur Lehre von der blutigen Reposition veralteter Hüftluxationen.
- 99 Zur Lehre von den fötalen Knochenkrankungen (fetal bone affections). M. Matsunaka.
- 100 15 Kanneibrüche (Fractura ossis navicularis carpi). O. Blau.
- 101 Ueber einen antechthonen Para-Urethral Stein aus phosphorsaurer Ammoniakmagnesia. P. A. Suter.
- 102 Zur operativen Behandlung des Mastdarmvorfalls (prolapse of rectum). F. Weber.
- 103 *Die Knochen- und Gelenkerkrankungen bei Syringomyelie (bone and joint affections). Borchard (Posen).
- 104 Suture of Stab Wound of Left Auricle. O. Kappeler (Constantine).—Stichschnittwunde des linken Vorhofes; Heilung.
- 105 Multiple Ureter; Klose.—Radiographie eines durch das Cystoskop diagnostizierten Falles von vollständiger Ureter-entwässerung.

95. **Diabetic Gangrene.**—Hildebrandt explains the occurrence of gangrene in diabetes as a secondary process induced by the arteriosclerosis entailed by the diabetes. The diabetic conditions favor the proliferation of bacteria; his experiments have demonstrated that media containing a certain proportion of sugar afford exceptionally favorable conditions for microbial growth. He has further established that the virulence of bacteria is enhanced when a solution of sugar is injected with them. In treatment of diabetic gangrene, dry aseptics should be the rule. König amputates according to the condition of the arteries. If there is pulsation in both tibialis arteries the leg can be safely amputated low down. A good pulse in the popliteal still allows ablatio cruris, but without these findings the thigh must be amputated. Of 5 patients whose legs were amputated, 2 died; and of 4 amputated at the thigh, 2 died.

98. **Treatment of Old Luxation of the Hip Joint.**—Brüning describes 3 cases and reviews 35 in the literature. The technique which he recommends is conservative attempts at reduction. If these fail, the anterior forward luxation should be transformed into a backward one, and this be operated on. The attempt at bloodless reposition should be followed by a few days of rest, with extension before the knife is used. The earlier the patient is seen and the younger he is, the better the chances for fine functional results. Brüning adds that what he calls "distension" luxations always give a worse prognosis than the traumatic.

103. **Bone and Joint Affections with Syringomyelia.**—Borchard practices at Posen, and has had occasion to treat 19 patients during the last seven years on account of bone and joint affections, the result of syringomyelia. He considers them of neuropathic origin, like the alterations in the joints of arthritis deformans and tabes. He describes the characteristics of the joint lesions and emphasizes the necessity for conservative treatment. In case even of panaritium a very small incision into the focus is all that is allowable. Phlegmons should be treated expectantly. In non-suppurating joint lesions he advises against operative intervention, and when there is pus, incision and drainage should be all that is attempted. In case of very severe changes in a joint he would prefer amputation to resection.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed XLII, page 1527.

- 106 (XIX, No. 5.) Zur Theorie der von Intoxikation der Mutter durch die Frucht (of mother from fetus). Mathes (Graz).
- 107 *Remote Results of Sanger Treatment of Prolapse of Vagina and Uterus. Scheib (Prague).—Die operative Behandlung des Scheiden- und Gebärmutter-Vorfalls nach Sanger. mit Bes. Berücksichtigung der Dauer-Resultate.
- 108 *Weitere Beiträge zur Hämide-Desinfection. Schaeffer (Berlin) (Continued in No. 4.)
- 109 Die forensische Bedeutung des Puerperal-Fiebers. Kostlin.
107. **Sanger Technic of Treating Prolapse.**—Scheib states that 141 cases of prolapse of vagina or uterus have been operated on according to the Sanger technic in the years 1899-1903 at the Prague gynecologic clinic. Of this number 65 have been examined after a long interval, and in 60 per cent. the cure was perfect. The advantages of this method are the readiness with which it can be adapted to individual conditions, the slight loss of blood and the easier avoidance of injury of the rectum. An existing slight retroversio-flexio is liable to entail recurrence unless corrected. When this is done, supplementary to the Sanger operation, the results will be even more favorable.
108. **Disinfection of the Hands.**—Schaeffer believes more in the mechanical than in the antiseptic part of hand disinfection. Alcohol and hot water are the main essentials. Alcohol is as destructive to germs as any other antiseptic during the short space of time it is used, while it loosens up and detaches all the detachable particles and germs and shrivels the skin so that the bacteria still lurking in the crevices are held and can not escape during the operation.
- Münchener medizinische Wochenschrift.
- 110 (LI, No. 25.) *Lymphocytäre retrograde Metastasen von Bakterien, Geschwülstzellen und Staub aus der Brust- in die Bauchhöhle, besonders in para-aortalen Lymphdrüsen. N. P. Tendeloo (Rotterdam).
- 111 *Die Indikationsstellung in der Gynäkologie. A. Sippel.
- 112 *Erfahrungen mit der lokalen Anästhesie in der poliklinischen Praxis. E. Aulhorn.

- 113 *Radiologische Untersuchungen des Magens und Darmes bei lebendem Menschen (stomach and intestines in living subjects). H. Krieger (Munich).
- 114 *Ueber die Häufigkeit der Komplikationen der Polyarthritidis rheumatica acuta, insbes. derer von Seiten des Herzens. P. Harrass.
- 115 *Ueber die Anwendung hoher Dosen von *Secale cornutum* in der Geburtshilfe (ergot in obstetrics). F. Bürger.
- 116 *Lyssa and Trauma. E. Pfister (Cairo).
- 117 Die Akademie für praktische Medizin in Cologne. Bardouheuer (Cologne).
- 118 Reply to Roth's "History of Medicine and Hippocrates" (in No. 31). J. Page.

110. **Metastases of Bacteria, Tumor Cells and Dust in the Retroperitoneal Lymphatics.**—Tendelo has been studying the pathologic changes found in the retroperitoneal lymph glands. The importance of these changes has not been generally recognized. In case of processes in the lungs or pleura, he found almost constantly metastases in the lymphatics along the aorta. He frequently saw dust particles unmistakably derived from the lungs by way of the lymphatics. He cites his clinical experience and anatomic research in detail, and describes what he accepts as the mechanism of this retrograde metastasis by way of the lymph passages into the abdomen. It explains not only the occurrence of metastasis of a stomach or liver cancer in the para-aortic lymph glands, but also the metastasis of bacteria, cancer cells and dust particles from the thorax. Further study must be undertaken to determine which lymph vessels lead to certain organs in this region.

111. **Indications for Operative Gynecology.**—Sippel's principles may be summarized in the statement that he believes in operating in every case in which there is apparent danger to life, if the operation offers any prospect of success and the general condition does not forbid it; also in every chronic case in which conservative measures fail to cure and the operation is free from danger. He does not accept as a cure of a displacement a correction which requires the constant wearing of a pessary. He quotes Kocher's axiom: "It is not necessary for every practitioner to act surgically, but it is imperative that they should learn to think surgically," merely substituting the word "gynecologic" for "surgical." When the general practitioner learns to think gynecologically, then suffering woman-kind will derive the benefit it should receive from the advances in modern gynecology.

112. **Local Anesthesia in the Polyclinic.**—Aulhorn reviews the experiences at Perthes' polyclinic at Leipzig with local anesthesia in 763 cases. Of all the methods used, the combination of adrenalin with injection of .2 per cent. solution of cocaine along the course of the nerve proved the most convenient and effectual. All danger from the use of adrenalin can be avoided by injecting it at some distance from the wound. This is particularly necessary when there are flaps that are not very well nourished. In conclusion, he warns to refrain from employing local anesthesia in cases that are not suitable for it, as the excitement that follows its failure is a bad foundation for general narcosis, and lessens the confidence of the public in local anesthetics.

113. **X-Ray Examination of Stomach and Intestines on Living Subject.**—Rieder had large quantities of bismuth mixed with the food and given in enemas, and then examined the subjects with the x-ray screen. He gives a number of the facts thus learned, some of them contrary to the teachings of the text-books. The pylorus, for instance, when the stomach is full, may be found to the left of the median line. The full stomach lies vertical or diagonal, never horizontal. There is always an accumulation of gas to be noted in the upper part of the fundus during digestion in the stomach. Interesting facts in regard to the motor function of the stomach can also be learned in this way, as also of the various parts of the intestines.

114. **Complications of Articular Rheumatism.**—Harrass remarks that the majority of the 58 cases of acute articular rheumatism observed at Aix were in subjects from 16 to 20 years of age, and the affection recurred in nearly 40 per cent. About 43 per cent. of the patients recovered without complications of any kind, but 51.7 per cent. exhibited symptoms of endocarditis. The latter predominated in the younger sub-

jects. An alcoholic heredity seemed to afford a predisposition to these rheumatic heart affections. Other complications were erythema nodosum, pneumonia, chorea minor and a psychosis, one case of each, and 2 of nephritis.

115. **Large Doses of Ergot in Obstetric Practice.**—Burger reports no deaths and only a single case of slight temperature during 11 years of practice, with 8,700 births and 134 deliveries requiring some obstetric intervention. He attributes this fine record to his custom of giving large doses of ergot beforehand when he is contemplating such intervention, from .5 to 1.5 gm. ergotinum dialysatum per os, and, after delivery is concluded, an infusion of *secale cornutum*, 35 gm. in 180 gm. water, and 20 gm. syrup of raspberry, in tablespoon doses. The conditions were those of ordinary village and country practice.

116. **Hydrophobia and Trauma.**—Pfister describes a case of hydrophobia developing after an incubation of six months. He offers it as a contribution to the question of the influence of traumatism on internal affections. The patient was a healthy man of 33, whose father had committed suicide under some emotion. The subject was bitten in the thumb by a dog discovered later to be rabid. The wound was superficially disinfected, and four days later Pasteur treatment was commenced. Some other persons who had been bitten by the dog were treated at the same time, and all have remained healthy. The patient resumed his business, but four months after he had been bitten was hit on the head with a heavy chair in some business controversy. There was temporary unconsciousness, and after recovery the patient's character seemed to be altered; he became gloomy and aggressive, complained of headache, and by the sixth month developed a typical case of hydrophobia. Pfister also describes a typical case of false hydrophobia, a nervous affection following the bite of a healthy dog. In such cases a few days will generally witness the vanishing of the symptoms. One feature of this case was that the subject's symptoms, especially his inability to swallow, were reproduced in the spectators for a few days. In another case several persons were bitten by a rabid dog and took the Pasteur course. All have remained healthy except one man, who seven months later was attacked by a large healthy dog. Although he was not bitten, he was very much frightened, and the shock was followed by development of typical hydrophobia.

Wiener klinische Wochenschrift, Vienna.

Last indexed page 848.

- 119 (XVII, No. 32.) *Ueber funktionelle Nieren-Diagnostik (of kidneys). G. Kövesi (Koranyi's clinic, Budapest).
- 120 2 Fälle von Lungenhaut-Fisteln (lung fistulas). R. Wohlmut.
- 121 Stab Wounds of Stomach. E. Fuchsinger.—Ueber Stichverletzungen des Magens.
- 122 (No. 33.) Untersuchungen über die Aetologie der Dysenterie, mit Berücksichtigung von 2 Epidemien in Galizien im Jahre 1903. J. Raczynski (Lemberg).
- 123 *Tearing Out of Tendon and Suture. M. Hofmann.—Ueber subcutane Ausreissung der Sehne des langen Biceps-Kopfes an der Tuberositas supraglenoidalis und sekundäre Naht.
- 124 (No. 34.) *Spine Affection with Tabes. K. Frank.—Wirbelerkrankung bei Tabes dorsalis.
- 125 *Die Radikal-Operation des Kieferhöhlen-Emphyems von der Nase her (access to maxillary sinus through nose). L. Roth.
- 126 2 Fälle von Echinococcus mit seltener Lokalisation. R. Graf.
- 127 (No. 35.) Placental Transmission of Albumin. J. Hofbauer.—Zur Kenntnis des placentaren Eiweissüberganges von der Mutter zum Kind.
- 128 *Menstruatio praecox und Ovarial-Sarkom. H. Riedl.
- 129 Brand auf dem Boden eines Uterus cruris.
- 130 Fall von Atrophia faciei und seine kosmetische Behandlung. R. Stegmann (Gersuny's clinic, Vienna).
- 131 (No. 36.) *Bemerkungen über die Pasteurische Methode der Schutzimpfungen gegen Tollwut (Pasteur treatment). R. Nitsch (Craacow).
- 132 Zur Pathogenität des Bazillus Friedländer und zur Histogenese der Mikulicz'schen Zellen. A. Baumgarten.
- 133 *Vaccination under Red Light. H. Goldmann.—Vorläufige Mitteilung über die Impfung unter rothem Lichte.
- 134 (No. 37.) *Ueber die cytologische Untersuchung der Ex und Transsudate. N. Lewkowitz (Craacow).
- 135 Ueber Häufigkeit und Verhütung der Blennorrhoea neonatorum Wintersteiner.
- *36 Papillitis und Amenorrhoe. A. Herbst.

119. **Functional Kidney Tests.**—Kövesi has determined the functional capacity of the kidneys by various tests on 100 subjects. His experience has confirmed his opinion in regard to the necessity for leaving the catheter in the ureter for some time, as a reflex oliguria is likely to prove misleading at first.

He never observed polyuria, although it was carefully sought in his last 20 tests. He has never found the molecular concentration of the urine from the sound kidney less than that from the diseased one, with 2 exceptions, and even in these cases examination of the amount of urine indicated which organ was diseased. In regard to the "dilution test," he has found that the capacity of secreting a diluted urine is closely dependent on the condition of the kidney and character of the kidney affection. When the specific glandular element is destroyed the kidney is unable to dilute the urine, while in case of interstitial affections the diluting faculty may be retained unimpaired. The advantages of this test are that the procedure is a physiologic one, and that the elimination of water requires a specific activity on the part of the cells. In regard to the tests with stains, he thinks that they are usually indecisive in the early stages of a kidney affection, and that they can scarcely be regarded as affording much progress in functional diagnosis of the kidneys, although they may aid the novice to locate the months of the ureters.

123. **Operation for Torn-Out Tendon.**—When the parts were exposed after the traumatism, the tendon of the long head of the biceps was found completely torn out. The torn-out end of the tendon had become turned back on itself, forming a loop, the loose end of the tendon lower than its head in the muscle. This displacement of the stump must have occurred at the time the tendon was torn out, the elastic strain causing it to fly back. These findings demonstrate the impossibility of restoration of conditions to normal under such circumstances without surgical interference. Hofmann states that he has been able to find only 4 instances on record of operative treatment of this torn-out tendon. The functional results were all so good that he urges surgical intervention as soon as conservative measures fail to show improvement.

124. **Spinal Affection with Tabes.**—Frank reports the case of a man of 55, a cabinetmaker, previously healthy, no lues, who met with a slight accident affecting the sacral region in 1902. A year later symptoms of pronounced tabes developed, accompanied by an osteoarthropathy of the lumbar vertebrae. The latter corresponded in every particular with the descriptions of typical tabetic osteoarthropathy of the spine, and was undoubtedly due to the tabetic process. Comparison with other typical spinal affections shows the differences. The prognosis is favorable. Mercurial treatment should always be instituted in such cases and some mechanical support is advisable not only for its moral effect on the patient, but to relieve the affected vertebrae of weight-bearing. It thus aids in arresting the process or at least in rendering it milder and checking severe destructive changes. This effect may possibly be the reason, he adds, why a supporting corset has such an unmistakably favorable action in tabes.

125. **Operations on Maxillary Sinus Through Nose.**—Réthi has operated on 15 cases of maxillary sinusitis by resecting the anterior two-thirds of the inferior turbinal. At the point of its insertion he makes an opening into the maxillary sinus, extending toward the outer wall of the middle and lower nasal fosse, establishing a broad communication between the nose and the sinus. In 4 out of his first series of 5, the affection had resisted other measures for years, but was radically cured in one to four months. In the fifth case there is still slight secretion in the sinus. In the second series of 6 patients, 5 were cured and 1 much improved. Of 15 patients, 12 were completely cured and 3 much improved. He regards this technic as an improvement over the Caldwell operation, no external incision being necessary.

128. **Menstruatio Praecox and Ovarian Sarcoma.**—The patient was a girl of 6 who had menstruated regularly since her fourth year, and was precociously developed. A large round-celled sarcoma was removed from the left ovary. In 3 other cases of precocious menstruation on record, a tumor was found in one ovary. In the case described, no genital hemorrhage has been observed during the months since the ablation of the tumor, but the formation of another tumor, manifestly a recurrence of the sarcoma, is unmistakably evident.

131. **Pasteur Treatment of Hydrophobia.**—Nitsch presents arguments in favor of using fresh mixed virus, and in larger amounts than those hitherto adopted. It is convinced that the fresh, spinal cord virus, injected subcutaneously, is entirely harmless for man.

133. **Vaccination Under Red Light.**—See editorial.

134. **Cytology of Effusions.**—Lewkowicz analyzes the publications on this subject and classifies the findings as follows: Endotheliosis signifies a mechanical irritation (transudates in heart and kidney affections, mechanical irritation by the growth of some neof ormation or the result of traumatism). Mononucleosis indicates the presence of foreign cellular elements somewhere in some serous membrane. The organism is seeking to rid itself of these foreign elements by macrophagocytosis. Erythrocytosis signifies a hemorrhagic process, either hemorrhage from solution of continuity of the vessels or passage of the erythrocytes through the walls of the vessels in consequence of inflammatory changes in the walls. Lymphocytosis and polymucleosis indicate an inflammatory process, the former a serous, the latter a suppurative process. Cytologic examination is thus able to reveal a pathologic process in some serosa: meningitis can thus be differentiated from the cerebral symptoms accompanying an infectious disease; tuberculous meningitis can be differentiated from an intestinal affection with toxic brain symptoms; tabes and progressive paralysis can be differentiated from a neerosis. The cytologic findings may vary in the course of the same affection, as a serous may merge into a suppurative process. But experience shows that certain pathologic processes obey certain laws. For instance, in case of lymphocytosis of the region of the diaphragm or meninges, we must bear in mind that the majority of the affections in these regions are tuberculous. The lymphocyte formula in case of an exudate in the costal pleura may be regarded as suggestive evidence of tuberculosis, although it does not positively exclude pneumococcus, staphylococcus or influenza inflammations or neoplastic changes. In case of meningitis, this formula indicates tuberculosis or syphilis. The polymuclear formula does not exclude any of these processes, and may indicate more extensive tuberculous or gummatous foci, with necrotic changes. Scraps of endothelium speak against tuberculosis. The polymuclear formula is more liable to accompany probably some pyrogenic or allied process, or a rheumatic or hydrophobia process, heat stroke, or possibly malignant disease. In case of a transudate, it suggests an infarct in the lung. The finding of macrophages is testimony in favor of a pneumococcus or rheumatic exudation.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed to be a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A SYSTEM OF PRACTICAL SURGERY. By Prof. E. von Bergmann, M.D., of Berlin. Prof. P. von Bruns, M.D., of Tübingen, and Prof. J. von Mikulicz, M.D., of Breslau. Volume V. Translated and Edited by William F. Bull, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, N. Y., and Edward Milton Foote, M.D., Instructor in Surgery, College of Physicians and Surgeons, Columbia University, N. Y. Surgery of the Pelvis and Genito-urinary Organs. Cloth. Pp. 789. Price, \$6.00. New York and Philadelphia: Lea Brothers & Co.

REFRACTION AND HOW TO REFRACT, including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye-glasses, etc. By James Thornton, F.R.C.S., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, Third Edition. With 215 Illustrations, 13 of Which Are Colored. Cloth. Pp. 314. Price, \$1.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

WEATHER INFLUENCES. An Empirical Study of the Mental and Physiological Effects of Definite Meteorological Conditions. By Edwin Grant Dexter, Ph.D., Professor of Education at the University of Illinois. With an Introduction by Cleveland Abbe, LL.D. Cloth. Pp. 286. Price, \$2.00. New York: The Macmillan Co. London: Macmillan & Co., Ltd., 1904.

BEAUTY THROUGH HYGIENE. Common Sense Ways to Health for Girls. By Emma E. Walker, M.D., Member of the New York Academy of Medicine. Illustrated. Cloth. Pp. 306. Price, \$1.00 net. New York: A. S. Barnes & Co. 1904.

THE ACTION OF LIGHT AS A THERAPEUTIC AGENT. By Leonard K. Hirshberg, Baltimore, Md. Fiske Fund Prize Dissertation. Cloth. Pp. 49. Providence: Snow & Tarnham, 1904.

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Original Articles.

THE INVASION OF CARCINOMA CERVICIS UTERI INTO THE SURROUNDING TISSUES

AND ITS BEARING ON THE MORE RADICAL OPERATIONS
FOR THAT DISEASE.*

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The invasion of carcinoma cervicis uteri into the surrounding tissue manifests itself clinically in the large percentage of the cases in which the disease is not recognized until after it has extended beyond operative treatment, and also in the still larger percentage of the cases in which the disease returns after operation, showing that at the time of the operation the surrounding tissues had already become involved, and on this account hysterectomy seldom cures the disease.

It is little wonder that the laity and even some physicians consider cancer of the cervix of the uterus an incurable disease, for over three-fifths of the patients admitted to this hospital with carcinoma cervicis uteri come too late for anything but palliative treatment, and probably over three-quarters of the patients operated on will die from cancer within five years of the operation. Our only hope of bettering this condition is in an earlier diagnosis, and also in doing the most radical operation possible, especially in the early cases, for in these there is the best chance for a cure.

The indications for the operative treatment of this condition must come, not only from a study of the results of operations which have been done, but especially from the microscopic study of the specimens removed by the more radical operations, in order to determine how and in what directions the growth invades the surrounding tissue and metastasizes to other parts. The justification of any course of treatment which may be suggested by pathologic studies must be tempered by the results of anatomic and physiologic studies of the parts involved, and finally by clinical experience, for the treatment suggested may be too severe or in other ways inapplicable to human beings. Clinical experience has shown that in a very high percentage of the cases the growth has already extended beyond the uterus at the time that the diagnosis is made, and a study of the specimens removed by the more radical operations shows how this extension occurs and why it is so difficult to remove the entire diseased area.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

A STUDY OF SPECIMENS INDICATING THE FREQUENCY OF INVASION OF THE SURROUNDING TISSUES.

Kundrat¹ has recently published the result of his studies of the parametrium in 80 of Wertheim's cases. An idea of the thoroughness of the work may be gained from his statement that he examined over 21,000 sections. In 44 of the cases the parametrium was found to be involved by the cancerous growth. He emphasizes the statement that the presence of cancer in the parametrium can only be diagnosed by the use of the microscope, for an infiltrated condition of the parametrium is not necessarily carcinomatous and a natural feeling parametrium does not exclude cancer, a point which has been previously emphasized by Wertheim.² Neither is there any relation between the size of the primary growth and the cancerous involvement of the parametrium, for the primary growth may be very large and yet the parametrium may be free from cancer; on the other hand, the primary growth may be very small and the parametrium may contain carcinoma. He calls attention to the frequency of metastases to the parametrial lymph nodes, as this occurred in fifteen instances.

Of great significance is the relation of the involvement of the parametrium to the involvement of the pelvic lymph nodes in these 80 cases. In 32 of the 80 cases both the parametrium and the pelvic lymph nodes were apparently free from cancer. In 22 cases the parametrium was found to be cancerous, while the pelvic nodes were uninvolved. In 18 cases both the parametrium and the pelvic lymph nodes were involved by cancer. In 4 cases the parametrium on both sides was free, but the pelvic lymph nodes of one side were cancerous, while in 3 other cases the parametrium of one side was cancerous and the lymph nodes of the opposite side, and in another instance only the parametrium on one side was cancerous, while the pelvic lymph nodes of both sides were involved.

This latter group showed that apparently in eight instances the growth was able to pass through the parametrium and reach the pelvic lymph nodes without the former becoming involved, while in 22 cases the parametrium was apparently able to prevent the further spread of the disease. In other words, in 22 out of 48 operable cases in which the disease had extended beyond the uterus (for in 32 cases it was apparently limited to the uterus), the parametrium was able apparently to check the further extension of the disease, and in addition, in 22 of the remaining 26 cases, the parametrium was involved as well as the pelvic lymph nodes, thus showing that the parametrium was involved

1. Kundrat: Ueber die Ausbreitung des Carcinoma im parametranen Gewebe bei Krebs des Collum uteri, Archiv f. Gynäkologie, 1903, vol. lxxix, pp. 355-409.

2. Wertheim: Zur Frage der Radical-operation beim Uteruskrebs, Archiv f. Gynäkologie, 1900, vol. lxi, No. 3, p. 662.

in 44 of the 48 operable cases in which the growth had extended beyond the uterus. In 26 of the 80 cases the pelvic lymph nodes were involved, and in 22 of these 26 cases the parametrium on one or both sides was also involved.

I have studied the specimens from 15 cases in which the more radical operation was done, and made an attempt to determine the exact relation between the primary growth and its invasion and metastases to other parts. The studies are unfinished and will be but briefly referred to here. A more elaborate description of the findings will appear later. In 12 of the 15 cases the growth was found to have extended beyond the uterus, and yet these cases were all the so-called operable ones. In 7 cases there was a direct extension of the growth from the cervix. There were metastases to the parametrial lymph nodes in four cases. Carcinoma as a metastasis was found in a parametrial lymph space at some distance from the cervix in only one case. In 12 cases in which the pelvic lymph nodes have been studied cancer has been found in six. As stated, these studies are incomplete, and further investigations of the same cases may show an even larger number in which the growth is not limited to the cervix.

A study of these cases shows that there is no relation between the size of the primary growth and the presence or absence of lymphatic involvement. Some of these cases showed very interesting features, as, for instance, the lymph nodes of the parametrium of one side would be involved and the pelvic lymph nodes would be free, while the lymph nodes of the parametrium of the opposite side were free, but the pelvic lymph nodes were involved. The cases are too few in number to be of any great statistical value, but a careful study of these cases shows how the growth invades the surrounding tissue and why hysterectomy alone so seldom cures this disease.

THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETERS.³

The relation between carcinoma cervicis uteri and the ureters manifests itself clinically:

First, in the renal insufficiency resulting from a compression of the ureters by the growth.

Secondly, in the frequency of accidental injury to the ureters occurring during operation for the removal of the growth, there having been in this hospital 19 cases of accidental injury to the ureter in 156 hysterectomies for carcinoma of the cervix, as compared with only 11 similar injuries in 4,513 other major gynecologic operations up to Jan. 1, 1904.

A study of the anatomic relation between the cervix and the ureters shows that this is altered by the position of the uterus in the pelvis and that it takes but very little involvement of the parametrium, either by direct invasion or by metastases, for the growth to reach or extend beyond the ureters. The ureters follow the curve of the pelvic wall and gradually approach each other so that at their orifices in the bladder they are but 1.5 to 3.5 cm. apart, the distance varying in individual cases and in the condition of the bladder, whether distended or contracted. One can see that in whichever side of the pelvis the cervix is that it is nearer the ureter of that side than the other, and also that the lower ends of the ureters are much nearer the cervix than portions of the ureters higher up.

It is evident that the ureters pass through tissue

which should be removed in every instance. The question arises, how can this best be done? Two ways present themselves; first, dissect the ureters free and remove all the tissue about them; second, resect the lower ends of the ureters and implant the renal ends into the bladder.

FREELING THE URETERS.⁴

When the lower ends of the ureters are freed in these operations it is usually necessary to shell them out of their sheath, which is derived from the tissue along or through which the ureter passes and serves as a channel in which the ureter may slide as it contracts and protects the ureter from the invasion of cancerous growths and inflammatory processes.

The effect of freeing the ureter from its sheath manifests itself in the opportunity for partial ureteral obstruction resulting from kinking or imbedding of the ureter in adhesions, and also in circulatory disturbances resulting from injury to the blood supply of the ureter, which vary according to the severity of these disturbances. The circulatory disturbances may be temporary and soon relieved by a compensatory hypertrophy of the vessels not injured.

On the other hand, necrosis of the ureter may occur, which may or may not lead to a rupture of the ureter, depending on the extent of the injury and whether or not the ureter becomes imbedded in the surrounding tissue before the necrosis has extended far enough to cause a rupture. The ureteral rupture is due to the extent of the necrosis and to the failure of the ureter to become imbedded in the surrounding tissue on account of gauze, exudates, infection or sloughing of surrounding tissues. Rupture of the ureter causes an extravasation of urine, which, if it becomes infected, may lead to renal or parametrial infections or other infectious processes. When the urine finds an outlet through the vagina or abdominal incision a ureteral fistula is formed, which is the usual manifestation of ureteral necrosis. Ureteral fistulae may heal spontaneously, but probably always with a stricture and frequently with renal infection, which may cause the death of the individual. Frequently they persist over long periods of time, with all the discomforts and dangers associated with this condition. In some cases they may close, with occlusion of the ureter and a loss of function of the kidney.

The most important etiologic factor in the causation of ureteral necrosis is injury to the periureteral arterial plexus from tearing or otherwise injuring the plexus, as may occur in dissecting the ureter free. Other etiologic factors must be considered, as the ligation of vessels supplying the plexus, exudates, infection, destruction of tissue about the ureter, as would result from the use of the cautery, foreign bodies against the ureter (as gauze), pressure on the ureter, stricture below the injury, and lowered general resistance.

RESECTION OF THE URETERS.

Removing all the tissue from pelvic wall to pelvic wall with the lower ends of the ureters offers the greatest chance for a cure and at the same time the ureteral sheath and periureteral arterial plexus may be preserved, for the portion of the ureter which is above the parametrium rest-against the peritoneum, so that when the peritoneum is freed the ureter with its sheath remains

3. Sampson: The Relation Between Carcinoma Cervicis Uteri and the Ureters, and Its Significance in the More Radical Operations for that Disease, *Johns Hopkins Bulletin*, 1904, vol. xv, pp. 72-83.

4. Sampson: Complications Arising from Freeing the Ureters in the More Radical Operations for Carcinoma Cervicis Uteri, with Special Reference to Post-Operative Ureteral Necrosis, and the Efficiency of the Periureteral Arterial Plexus and the Importance of Its Preservation in the More Radical Operations for Carcinoma Cervicis Uteri, *Johns Hopkins Hospital Bulletin*, 1904, vol. xv, pp. 39-46 and 123-134.

attached to it and the peritoneal flap carrying the ureter with its sheath may be drawn down and sutured to the bladder. At the same time the bladder may be freed in order to help relieve the tension of the implantation. Against this procedure are the uncertainties of the uretero-vesical implantation and the dangers of ascending renal infection, for an implanted ureter is never so efficient as an intact one, and a most important accessory etiologic factor⁵ in the causation of ascending renal infection is stricture of the ureter. It can be seen that the operation which clinical experience and a study of the parametrium suggests as the one which will give the greatest percentage of cures is a very serious one and attended with uncertainties. In those cases in which one can determine that the growth has involved the ureteral sheath, it should be the operation of choice.

On the other hand, if the growth apparently has not extended out to the ureter the sheath may be opened from an incision made through its lateral surface and the ureters very carefully shelled out. If this is carefully done the dangers of ureteral necrosis is slight; on the other hand, if the bared ureter is roughly handled ureteral necrosis is apt to occur.

THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE BLADDER.⁶

The relation between carcinoma cervicis uteri and the bladder manifests itself clinically in the anterior extension of the disease, thus involving the bladder, and with the necrosis of the cancerous tissue a vesico-vaginal fistula is formed. Other clinical manifestations of this relation present themselves in the frequency of accidental injuries to the bladder in the operative treatment of this disease, there having been 17 such injuries in 156 hysterectomies for carcinoma cervicis uteri in this hospital, and also in the frequency of cystitis following these operations, suggesting that the operation must be considered an accessory etiologic factor in its origin. Cystitis has occurred in 12 out of 16 cases in which I have followed the bladder conditions after these operations.

The anterior surface of the cervix rests against the posterior surface of the bladder and the two organs are loosely attached to each other, so that they may be easily separated during operations unless there are some pathologic changes at this place. From a study of the anatomic relation between the two organs it becomes very evident that the bladder must soon become involved in a direct extension of the growth, either through the cervix or indirectly through the anterior vaginal wall. Whether or not the bladder becomes involved will depend on the origin of the growth, the direction of its invasion, and also its extent.

EFFECT OF THE MORE RADICAL OPERATIONS ON THE BLADDER.

In hysterectomy for carcinoma cervicis uteri, not only is the entire uterus removed, but also a portion of the vagina. The amount of the latter removed varies with the extent of the disease and also with the operator, some operators removing more than others. The posterior surface of the bladder is exposed and injured in freeing it from the cervix and vagina. The greater the difficulty in freeing the bladder, the greater chance for

injury to it, and also of leaving cancer attached to the bladder wall. The area of bladder thus exposed and injured varies with the amount of bladder attached to the cervix and also with the amount of vagina removed. It becomes evident that a large portion of the bladder is exposed and injured in these operations in such a manner that the function of the bladder is interfered with and that the bladder is predisposed to infection, the amount of injury varying with the area of the bladder exposed and the amount of trauma caused in freeing the bladder, which in turn would depend on whether the bladder was adherent or not. In freeing the bladder from the cervix and vagina not only are the vessels going to this portion of the bladder destroyed, but the larger vessels in the outer vesical wall are also injured, thus interfering with the nutrition of the bladder and impairing its function and predisposing it toward infection.

The blood supply of the bladder is frequently injured in other ways by the operation, i. e., in the ligation of large vessels, as the internal iliac or its anterior branch, from which arise the vesical arteries. I am unable to see any operative advantage to be gained in ligation of these vessels over the ligation of the uterine artery alone, and there is certainly this disadvantage, that the blood supply of these parts must be injured, thus making them less resistant to infection.

INJURY TO THE BLADDER AS A RESULT OF HYSTERECTOMY.

The 17 instances of accidental injury to the bladder in 156 hysterectomies for carcinoma cervicis uteri emphasize the close anatomic relation between the two organs and that the extension of the disease soon involves the bladder, so that the separation of the bladder from the growth results in injury to the bladder which may manifest itself in a vesical fistula, recognized either at the time or afterward.

The frequency of cystitis following these more radical operations is another indication of the close relation between carcinoma cervicis uteri and the bladder and indicates that as a result of the operation the bladder is left in a condition of lowered local resistance and this condition is responsible for the cystitis which may later develop. Krönig⁷ has carefully described the technic of closing the raw areas caused by these operations and emphasizes the importance of covering the posterior surface of the bladder by bringing down the utero-vesical peritoneal flap and suturing it to the anterior vaginal wall as a means of protecting the injured bladder and thus lessening the chance for cystitis.

Taussig⁸ has reviewed Wertheim's cases and demonstrated the importance of retention of urine as an etiologic factor in the causation of cystitis, and that in these more radical operations this is especially likely to occur. He calls attention to the fact that ganglia and nerves are found in the parametria of these cases and that their removal may interfere with the function of the bladder and so give rise to the retention of urine. Kolischer,⁹ in addition to the other views already mentioned, as injury to the bladder, blood supply, etc., adds another, i. e., in freeing the ureters certain trophoneurotic disturbances occur which predispose the bladder to cystitis.

Baisch¹⁰ has recently discussed this subject and con-

7. Krönig: Zur Technik der abdominalen Totalexstirpation des carcinomatösen Uterus, Monat. für Geb. und Gyn., 1902, vol. xv, pp. 879-894.

8. Taussig: Ueber die post-operative Harnverhaltung und deren Folgen, Münch. med. Woch., 1902, vol. xlix, No. 2, pp. 1646-1649.

9. Kolischer: Post-operative Cystitis in Women, American Journal of Obst., 1903, vol. xlviii, pp. 349-354.

10. Baisch: Erfolge in der prophylaktischen Bekämpfung der post-operativen Cystitis, Zent. f. Gynäkologie, 1904, vol. xxviii, pp. 380-385.

5. Sampson: Ascending Renal Infection, with Special Reference to the Reflux of Urine from the Bladder Into the Ureters as an Etiologic Factor in Its Causation and Maintenance, Johns Hopkins Hospital Bulletin, 1903, vol. xiv, pp. 334-352.

6. Sampson: The Relation Between Carcinoma Cervicis Uteri and the Bladder, and Its Significance in the More Radical Operations for that Disease, Johns Hopkins Hospital Bulletin, 1904, vol. xv, 156-162.

siders that there are two very important etiologic factors, namely, the injury to the nerve and blood supply of the bladder as a result of the operation, thus predisposing the organ to infection. He advocated frequent catheterization followed by bladder irrigation as prophylactic measures and quotes cases supporting these.

In order to make a positive diagnosis of cystitis two things must be done: first, a cystoscopic examination must be made and the inflamed bladder seen; secondly, cultures must be taken and the organism causing the infection obtained. These two steps are essential, for an inflamed appearing bladder may not be infected, and positive cultures obtained from the urine may come from an infected kidney and the bladder may be normal, or the organism may be excreted by the kidneys and appear in the urine without causing any harm to either kidney or bladder.

I have followed the bladder condition in 16 cases where hysterectomy for carcinoma cervicis uteri has been done. In 14 of these cases both cystoscopic examinations and urine cultures were taken, and in the other 2 cases the patients died, one on the ninth day and the other on the seventeenth day, and at autopsy the cause of death was found to be ascending renal infection. The ureters had been sacrificed in one, but not in the other, of these two cases.

In 10 of the 14 patients who lived, cystitis was found to be present, as determined by cystoscopic examination and taking cultures, and in three of the four cases in which the bladder apparently escaped infection an accidental vesicovaginal fistula was present, which apparently prevented a cystitis, for cultures taken in two of these three cases showed colon bacilli in large numbers. In 12 of the 16 cases cystitis occurred, resulting in ascending renal infection and death in two patients. In all the cases but one the raw areas were covered with peritoneum, and in that one case it was necessary to have on clamps and pack with gauze in order to control hemorrhage. In these cases the uterovesical peritoneal fold was sutured to the anterior vaginal wall and the entire denuded vesical wall was protected by peritoneum. In addition, the posterior vaginal wall was sutured to the recto-uterine peritoneal fold, thus covering in the raw tissue anterior to the rectum. The pelvis was drained by two small gauze drains extending under the peritoneum on each side and out through the vaginal opening. Yet these cases did not escape cystitis.

Realizing that retention of urine was an important etiologic factor in the causation of cystitis, I used a retention mushroom catheter in four cases. In all four cases cystitis developed, resulting in ascending renal infection and death in two, and in one of these there was a patchy membranous cystitis, the patches corresponding to the parts of the bladder which came in contact with the catheter when the bladder was collapsed. I think that the catheter was responsible for the severity of the cystitis, for it soon became covered with urinary salts, acting as a foreign body (stone) in the bladder. Another criticism against the retention catheter is that it is apt to become occluded or pushed too far in the bladder, and one can never tell whether or not it is doing what it is supposed to do—that is, keeping the bladder empty by draining the urine away as fast as it comes to the bladder.

I tried frequent catheterization, i. e., every three or four hours, in the next nine cases, following it by bladder irrigations in five cases; but cystitis developed in eight of the nine cases. Why does cystitis occur in these

cases? I have been unable to prevent it by covering the injured bladder with peritoneum, and also by preventing retention of urine by means of the retention catheter or frequent catheterizations.

The main accessory etiologic factors in the causation of the cystitis are as follows:

1. The large area of bladder exposed and injured in removing the cervix with parametrium and also a portion of the vagina.

2. Interference with the blood supply of the bladder, caused by ligating vessels giving rise to vesical arteries; freeing the bladder, thus cutting off vessels going to it, and the injury of the vessels in the bladder wall.

3. Interference with the function of the bladder, it having been injured in freeing it, its blood supply having been interfered with, some of its natural supports removed, and nerves and ganglia destroyed. This interference with its function may manifest itself in the inability to void urine. On the other hand, in one patient incontinence was present, there being no ureteral nor vesical fistula. In other cases the patient may micturate and there may still be a large amount of residual urine left in the bladder. In one of the above cases this was as great as 300 c.c.

Organisms may gain access to the bladder in various ways:

1. They may be present in the bladder at the time of the operation. They were present in one of the above cases, although there was no evidence of cystitis at the time.

2. They may pass through the injured bladder wall, through the fundus or trigonum, or along the bared ureters if dissected free or resected and implanted in the bladder.

3. In catheterizing the bladder organisms may be carried in.

4. They may be carried down from the kidneys or conveyed to the bladder by the circulating blood.

It becomes evident that the relation between carcinoma cervicis uteri and the bladder is a very important one on account of the invasion of the bladder by cancer, and also the likelihood of post-operative cystitis, with its accompanying danger of ascending renal infection.

THE SIGNIFICANCE OF VESICOVAGINAL FISTULE.

A study of specimens from the more radical operations emphasizes the importance of a wide excision of the primary growth, and the fact that the bladder anteriorly and the ureters laterally may soon be involved in the extension of the disease. A study of the bladder obtained at autopsy from those patients who have died after these more radical operations, as well as the clinical histories of those who survive, shows how frequently cystitis follows these operations and that danger of ascending renal infection is a very important consideration.

A very instructive feature associated with these cases is that an accidental vesicovaginal fistula was present in three or four cases in which cystitis apparently did not develop. The presence of a vesicovaginal fistula meant that intravesical tension was absent and that the injured bladder was put at rest and cystitis did not develop, or was less severe. We realize that the formation of a vesicovaginal fistula is the best means we have of treating severe cystitis. The best surgical treatment for infection in any part of the body is free incision and drainage, together with rest of the diseased part, and that is what a vesicovaginal fistula does for an infected bladder. Its significance here is most important. On

account of the proximity of the bladder to the uterus the growth does not have to extend far anteriorly to involve the bladder. The avoidance of injury to the bladder means in many instances a return of the growth and cystitis, with the danger of ascending renal infection. The wide excision of the growth, with any portion of the bladder adherent, means a higher percentage of cures and the probable avoidance or lessening of the severity of the cystitis.

In cases in which the bladder is not involved by the growth it is not necessary to sacrifice a portion of the bladder. In these cases all raw areas should be covered with peritoneum. The uterovesical peritoneal fold should be sutured to the anterior vaginal wall, and the recto-uterine to the posterior vaginal wall. Afterward the patient should be catheterized every three or four hours, followed by bladder irrigation, and at the first suggestion of cystitis, as seen by pus in the urine, the bladder should be examined, and if the cystitis is severe and does not yield to treatment, a vesicovaginal fistula should be formed.

A satisfactory cystoscopic examination may be made with the patient in the Sims position,¹¹ and if one decides to make a vesicovaginal fistula it can be done as follows: The handle of the cystoscope is pushed toward the symphysis so that the end of the cystoscope bulges the anterior vaginal wall at a point just posterior to the internal urethral orifice. This bulging place is opened with a knife and the incision enlarged posteriorly with scissors. The fistula may be made and afterward closed without even a local anesthetic, for the previous operation will have destroyed the sense of pain over this portion of the vagina and bladder.

THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE RECTUM.

The relation between carcinoma cervicis uteri and the rectum¹² manifests itself clinically in the posterior extension of the disease, involving the anterior wall of the rectum, and with the necrosis of the cancerous tissue a rectovaginal fistula is formed. Another manifestation of this relation is injury to the rectum in hysterectomy for the disease.

As the uterus under normal conditions is a relatively freely movable organ, it adapts itself to the space in the pelvis in which there is the most room, and its position in the pelvis is to a certain extent determined by the position and size of the rectum. So the relation between the two organs is dependent on the position of the uterus in the pelvis, whether in the right or left lateral positions, and also whether forward or in retroposition, and whether high in the pelvis or in descensus. The posterior surface of the uterus is covered by peritoneum, and the reflexion of this peritoneum over on to the uterus forms the bottom of the so-called cul-de-sac of Douglas. The bottom of this cul-de-sac is situated at a lower level than the lower portion of the cervix when the uterus is in its normal position, and, as is well known, the peritoneal cavity can easily be opened by an incision through the vaginal vault posterior to the cervix. While there is a relatively broad attachment between the bladder and cervix anteriorly, the cervix is separated from the rectum by the cul-de-sac, with its uterine and rectal peritoneal lining, and in descensus the pos-

terior vaginal wall is interposed between the two organs. In addition, there is adipose tissue between the anterior rectal wall and the vaginal and rectal peritoneal covering of the cul-de-sac. The amount of this adipose tissue varies in different cases.

A result of these anatomic studies shows that a direct invasion of the rectum by carcinoma cervicis uteri must extend either through the cul-de-sac, which may have become obliterated by adhesions, or indirectly through the vaginal wall, which may have become involved by the growth, or else through the parametrium of one side, which may be situated directly in front of the rectum.

THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE VAGINA.

The relation between carcinoma cervicis uteri and the vagina manifests itself in the involvement of the vagina by an extension of the growth and the so-called implantations on the vagina, which may be retrograde lymphatic metastases. The involvement of the bladder and rectum from the vagina has already been referred to. The first indication in the operative treatment of this condition is a wide excision of the primary growth. If the vagina is involved there should be a wide lateral excision of the vagina, and enough of the vagina removed to get below the growth. Against the unnecessary excisions of the entire or greater portion of the uninvolved vagina, it may be said that it prolongs the operation and weakens the bladder and rectum, and also leaves a raw area which is difficult to close.

The involvement of surrounding parts other than I have mentioned indicates a wide excision of these parts.

THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE PELVIC LYMPHATICS.

By the pelvic lymph nodes I refer to those along the sides of the pelvis exclusive of the parametrial lymphatics. As stated in this article, these were found to be involved in 6 of 12 cases operated on in which they had been studied. Kundrat found them involved in 26 of 80 cases studied. Apparently the pelvic lymph nodes are involved in from 30 to 50 per cent. of the cases operated on, and there is no relation between the size of the primary growth and the presence or absence of lymphatic involvement, for the primary growth may be small and the lymphatic involvement extensive, or the primary growth large and the pelvic lymphatics free from cancer. A large lymph node is not necessarily a cancerous one, and a small one may contain cancer. It becomes evident that there is just as much of an indication for the removal of the pelvic lymphatics in cancer of the cervix as there is for the removal of the axillary lymph nodes in cancer of the breast. And, as in the operative treatment of cancer of the breast, one should remove the lymphatics *en masse* with the growth and uterus. On the other hand, the first indication should be a wide excision of the primary growth and the removal of the pelvic lymph nodes should be of secondary importance, as will be discussed later.

(To be continued.)

Occupations for Inmates of Tuberculosis Sanatoria.—Elkan discusses this subject in the last issue of the *Zft. f. Tuberkulose*, V, 5. He admits that it is not an easy matter to find congenial occupations for tuberculous patients. Gardening seems to be the best adapted for them. Work should be optional, and he advises having a trained gardener to inspire them by his example and advice. No pecuniary inducement should be offered, but the physician and the personnel of the establishment should manifest an interest in the gardening.

11. Sampson: The Advantages of the Sims Posture in Cystoscopic Examinations. Johns Hopkins Hospital Bulletin, 1903, vol. xiv, pp. 194-196.

12. Sampson: The Relation Between Carcinoma Cervicis Uteri and the Rectum and Its Significance in the More Radical Operations for the Disease. Johns Hopkins Hospital Bulletin, 1904, vol. xv, 198-203.

TREATMENT OF COLD ABSCESSSES AND SINUSES IN TUBERCULOUS BONE LESIONS.*

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Paradoxical as it may appear, cold abscess and sinuses with all kinds of mixed infection furnish a fascination for me that years of experience in their treatment can not satisfy. Year after year, as requests from chairmen and secretaries come to present a paper for discussion, the topic chosen to-day comes first into mind, and because of its inexhaustibility it pleads for further discussion. To the practitioner remote from large cities, abscesses and sinuses appear insignificant, perhaps, because out-of-door life and good hygiene contribute so much to the storing up of vital resistance, and almost any surgical measure leads to satisfying results. In largely populated centers, however, where the tenement house plays so important a part, vital resistance is lowered and results are far from satisfactory.

My connection for nearly a third of a century with a hospital whose in- and out-patient service is second to none prompts me to insist on the importance of a further study of means for curing and preventing sinuses, because as yet no specific has been found.

By "cold abscesses" is meant the ordinary abscesses that appear in the course of a tuberculous osteitis involving the epiphysis of a long bone or the body of a vertebra, cancellous structure as distinguished from the compact tissue of bone. Acute or "hot abscesses" have no place in this paper, and a definition of sinus would waste time and be presumptuous.

A word as to the frequency of abscesses and sinuses may not be amiss as enhancing the importance of the subject. Without reference to statistics and percentages, it is well known that these complications of bone disease are sufficiently frequent to cause apprehension during the life of the patient. Long after a cure has been pronounced in a case where an abscess has not developed during the course of treatment, an abscess does develop, and it seems so simple that the physician can not resist the temptation to employ the scalpel, and sooner or later the infected sinus appears and refuses to heal.

Last winter a young man from one of the southern states came to New York because of a sinus. His history was as follows:

In early life, say at about 5 years of age, he developed tuberculous osteitis of the hip, common hip disease, was treated expectantly, and in a few years got well with ankylosed hip and a moderate amount of deformity, which gradually increased until it came under my care for correction. This was done by a subtrochanteric osteotomy, and he returned home with a strong hip, a reduced shortening, and went through college without further interruption. Eight or nine years after the osteotomy, and without apparent cause, a "bunch" appeared on the outer side of the thigh, just below the trochanter major. His local physician recognized fluctuation and incised, believing that a cure would soon follow. A sinus followed, the care of it was left to the patient, and mixed infection was the result. Tiring of its persistence and of rather frequent attacks of sepsis, he came, as above stated, to New York and again under my care. The sinus was enlarged, the lining cut away and the shaft of the bone near the trochanter "scraped." In fact, an attempt was made to remove the focus of the disease without resorting to a radical operation such as excision of the hip. He remained in the hospital six or

eight weeks, until he had become quite expert in keeping the sinus aseptic. He went home under the impression that in time the sinus would heal, and a letter to his physician urging asepsis and good drainage as better than a radical operation was deemed all sufficient. After a month or two a letter came telling of impaired health, profuse discharge and asepsis. He was ordered to the mountains and reports were more satisfactory.

This is not an isolated case, as my readers can testify, and we wish that the introduction of the scalpel had been postponed.

Many years ago a small boy with dorsolumbar Pott's disease came under treatment. A solid plaster-of-paris jacket was applied and immobilization without interruption was maintained for nearly two years. No exacerbation occurred during this period and a convalescing jacket was worn for another year. Resolution seemed complete, the deformity was trifling and he was discharged cured. Ten years later, during the past winter, he appeared again because of pain in his back and left hip. The deformity had not increased, but there seemed to be an exacerbation caused by a vigorous game of "leap-frog," he being the "frog." Local and simple treatment failed to give relief and a plaster-of-paris corset was employed. It was not long before deep fluctuation could be discovered in the left gluteal region and around the coccyx. Aspiration gave negative results. Pain and tenderness continued and it was fully four weeks before an exploring needle was deemed justifiable. One or two subsequent aspirations failed to evacuate the abscess because of thick pus and flakes, and as a burrowing sac about the rectum was feared, it was decided to incise aseptically, thoroughly evacuate and close. This was done under ether and an enormous sac extending pretty nearly over the entire posterior surface of the pelvis was thoroughly cleansed without the aid of chemicals. As the opening was ready for closing, a mural abscess was discovered near by, and this was treated as the large one. Both openings were closed with silk, a gauze drain inserted and removed in forty-eight hours. There was no reaction at the end of a week, the wounds were healed to all appearances, and the large sac had partially refilled. The next step was to aspirate remote from the wound, but as the sac filled so slowly this was postponed until a small amount leaked through the edges of the wound. Drainage was now inserted, and from day to day sepsis was kept at the minimum by aseptic cleansing and dressings. Nearly four months have elapsed and the patient is at the seashore slowly convalescing from a mild grade of sepsis, and the sinus is still open.

While this case is presented not to illustrate a mode of treatment, but to show how an abscess appears late in the day and how obstinate its management proves, it does show a failure in the treatment recommended in this paper. The skillful surgeon may say that if a free incision were made and all the parts exposed to view the result would have been different. Let the following illustrate: A few days ago, while visiting a desperate case on Long Island, a request was made that a young man near the station with spinal disease be examined.

He was 26 years of age, and had a focus of disease in the bodies of the ninth and tenth dorsal vertebrae, with very little deformity. He had been a brakeman on the railroad. A year and a half ago his disease was recognized by the local physician, but not treated. The course was slow, and the usual remissions and exacerbations made up a typical history. Last December a "bunch" appeared over the sacrum, left side, and this soon developed into a large-sized abscess. He was taken into the city, operated on in one of the large metropolitan hospitals by a surgeon whose fame is world-wide. The long cicatrix, nearly twelve inches, with a sinus about its lower end, showed that the operation was *secundum artem*. This was in February. The local physician is packing a long sinus every other day, and the condition of the patient and stiffening of the unprotected spine show that the case is not yet complete.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest, Willard, Charles A. Powers and J. E. Moore.

The general surgical dictum that, when pus is found, evacuate at once, has been so vigorously attacked within the past quarter of a century that it is not necessary to state that all surgeons adhere vigorously to this rule. Many there be whose experiences prompt them to dissent and exercise that surgical judgment which marks the man of conservatism. Still, it may be stated that the consensus of surgical teaching as set forth in the modern text-books on surgery is in favor of early incision and the establishment of drainage where a radical operation is impracticable. The ease with which aseptic dressings can be employed in hospital wards and in civil practice where trained nursing can be obtained leads surgeons to adopt the early incision, believing, too, as they do, that pus, although sterile for aught save the bacillus of tuberculosis, should be out of the body.

Some twenty years ago and more it was my privilege to refer cases of cold abscess in adult Pott's disease of the spine to my friends who held positions in the general hospitals in New York for treatment. The Hospital for the Ruptured and Crippled had no beds for adults, and the custom was to recommend out-patients, too old for admission to the hospital, and needing closer observation, to the other hospitals in the city. At first these surgical friends were profuse in thanks for cases so interesting. Later on they absolutely declined to accept them, and gave as reason that nearly all had either become permanent residents in the hospital, had died there, or had gone home to die. It is not my purpose to cite cases and names in proof of the statement just made, but if challenged these can be furnished later.

The details of so-called surgical treatment need not be rehearsed on this occasion. They are known to all. Among orthopedic surgeons methods differ, yet it may be stated as a general rule that abscesses are not interfered with unless they interfere with the protective treatment of the bone or joint whence they come. Belief is strong among orthopedic surgeons that rest and protection are essential to a cure, and that abscesses are complications that can be met at any time in case Nature does not come to the rescue. Bear in mind that many cold abscesses disappear not to return in a certain number of well-treated bones and joints. Those who cling to the mechanical treatment of tuberculous joints are presenting ever and anon cases where large psoas abscesses and large femoral abscesses have disappeared under the non-interference plan, and I am familiar with these cases, although not belonging to that class. Some of us, few in number though, lean to the early opening and drainage, insisting all the while on protection and fixation of the joint. These different methods may be stated as marking the course of orthopedic surgery during the past quarter of a century.

1. The "*Noli me tangere*." This means leaving the abscess to open spontaneously and soon develop into a sinus which may or may not persist indefinitely. This method was the one adopted at the Hospital for Ruptured and Crippled prior to 1888, and a thirteen years' residence enables me to speak of results. It is only fair to the advocates of this method believing also in joint protection, to state that during this period very inefficient, and, in many instances, no joint protection was afforded or even intended. A few abscesses would appear and soon, say within a few weeks, open, to close within as many weeks. A large number, say 50 per cent., would open, a sinus would follow, other sinuses would follow, preceded by "new abscesses," and soon the parts would be honeycombed with open sinuses. These

would "run" for an indefinite period, and one after another close, to scab over occasionally and "weep" a bit for a long time, years after leaving the hospital. A certain percentage of these, say 10 or 15 per cent., would continue until amyloid degeneration of the liver and kidneys would develop and death ensue after a long period of suffering. A smaller percentage would not develop amyloid changes, but the abscesses would multiply and the poor sufferer would die of exhaustion after prolonged suppuration. For sixteen years the spontaneous openings have not been permitted, and the results are better. Still, the percentage of poor results is too large, and how to reduce this to a minimum is a problem yet unsolved and full of interest.

2. A number of orthopedic surgeons, the majority, I believe, advocate aspiration early and often. A number of years ago a member of the staff, Dr. Matthew De Pass, collected statistics on this method of treatment and proved that 50 per cent. were permanently disposed of and the case went on to cure without any external suppuration. Since the collection of these statistics the general results obtained by this method have not been so good, yet this should be said by way of explanation, that other methods have come into vogue and the aspirations have not been so carefully performed. Incoming members of the house staff to whose care these details are entrusted differ in zeal, and discipline is not always carried to the point of lessening interest.

3. A method adopted by a limited number of orthopedic surgeons is that so ably advocated by a general surgeon of great fame, Dr. Nicholas Senn, viz., evacuation by trochar and introduction of iodoform, either in oil or in glycerin. This plan is still adhered to by many surgeons, and the wonder has been expressed why the majority of men in my own specialty have not found it of great value. The truth is, however, that with the majority of our guild it has not come up to expectations, and its use at the Hospital for Ruptured and Crippled has long since been abandoned.

4. The great goal to which all are looking forward, and which sometimes seems within reach, is the localization of the one or more foci feeding the abscess and the complete extirpation of the foci and abscess sac under rigid asepsis with immediate closure. The inability to reach this goal compels us to temporize, to treat expectantly, to attain the best possible results under existing circumstances. The plan advocated in this communication is based on the early recognition of the abscess and the well-known sterility of tuberculous abscesses.

A word about the early diagnosis may not be out of place. Those of us who have become by long experience familiar with the clinical history of tuberculous lesions involving the joints have come to know pretty accurately the symptoms attending the early formation of an abscess sac. When in the course of treatment of a given case we find the protection apparatus fails to protect, when an exacerbation comes on in spite of our most carefully applied apparatus, we begin to suspect, and pretty soon our suspicions are verified. The symptoms are increased tenderness, night cries, pain more or less persistent, unwillingness to move about, and sometimes an elevation of temperature. When to these is added a blood examination showing a leucocytosis, the diagnosis becomes comparatively easy. The explanation pathologically is this: The local bone lesion has increased in area, necrosis means exudates, and these are crowded against the periosteum, which must yield by a process of slow dissection. When this invasion is near muscular

attachments the pain is greater and muscular spasm becomes a feature that must be recognized. Reflex nervous symptoms must be present in many instances. This period varies from a week to two or three months. If a radiograph be taken at this time, while no pus or pus sac will show, a destruction of bone is so evident that one is perfectly justifiable in thrusting a tenotome or a scalpel into the joint to relieve the tension. Often within my experience the diagnosis has been established in this way, and the patient greatly relieved. This leads up to an important step in the management of the abscess.

Given a diagnosis, although no fluctuation can be made, fixation of the limb and joint in an immovable dressing, such, for instance, as plaster of paris, will sometimes arrest the active process and an abscess will be aborted. At other times, traction in the line of deformity, with an ice bag over the parts, will prove efficient. Let one avoid, however, attempts at correcting deformity in this stage. These are the instances men sometimes report as abscess induced by the trauma of forcible correction. When fixation and local applications fail to relieve the symptoms and the presence of a deep-seated abscess becomes more apparent, then is the time to resort to a very simple surgical procedure, viz., a small incision through the soft parts and down into the capsule; then squeeze out any pus or serum that may be present, and make a culture for examination. This incision, of course, is to be made with due regard to asepsis.

A case under treatment a year or two ago furnished an excellent illustration of the value of this procedure. It was one of hip disease, and for months night cries were most annoying. Complete immobilization and many pounds of traction failed to make any impression. After the incision relief was soon afforded, and the case went on to resolution. The pus was found to be small in quantity and absolutely sterile.

The plan recommended is to make a sterile aspiration and make a culture, supplemented by a microscopic examination. Continue the same protection as before and await the result of the examination. If, as usually is the case, the pus is sterile, let the treatment be further aspirations until the sac ceases to refill. If the contents are too thick for the needle of the aspirator, make a small incision and force out the contents, even if a curette be found necessary. Sew up the wound at once and apply a sterile dressing. Over all this apply a plaster-of-paris bandage, unless the splint can be adjusted so as to secure immobilization.

I wish to thank Dr. Fosdick Jones of the house staff at the Hospital for Ruptured and Crippled for cultures and microscopic examinations in twenty or more cases used to bear out the statements made in this paper. These cards he has filled out are of great assistance in the way of prognosis as well as future interference surgically.

L. G., female, age 5½ years, diagnosis osteitis of hip with deformity. Situated on the anterior and outer aspect of the right thigh is a large abscess, fluctuation marked, no local heat, no tenderness. Cultures taken May 19, 1904, media blood serum. On May 20, 1904, the culture was examined microscopically, no growth, sterile culture.

S. J., male, age 6 years. R. H. D. and C. S. D. Acute symptoms of hip disease, pain most marked over the great trochanter, no signs of abscess, no redness, no fluctuation, no local heat. On May 10, 1904, two ounces of pus were evacuated

from the right hip joint, scrapings from the head of the femur taken, and culture made with blood serum as media. On May 11 the culture was examined microscopically with negative results. Culture sterile. The scrapings microscopically show probable tuberculosis.

P. S., male, age 10 years, osteitis of right humerus with abscess; has also a lichen scrofulosum. Situated at the angles of the jaw, both sides, are two abscesses, size of a walnut. Fluctuation is marked, skin over abscess reddened, local heat. There is the appearance of mixed infection. On May 18, 1904, the abscess was incised and one ounce of pus was evacuated from each side. Cultures were taken and smears were made on sterile glass slides. On May 19 cultures were examined microscopically, staphylococci smears, pus cells, staphylococci, no tubercle bacilli.

These examinations are made after every aspiration or incision. And in some instances a disappearance of staphylococci takes places in those cases where there has been a mixed infection. These generally are the cases where free drainage has been established and where the parts have been thoroughly immobilized by means of bracketed splints secured above and below the joint by plaster-of-paris bandages.

Our examinations have been sufficiently numerous to prove the sterility of the pus from these cold abscesses, and it seems unfair to the patient to subject him to a mixed infection by the usual free incision and establishment of drainage. What harm can come so long as these collections of pus are sterile? If they must for any reason be evacuated, let the operation be done through a small opening and let the opening be closed at once. Suppose the sac does refill. Is it not better to open, evacuate and close many times than to take the risks of a sinus which must sooner or later become infected?

The plea to-day is for these simple procedures until one is ready to do a radical operation, which means the removal of diseased bone tissue as well as all the soft parts diseased. It will be admitted that failures sometimes come to the most careful, and yet these failures prove only a leakage in our technic. Did time permit, case after case could be presented in detail where failure has not been met with. A further plea is made for the protection of the joints involved before and after the abscess has been treated, regarding the latter as secondary, as only one phase of the disease.

The management of sinuses is far more difficult than that of the abscess which precedes. I regret that I have nothing new to offer as a specific. With the many antiseptics and chemicals of all kinds and caustics, I have had much to do. Operative procedures which obliterate the lining of the sinuses, free incisions and liberal dissections, all come in for a share in the general dissatisfaction. Cleanliness, frequent dressings with aseptic material, and, above all, protection to the parts, constitute the local treatment that yields the best results. Above all these, however, come nutrients, good hygiene, out-of-door life, and change of climate.

A few years ago great prominence was given in the hospital to an emulsion of mixed fats. All the details of this treatment were carried out by Dr. Arthur Cilley of New York, at that time house surgeon. We were able to report progress. Since that time this gentleman has continued this treatment in the out-patient service, and to him I am under many obligations for data bearing on this line or phase of the subject. He selects cases where improvement under ordinary local treatment has ceased. The skin is cleansed with a mildly antiseptic solution and sterile gauze is used for dressings. The feeding process is regulated according to the age and

1. Meningeal hip disease, right side and caries of the spine, dorsal.

weight of the patient. The object in general terms is to overfeed with fat in order to save nitrogenous waste, and this overfeeding can be carried far beyond the ordinary limit by the free use of cathartics.

He classifies as follows: 1. Children from 2 to 6 years of age, the plan is to give one teaspoonful of an emulsion of mixed fats in two or three ounces of hot water after breakfast and after supper. At the end of a week, two teaspoonfuls of the mixed fats in the same amount of water. In case of a rebellious stomach, it is presumed that the bulk of fluid and not the quality is the cause, and the hot water is diminished. Castor oil in doses of 2 drams is given one, two or three times a week, according to the general condition of the patient. Eggs are not usually indicated.

2. From 6 to 10 years of age, eggs are now added to the dietary; one in four ounces of milk to which a little salt is added twice or three times a day immediately after meals, while the mixed fats are given about an hour later. After three or four days, one egg is given after each meal in the same quantity of milk. It is rare to give more than six raw eggs a day. When these become distasteful, milk is pushed to two quarts per day. The details are the same as those for pulmonary tuberculosis, and one must expect all kinds of obstacles in forced feeding. Yet persistence will usually overcome these obstacles.

Of the out-patients, the following is of interest:

A. W., a boy about 5 years of age, had lumbar Potts' disease for about eighteen months when he came under observation in November, 1901. A gluteal abscess on the left side was aspirated several times, but unsuccessfully because of the thickness of the pus. Finally it opened spontaneously in January, 1902. The opening was enlarged and the dressings were done three times a week. In November, 1903, the feeding was begun and his weight was 39 pounds. During December of that year he took six raw eggs a day and two ounces of the mixed fats. Early in January he was obliged to omit the eggs for a week, but in February he was taking nine a day and his weight was 41 pounds. During the first half of March he was taking nine eggs a day. Then they were omitted for a week again, his weight dropping to 40 pounds. In April a lumbar abscess appeared, and in May it opened spontaneously. It was dressed daily for a week. During the summer of 1903 he was taking the full number of eggs, the dressings were three in a week, and by November his weight was 43 pounds. At this time he developed an attack of acute articular rheumatism involving all the joints, and yielded promptly to the withdrawal of the eggs, the employment of the salicylates and a milk diet. The physician believes firmly that the eggs caused the rheumatism. On December 27 his weight was 44½ pounds. Two small abscesses on either side of the sacrum were aspirated and finally discharged through the punctures. Since his recovery from rheumatism no eggs have been given, but he has taken two quarts of milk a day. In January of the present year his weight was 56 pounds and the lumbar abscess ceased to discharge. The gluteal abscess at the present writing "weeps" occasionally, and the dressings are made once a week. The weight on May 29 was 60 pounds.

A boy, the notes of whose case are not very full, had hip disease and four sinuses when treatment was begun. He took the fat emulsion in ounce doses twice a day and the eggs were given until he was taking eight a day. All sinuses closed in six months and have not reopened at the end of two years. He has had no treatment during that period and an examination made with Dr. Townsend on January 1 confirmed the reports.

Dr. Cilley has summed up in this manner: Three factors are of prime importance: 1, Fresh air; 2, fats; 3, cathartics. The emulsion of mixed fats, he believes, are the best fats at our command. Eggs should not be

increased beyond six a day in children from 6 to 10 years of age, and should not be continued at one time longer than two months. In children under 6 years of age, milk is better than eggs. Castor oil is preferable as a cathartic.

This report from a very efficient member of the out-patient staff of the Hospital for Ruptured and Crippled is given practically as it was presented, and while some may question the value of the method on the ground that results as good may attend any other plan of treatment carried out with the same care and persistence, this much must be said, that many plans have been tried by Dr. Cilley, and his experience is exceptionally large.

As stated in another part of the paper, there are no specifics for sinuses, and this statement is made with a full appreciation of the claims made for carbohc acid in solutions of all strengths, for enzymol, for frequent curettages, and for liberal sections connecting one with the other.

CONCLUSIONS.

Summing up, therefore, the claims made in this communication: 1. Early recognition of cold abscesses will enable one to dissipate or to nip them in the bud. 2. When they are present at the time the cases come under observation, treat them with indifference so long as they do not interfere with the proper adjustment of good protection apparatus. 3. If they are in the way, or if they show a disposition to burrow and encroach on parts that it is desirable to keep free from such invasion, resort to aspiration and make cultures in order to determine their virulence. 4. If aspiration fails, rely on incisions under rigid asepsis, large enough only to permit evacuation of the contents, and refrain from the introduction of chemicals. Close the wound by suture under the same rigid asepsis. 5. When the abscess lies directly over a bone focus that can be easily reached, make the incision large enough to remove the focus, and at the same time permit removal by curette or scissors of the lining of the sac and all necrotic tissue contiguous thereto. Then close aseptically, employing drainage for not over forty-eight hours. 6. If longer drainage is demanded, devise means by which asepsis in dressings may be continued indefinitely, and look on a mixed infection as a calamity. 7. Sinuses should be well drained, the foci on which they depend should be treated if involving joints by perfect and long-continued immobilization, with due regard to fresh air and a high state of nutrition.

HOW THE GENERAL PRACTITIONER SHOULD TREAT GONORRHEA.

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To the captions, the title of this paper may appear an arraignment of the brain and brawn of the medical profession. In a measure, it will so apply in some instances. It seems time to inveigh against the otherwise excellent practitioners who do not treat gonorrhœa. In refusing to give these cases the care needed, they not only neglect one of the physician's most precious privileges—the prevention of disease, but are derelict in the performance of a duty. Some practitioners base their

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unwillingness to treat this disease on the ground of its danger to other patients. But even those much engaged in obstetric work, as a part of general practice, can very well protect their parturient patients against infection. The fact that no modern worker will attend a labor case without observing all minutiae of antiseptic and aseptic precautions, is in itself adequate protection for his non-infected patients.

The general practitioner, by declining to treat the gonorrhoeic, does him an injury so far-reaching as to affect the entire public. The average patient with a first infection knows nothing of gonorrhoea; the fact that the physician in whom he has confidence will not treat him, makes him apprehend that he has an ailment which is beneath the medical adviser's dignity to consider.

This inference readily leads to the conviction that gonorrhoea is a "shameful" disease. For a discussion of the correctness of this view, this is neither the time nor the place. So much, however, may be accepted—that the patient having gonorrhoea is entitled to treatment, as much at least as is the individual who has acquired a disease in consequence of drunkenness or of any other infraction of morals and ethics.

Some general practitioners defend their position of non-combattiveness as regards gonorrhoea, by the assertion that they prefer to place patients afflicted with gonorrhoea at once in the hands of a specialist. No attitude could be a more mistaken one. The layman can see no valid reason for being referred to a genitourinary specialist and being, incidentally, put to greater expense for what he may deem a trifling ailment. He leaves the office of a man whom he knows to be competent; for whom he has respect, and whom he has perhaps defended against aspersions of one or another ignorant individual who charged that "he does not know enough to cure even a clap." Recalling some of the instances in which his family physician undoubtedly saved life, he is disheartened at being sent to a stranger. The stranger, so his physician told him, is an able genitourinary specialist. But what does the patient know of specialists? He has seen advertisements of persons who call themselves most eminent specialists, quite properly classed together in the newspapers under "medical" with shameless abortionists and other criminals.

The patient may go to the man to whom he has been referred, but he does so with misgivings. Lacking confidence based on knowledge of the man, he is at best but a half-hearted coadjutor in the management of his case; it consequently may not respond to treatment as readily as otherwise. The specialist to whom the case has been sent may, because of the patient's mental attitude, fail to acquire over him that control which is essential in the relation of physician and patient. Without it, positive orders are violated, and the disease may drag on and perhaps become complicated. Not infrequently an opponent to scientific medicine is thus created.

It requires no great flight of imagination to appreciate the injury done the patient, when the family physician refuses to treat him for a simple, uncomplicated anterior gonorrhoea. Considering the vast number of physical and mental cripples produced by this disease, considering likewise its direct menaces to the family and the state, gonorrhoea merits concerted opposition by all medical men.

Its relegation to genitourinary specialists as a routine proceeding, however well intended, is an error. There are, of necessity, not even a sufficient number of specialists to treat all cases of chronic gonorrhoea.

The general practitioner can, if he will, thoroughly master the scientific management of acute cases. He can, moreover, better than anyone else, disseminate the knowledge that all gonorrhoeas require active attention from the very beginning. Failing to do this, he opens himself to moral responsibilities that certainly are grave.

Beside those sketched before, one reason of transcendental importance must be emphasized. It is that by refusing to treat his own patients when infected with gonorrhoea, the family physician neglects the only opportunity to abort the attack.

The preceding is intended to be merely suggestive. There will at once occur to the thoughtful general practitioner all the other reasons that make it obligatory on him to treat at least uncomplicated acute gonorrhoea, as he does all other diseases.

The only question that presents itself in this connection is whether he can afford the time necessary for personal attention to each patient. In the light of experience it is safe to say that fifteen minutes at the most are required to perform all that is necessary at each treatment. To demonstrate this, each step will be as minutely considered as is possible in a brief paper.

PREPARATION OF THE PHYSICIAN.

In view of the contagiousness of gonorrhoea, the physician should prepare himself as for any capital operation, to protect all subsequent patients and himself against infection. To this end his arms should be bared to above the elbows, and he should wear a gown or impervious apron, or preferably both. It will be well, also, to safeguard his eyes, even in emmetropic, with good-sized spectacles during the treatment of a gonorrhoeic.

PRELIMINARIES TO TREATMENT.

The record of occurrences since the previous visit should be fully written, before each treatment. The cardinal points to be noted are:

1. Was the patient obliged to arise from sleep to urinate during the night?
2. Quantity, consistency and color of the stain on the cotton he wore on the glans over night.
3. Amount, consistency and color of discharge from the meatus on arising.
4. Interval since the last urination.
5. Appearance of the cotton he wears and amount, color and consistency of the discharge from the meatus at examination.
6. Taking of a specimen for microscopic examination.
7. Causing the patient to urinate into two or three tubes and recording the quantity and transparency of the separate urines, as well as the kind and character of the "floaters" it contains.
8. Recording the relative amount of pain, if any, on urinating.

After these steps the physician is, in most uncomplicated cases, prepared to decide on what solution he will use for irrigation.

IRRIGATION OF THE ANTERIOR URETHRA.

1. In the preponderance of cases irrigations can best be performed with the patient on a firm chair. He sits far forward, his sacrum resting on the anterior margin of the chair, the tuberosities of his ischium projecting slightly beyond.
2. The trousers and drawers are dropped to beneath the knees and the shirt and undershirt folded upward to the level of the umbilicus.
3. A clean towel is placed on the patient's thighs, covering his testicles.

4. A clean enameled or tin basin is given the patient to hold while the penis is placed over its margin.

5. The operator standing at the patient's side takes the penis with his third, fourth and fifth fingers of the left hand and supports it against the thenar eminence of the same hand, keeping his thumb and index finger free for manipulation of the glans and prepuce.

6. With the other hand he takes the irrigator's stopcock and directs the nozzle against the preputial orifice.

7. By drawing back the flange of the stopcock he allows the escape of a stream of sufficient force to thoroughly cleanse the preputial orifice; subsequently the mucosa lining the preputial sac, the sulci at both sides of the frenum and finally the meatus urinarius externus. Then the nozzle is inserted into the meatus, and the force of the flow increased to successively irrigate all parts of the anterior urethra to the compressor.

8. After irrigation the meatus is covered with a bit of absorbent cotton wet with bichlorid solution 1 to 6,000, and the patient is instructed to apply fresh cotton after each urination.

IRRIGATION OF THE POSTERIOR URETHRA.

The sphincter vesicæ being but a feeble bundle of muscular fibers, irrigation of the posterior urethra inevitably becomes an intravesical irrigation.

For posterior irrigation each of the steps before mentioned is performed, and the following added thereto:

(a) After the anterior urethra has been cleansed, the nozzle is sunk into the meatus to a depth that precludes outflow of the irrigating fluid.

(b) The patient is instructed to breathe deeply and to make efforts at urination.

(c) The force of the flow is gradually increased until it suffices to overcome the compressor; this is appreciable to the left fingers, to whose tips resting on the urethra is communicated a purling sensation as the fluid enters the bladder.

(d) The rapidity and force of the inflow grows less as the bladder is being filled and ceases when maximum vesical distension is approached. The stopcock is then closed by thrusting forward its flange.

(e) The right hand then places the stopcock within the basin, with the thumb through the ring and the fingers holding the outside of the basin, while

(f) The left fingers take a glass urinal and hand it to the patient, who substitutes it for the basin as the physician removes the latter.

(g) The patient empties his bladder of the solution into the glass urinal.

CLEANLINESS OF IRRIGATIONS.

If deftly performed, no irrigation need soil the patient, his garments, the office furniture or floor, nor the physician, except when strong solutions are used and then only the tips of the physician's left fingers may be stained. When this happens with potassium permanganate it can be instantly removed with a little oxalic acid.

TIME CONSUMED BY IRRIGATIONS.

Intravesical irrigation necessarily consumes more time than does mere anterior irrigation. With the moments needed to note the history of the occurrences since the previous visit, to prepare the solution, to cleanse the articles used and wash the hands, ten or twelve minutes will be required. To avoid even the appearance of treating a subject so grave as gonorrhœa with undue haste, it will be well to allow fifteen minutes for each visit.

Even when two visits daily are required and five min-

utes more consumed for microscopic examination of the discharge, the total of time allowed each patient is not excessive in view of the importance of the disease.

INTERVALS BETWEEN IRRIGATIONS AND SOLUTIONS USED.

The ideal manner of treating gonorrhœa, on the days when one irrigation daily is needed, is in administering it twenty-four hours after its predecessor; when two irrigations daily are required, to perform them at an interval of twelve hours. The latter, however, is beyond the endurance of a physician practicing alone. When he has an associate or competent, reliable assistant, the two daily irrigations can well be made at the proper intervals. The better results will reward the more assiduous effort. Many practitioners, however, are not so situated that they can attend the same patient twice daily; they must then content themselves by performing irrigations within the hours at their disposal. In the table given below these facts are considered, but the hours mentioned for irrigation recommended only in case the practitioner can not observe the preferable twelve-hour interval.

The drugs employed as irrigating solutions must necessarily vary according to the practitioner's preference. Unprejudiced and careful tests of all that have been recommended lead to the conclusion that potassium permanganate is most satisfactory in the majority of cases. The proportions mentioned, therefore, refer to this drug.

The presentation of this scheme must naturally be coupled with the understanding that the intelligent practitioner will modify it to suit the exigencies of each case:

First day, first visit—Anterior irrigation, 1-3,000.
 First day, 7 p. m.—Anterior irrigation, 1-4,000.
 Second day, 9 a. m.—Anterior irrigation, 1-3,000.
 Second day, 7 p. m.—Anterior irrigation, 1-4,000.
 Third day, 9 a. m.—Intravesical irrigation, 1-6,000.
 Third day, 7 p. m.—Anterior irrigation, 1-5,000.
 Fourth day, 9 a. m.—Intravesical irrigation, 1-5,000.
 Fourth day, 7 p. m.—Intravesical irrigation, 1-5,000; anterior irrigation, 1-2,000.
 Fifth day, noon—Intravesical irrigation, 1-5,000.
 Sixth day, noon—Intravesical irrigation, 1-5,000.
 Seventh day, noon—Intravesical irrigation, 1-5,000.
 Eighth day, 7 p. m.—Intravesical irrigation, 1-5,000; anterior irrigation, 1-3,000.
 Eighth day, 9 a. m.—Intravesical irrigation, 1-5,000; anterior irrigation, 1-2,000.
 Ninth day, 9 a. m.—Intravesical irrigation, 1-4,000; anterior irrigation, 1-1,000.
 Ninth day, 7 p. m.—Intravesical irrigation, 1-4,000; anterior irrigation, 1-1,000.
 Tenth day, 9 a. m.—Intravesical irrigation, 1-4,000; anterior irrigation, 1-1,000.
 Tenth day, 7 p. m.—Intravesical irrigation, 1-5,000; anterior irrigation, 1-500.

When other solutions than those of potassium permanganate are used their concentrations are made in proportions relative to the local disturbance they would create.

If the objective manifestations (pain on urinating, discharge) do not subside markedly on the third day of treatment, or if microscopic examination of the discharge does not show a decided reduction in the number of gonococci, it is evident that reduced resistance has allowed the specific organisms to penetrate more deeply into the urethral tissues. This occurs most frequently when the practitioner has not had opportunity to treat the case from the beginning.

If, after a series of irrigations as above described, the discharge recurs, it will be well to recommence them immediately after ascertaining that the recurrence is not due to complications or sequelæ of the disease. When these are found to be the cause of the recurrence, they must be treated. In so doing irrigations will be of assistance in controlling the crass manifestations.

CONCLUSIONS.

The preceding is by no means offered as anything but a synopsis of the irrigation treatment of uncomplicated acute gonorrhœa, which elsewhere¹ has been exhaustively detailed. However, it is believed that enough has been said, at least in a suggestive way, to warrant offering the following conclusions:

1. Every general practitioner is perfectly competent to treat successfully uncomplicated anterior gonorrhœa, if he will devote as much attention to this as he does to any one other disease.

2. Every patient with gonorrhœa is entitled to the services of his family physician, just as much as if he had acquired any other disease in consequence of drunkenness or other violation of ethics or morals.

3. The general practitioner who declines to treat uncomplicated acute anterior gonorrhœa avoids one of his most sacred duties to the profession and to humanity.

4. The patient who, because of his gonorrhœa, is refused the services of his physician, is likely to become an opponent to scientific medicine, to the detriment of his health, that of his family and of the community.

5. The scientific treatment of at least acute anterior uncomplicated gonorrhœa, is perfectly within the power of the general practitioner.

6. The irrigation treatment of gonorrhœa is, as yet, the most effective method and most in accord with the modern scientific understanding of the disease.

OPERATIVE TREATMENT OF THE FAUCIAL TONSILS

WITH A VIEW TO THE PREVENTION OF CERVICAL ADENITIS.*

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The recognition of the interdependence of the tonsils and pathologic conditions in other, sometimes remotely situated parts of the body, represents one of the important advances in medicine during recent decades. A variety of diseases have been traced to a primary involvement of the tonsils, and among them are rheumatism, septic infection, tuberculosis, and in a recent report¹ appendicitis and infectious jaundice.

The anatomic structure of the tonsil predisposes to the entrance of the bacilli, for the covering epithelium is always porous, owing to the constant migration of leucocytes, and may be absent over small areas. Microbes usually invade the tonsils through the crypts, which constitute good hiding places and breeding spots. The enlargement and the surface irregularities associated with chronic hypertrophy greatly favor infection, and the resistance of the tissues under these conditions is diminished by the accompanying catarrh and the loosening and casting off of the epithelium.

The pathologic condition which is most often referred to primary tonsillar infection is cervical adenitis, whether in the form of simple hyperplasia or tubercular lymphomata. Baumgarten experimentally produced tuberculosis of the tonsils and the adjacent cervical lymph nodes in animals by feeding them with tuber-

culous material. His demonstration that the tonsil was the nidus of infection in tuberculous adenitis was also confirmed by other investigators.

A number of extended autopsy records have been published which show the frequency of tuberculosis of the tonsils in consumptives when tuberculosis of the cervical glands was present.

The danger which diseased tonsils represent as a possible etiologic factor in the production of other lesions has led a number of observers to propose tonsillectomy as a prophylactic measure.

Semon,² in 1885, presented an elaborate report advocating the more frequent recourse to ablation of the tonsils in order to improve debilitated constitutional states, and recommended "a reduction in the size of the tonsils, if the chronic enlargement, though not very considerable, be attended by a tumefaction of the cervical lymph nodes.

Krückmann³ reports a number of cases where a close connection could be traced between these two conditions, tuberculosis of the tonsils and cervical lymph nodes, sufficient for him to warrant the statement that where tuberculosis of the cervical lymph nodes is operated on attention at the same time should be directed to the tonsils. In fact, where a scrofulous diathesis is suspected, it is always advisable to remove hypertrophied tonsils.

Ruge⁴ says that the tonsils form an important port of entry for the tubercle bacillus, leading to infection, among other organs, of the cervical lymph nodes, and he is inclined to recommend the ablation of hypertrophied tonsils to avoid infection and its consequences. Even when they are already involved, the operation may prevent other infection. In recent text-books and manuals of surgery, the writers often refer to tonsillectomy as a prophylactic measure.

After we admit the necessity for operative treatment, with a view to preventing cervical adenitis, the most important question to be considered is the best and most effective operative treatment for all cases. Ablation or extirpation of the greater part is the thing desired. Those who have given strict attention to the subject feel that the advice that is usually given with regard to tonsillectomy does not cover the ground sufficiently.

The ordinary operation for tonsillectomy with the guillotine is usually effective in removing the part that protrudes. Some method of dissection, clipping, snaring, curettage or gouging seems to be necessary to relieve those cases in which the tonsil is deeply submerged or hypertrophied in its obscure parts. And it is these obscure parts that convey the septic material in chronic cases to the lymphatic glands of the neck and general circulation. It is to these deeper parts of the crypts and the base of the tonsil that I wish specially to call attention. Anyone who has not had extensive experience can not appreciate the difficulties that are met with in a series of hundreds of cases. The tonsillar mass frequently extends from one-half to three-fourths of an inch, or even an inch outward into the walls of the throat and mouth with a large curtain composed of the opercular folds and the mucous membrane covering the anterior surface. The writer has spent much time and thought trying to devise serviceable instruments for this operation. He has used almost everything that has been

2. Semon: St. Thomas' Hospital Reports, 1885, vol. xiii.

3. Krückmann: Virchow's Archiv, 1894, vol. cxxxvii, p. 534.

4. Ruge: Virchow's Arch., 1896, vol. cxlv, p. 431. Schenker: Virchow's Archiv, vol. cxxxv (antopsies).

1. The Irrigation Treatment of Gonorrhœa: Its Local Complications and Sequelæ. William Wood & Co., New York.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

1. Forchheimer: Archives of Pediatrics, 1902, p. 656.

suggested by others, as well as those he has constructed. He finds that numerous instruments are needed for safe and proper removal of this tissue in the different cases that present so many individual features. If the tonsil is peculiarly situated and can be drawn out by engaging forceps, and the old Physick guillotine used after having been properly adjusted, the result is perfect. But this can apply to only a limited number of cases. Usually it is necessary to grasp the tonsil with a pair of forceps and carefully cut it loose from its capsular sheath, when, after traction with the forceps has been employed, the adjustment of a strong wire snare or a guillotine is made. Frequently bleeding, gagging, vomiting, pain or a terrorized condition of the patient will interfere with this method, then some form of the punch forceps can be effectively used through the above-mentioned interfering manifestations.

I have a tonsillar curette made of razor steel, well sharpened, which I have found most valuable for removing the masses at the bottom of the cavities, which have been left after using the guillotine snare and punch forceps. In many cases it is better to sacrifice the opercular fold and a part of the mucous membrane that covers the faucial tonsil anteriorly. This procedure frequently materially aids one in "biting" out the deeper masses with the punch forceps.

I have a self-threading and unthreading needle for drawing the tonsil out of its bed; in some cases it will be found more practical than the forceps, as it does not need readjusting in cases of bleeding or vomiting. In addition to a solution of 100 per cent. locally I use a limited amount of solution of cocaine, from 1 to 10 of 1 per cent. hypodermically, to be followed by free injections of sterilized water into the adjacent tissues. It is my custom to do the operation with or without general anesthesia. When it has to be done under general anesthesia I have found the most feasible position of the patient is on the side with the head hanging over the edge of a high table, so that the operator can remove the sunken part of the upper tonsil and let the blood flow out at the lower angle of the opposite side of the mouth. I have noticed that the tonsillar capsule can be involuted by traction, and that in this position the cauliflower-like masses can be rapidly removed with the biting forceps or the snare.

There are two points that I would like to emphasize: First, that the cervical lymph nodes can be read with our fingers and considered as an index to pathologic conditions in the faucial tonsils. Second, that we should not be contented with the old method of tonsillectomy with the guillotine only, but that we should employ the scissors, dissecting knives, traction forceps, thread passed through the tonsil for traction purposes, wire snare, punch forceps or curette, each or all, as careful analysis of the anatomico-pathologic conditions may indicate in each individual case.

In conclusion, I may say that I firmly and conscientiously believe that we owe to childhood the thorough removal of the bases of all tonsils associated with continued and decided cervical lymphoid enlargements.

DISCUSSION.

DR. J. A. STUCKY, Lexington, Ky.—The general profession does not appreciate the importance of tonsillectomy. It has been looked on as one of the simpler operations which anyone could do. To me it is one of the most important and frequently one of the most difficult operations. In following the method suggested by Dr. Myles, I have been surprised in cases where I was unable to get the tonsil entirely out, to find that in thirty

days atrophy of the remaining portion had taken place and there was no tonsillar tissue there. It is astonishing what Nature will do in these cases. I question the wisdom of attempting to do the radical operation in one of these deep pockets without the use of a general anesthetic. It seems to me that it would be very difficult to control the hemorrhage if that should occur. In all cases where we find these deep, submerged tonsils, I think it is safer to use a general anesthetic.

DR. E. PYNCHON, Chicago—The teaching of the paper is absolutely correct as to the thorough removal of a diseased tonsil. If the indication is to remove any part of the tonsil, then the indication is to remove it all. I do not use the biting forceps, but use different methods at different times; in my operations before classes I do this so that the students may observe the different instruments in use. My favorite method is with the electric point, with which I can remove any tonsil. It has the advantage that I am practically working in a bloodless field. In operating on the deep part of the wound, the supratornillar fossa, I am not operating in a deep hole, because I am all the time pulling the tonsil outward. By use of the electric point and working in this way, I remove the tonsil absolutely, and never have these rough points and holes remaining, which are seen after other methods. After the operation is finished the work is not done; there is a great deal in the after-treatment which is just as important as the operation, as by massage we rub off excessive granulations and stimulate the wound so as to make it heal up smoothly. The cavity between the pillars thus becomes healed and is covered over with a smooth membrane of cicatricial tissue which has the same appearance as that of the roof of the mouth.

DR. O. TYDINGS, Piqua, Ohio—The snare I use is a little different. The instrument maker whom I had make it for me stole the idea from me and has patented it. I have tried the cautery, and I remove the whole tonsil instead of half. In this I make a section and separate the tonsil from the pillars, draw it down with a vulsellum and dissect it out with knives. I use a blunt dissector and with these one can peel out the entire tonsil with very little hemorrhage and remove it absolutely with this snare. I have never seen a tonsil I could not draw through this snare. With these knives I have been able to operate on any tonsil and, except in cases of severe and acute inflammation, with very little hemorrhage.

DR. ROBERT E. MYLES—I admit there is one serious drawback in advocating this operation; it virtually destroys a large portion of the general practitioner's income. All those conditions which are due to sepsis are discontinued, and that is one weighty reason why these tonsils should be removed. One can decide in some doubtful cases whether or not a tonsil should be extirpated by pressing the tongue down, squeezing the tonsil and causing the discharge of an offensive debris from the crypts. I do not think a general anesthetic is necessary in all cases. I seldom use it in adults, but it is frequently necessary in operating on children. As to Dr. Pynchon's practice of removing all the tonsil, I have tried to do it for years in cases where these large masses are found, and my experience has been that it is impossible unless one takes away the circular sheath. We need a certain amount of tonsil and in my judgment should remove only the part which is diseased or abnormal. I appreciate very much Dr. Tyding's point about tearing loose the tissue. The Italians were using the method several hundred years ago.

Rigor Mortis in Stillborn Children.—Dr. C. H. W. Parkinson, in an article in the *British Medical Journal*, brings out a fact probably not generally known, that rigor mortis may and does occur in stillborn children. He reports three cases and states that in one case cadaveric rigidity had clearly obstructed labor and that after delivery the rigidity increased, the legs and arms being drawn up in the position they would have taken within the uterus. Dr. Parkinson calls attention to the importance of the subject from a medicolegal point of view.

HEMORRHAGE OF THE LARYNX.*

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CHICAGO.

Hemorrhage of the larynx may be classified as follows: 1, Those cases in which there is a loss of blood through the mucous membrane of the larynx, and in which the main symptom is hemoptysis; 2, those cases in which there is no spitting of blood, but in which the evidences of hemorrhage are found on a careful laryngoscopic examination of the larynx, in an extravasation of blood in the tissues beneath the mucous membrane.

Kyle¹ thinks a distinction should be made between those that are secondary to inflammation and those secondary to necrosis; in the one the term "hemorrhagic laryngitis" is applicable, and in the other the term "laryngeal hemorrhage" should be used. This terminology, suggested by Bosworth² and others, is generally accepted.

Bresgen³ says that hemorrhagic laryngitis is an exacerbation of the simple phlogistic process, brought about by mechanical influences; the capillary vessels of the inflamed and strongly hyperemic mucosa are liable to rupture on account of the venous stasis produced by frequent intense cough.

Stepanow⁴ thinks that a distinct clinical picture is furnished by such a catarrhal laryngitis, accompanied by hemorrhage.

Of the remaining conditions, accompanied with bleeding from the free surface of the mucous membrane, there are distinct varieties.

Garrel⁵ (1898) makes a clinical subdivision of these as "traumatic," "dyscrasic" and "organic."

Of those cases in which there is no spitting of blood, there are varieties in which there is a sufficient extravasation in the submucous tissues to cause sensible change in the vocal bands, or laryngeal structures, from the mechanical presence of the blood, or a more diffuse form in which there is neither noticeable swelling nor deformity from its presence. There are recorded cases which are distinctly of this latter character.

The importance of precision in diagnoses in these cases is apparent. It is a fact that the true causes of hemoptysis are often not appreciated by the laity or practitioners of medicine, and a diagnosis of pulmonary hemoptysis or hematemesis has been made when a more careful examination, with the laryngoscope, would have at once revealed the source of the bleeding and quieted apprehension and have made a favorable prognosis possible. Such errors of diagnosis were formerly more frequent than at the present time, when laryngoscopic examinations are more generally made in such cases.

ETIOLOGY.

Breaches of the mucous membrane may be caused by a simple traumatism. The laceration of the membrane may be the result of wounds of various sorts and of the passage of hard pieces of food, of the shells of nuts and

fish, of bone or other irregular particles, or from their impactation within the larynx. External violence applied to the neck over the larynx, as in choking, severe blows, wounds, etc., might also cause rupture of vessels.

In the inflammatory form will be found a marked congestion or inflammation of the vocal cords. In these cases the blood vessels are dilated and weakened by the inflammatory process, and yield to sudden and marked pressure such as would be caused by coughing, vomiting or unusual and severe vocal efforts, and hemorrhage occurs from the free surface or in the submucous tissues.

In cancerous, syphilitic or tubercular disease of the larynx it is not unusual to have hemorrhage, usually small in quantity, but sometimes so abundant as to cause death. In such cases there are, generally, other evidences of the disease than those located in the larynx. The hemorrhage is the result of necrosis of tissues perforating the vessel wall or so weakening it that rupture takes place from any unusual strain, such as might come from a severe cough.

There is a class of cases in which there is a derangement of the blood, and hemorrhages take place from other mucous surfaces. Such conditions are found in purpura hemorrhagica, variola hemorrhagica, hemophilia, scorbutus, anemia, pseudoleukemia, diabetes, pronounced albuminuria, hepatic cirrhosis, the passive congestions of heart disease, fibrosis of the lung, etc.

It is interesting to note that hemorrhages of the larynx occurred during pregnancy, possibly dependent on changes in the vessel walls, in cases reported by Frinkel,⁶ Strübing⁷ and La Sota y Lastra,⁸ and it was possibly venacious in Treitel's⁹ patient, being suspiciously dependent on cessation of menses.

And, finally, there is a class of cases in which hemorrhage from the larynx has occurred, and no assignable cause can be discovered. The individuals have seemed to be in perfect health, and the bleeding has been spontaneous.

The exciting causes seem to be, in a majority of cases, some unusual vocal efforts, as in the cases of singers who may or may not have had some catarrhal condition and impairment of the voice preceding the hemorrhage. In some, violent expiratory efforts, as coughing or vomiting, are the immediate cause of the attack. In others, special efforts in speaking in a large assemblage or using the voice in teaching in a larger assemblage than has been customary. In other instances the attack has come on while the patient has been reading in bed quietly, the presence of blood in the throat being the first evidence of the trouble. Violent sneezing, crying aloud suddenly, exercising the voice, have all been noted as causing hemorrhage of the larynx, on subsequent examination. It has also been found preceding an attack of hay fever, and, in one case, followed the simple act of drinking.

Hemorrhages from the larynx are not rare, many cases having been reported in literature. This was clearly brought out in correspondence by Gleitsman,¹⁰ who, in 1884, wrote an admirable article on the subject of "Laryngeal Hemorrhages," and gave brief abstracts of the cases on record and the bibliography up to that date. He wrote 57 letters to laryngologists, receiving 25 answers, of which number 12 had not seen

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otolaryngology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Earbhill.

1. Diseases of the Nose and Throat, p. 528.
2. Diseases of the Nose and Throat, 3d ed., p. 664.
3. Grundzüge einer Pathologie und Therapie der Krankheiten, Wien., 1884, p. 172.
4. Monatschrift für Ohrenheilkunde, 1884.
5. Annales des Maladies de l'Oreille, du Larynx, etc., Paris, 1898, vol. xxiv, part 2, p. 281.

6. Berliner klin. Woch., 1874, p. 16.
7. Die Laryngitis Hemorrhagica, Wiesbaden, 1886.
8. Enfermedades de la Nariz, Sevilla, vol. III, p. 76.
9. Monatschrift für Ohrenheilkunde, Berlin, 1891, vol. xxv, p. 168.
10. American Journal of Medical Sciences, April, 1885, p. 396.

cases; 22 cases had been seen by the remaining 13, which had never been reported. However, in a study of the reported cases, it is evident that what may be termed "true laryngeal hemorrhage," that is, that which is not dependent on local conditions and which may not be classed as simply a symptom of such conditions, is quite rare.

Strübing⁷ says that in true laryngeal hemorrhage the hemorrhage plays the important rôle, and is responsible for most of the symptoms present.

A suffused laryngeal hemorrhage, such as my first case and those reported by Pleskoff,¹¹ Garrel⁵ and Schnitzler,¹² are exceedingly rare.

PATHOLOGY.

Newman¹³ calls attention to the free vascular supply of the larynx, and the fact that these blood vessels, if weakened by disease, when exposed to injury, are liable to rupture. The arterial supply of the larynx comes from two sources: mainly, the laryngeal branch of the superior thyroid, coming from the external carotid, and ramifying in the small muscles, glands and mucous membrane of the organ, and the inferior laryngeal branch of the inferior thyroid artery, coming from the subclavian and being distributed to the muscles and mucous membrane of the back of the larynx. These communicate freely with each other, and those of one side of the larynx with the corresponding arteries of the other side.

Hektoen, in a personal note to me, makes the pathologic distinctions in hemorrhages of the larynx as follows: They may occur, in the absence of ulceration, from dilated veins, in consequence of general circulatory obstruction; in asphyxia, in hemophilia; in scorbutus, and in various acute infections, such as ordinary sepsis of a violent character; also in diseases like smallpox. All forms of ulcers may lead to hemorrhage. Laryngeal hemorrhage, without ulceration, seems rare.

Gottstein explains some cases of hemorrhage as occurring in the separation of hardened secretion from the delicate mucous membrane, there being a condition of laryngitis sicca present. This is also mentioned by Richardson.¹⁴

The escape of blood may be confined to a single point, from which blood can be seen oozing. A favorite site for such bleeding is at the posterior end of a vocal cord, sometimes on other portions of the vocal cords, on the ventricular bands, and occasionally on the anterior surface of the arytenoids. There may be, at the time of examination, coagulæ of blood on the surface of the cords, or in the vestibule of the larynx, confined to the vicinity of the bleeding point; or there may be numerous coagulæ of blood scattered over the mucous membrane, or it may be covered with a liquid or semiliquid blood. A case has been reported by Stockton, in which a pulsating artery was seen in the larynx of an opera singer, the larynx being covered with blood. An examination will often show reddening of the laryngeal membrane in a marked degree, sometimes confined to the vocal cords. This coloration may be generally diffused or in patches. It may invade the whole larynx, however, and extend to the epiglottis. Swelling of one or both of the vocal cords may be present, and tumefactions of the mucosa are occasionally found.

Of cases of submucous hemorrhage there is an inter-

esting series given by Langmaid,¹⁵ in four of which there was found a globule of blood beneath the delicate mucous membrane of the vocal cords, well defined, and of a diameter nearly that of the transverse diameter of the cord. A vascular tumor, attached to the edge and upper surface of a vocal cord, evidently from an extravasation of blood beneath or in the mucous membrane, has been described by Dundas Grant.¹⁶ A hematoma from the same cause has been reported by Geyer.¹⁷

Garrel's⁵ four cases were of a different character. In two, the right, and in two, the left vocal cord presented a vivid red color. In one case it was accompanied by a uniform swelling of the cord in its entire length. Ives¹⁷ had a similar case, in which the left vocal cord was swollen uniformly and bright red. In one of my own cases this coloration was found in both cords unaccompanied by any appreciable swelling. Similar conditions appear in cases reported by Schnitzler,¹² and a case here reported, of Wippen's.

SYMPTOMATOLOGY.

In cases of hemorrhage from the free surface of the mucous membrane the principal symptom is hemoptysis. The blood is usually small in amount, consists of small, dark clots, and is generally easily expelled; sometimes the blood is bright red, streaking the sputum, though still small in amount. Such hemorrhages may have occurred a number of times, at varying intervals, but are often a daily occurrence. There can be no question that, while the expectoration of blood is usually small in amount, there have been cases in which it was possible to exclude pulmonary tuberculosis, both from the clinical findings and from the subsequent history of the patient, in which the hemorrhage was profuse. Such cases have been described by Luc,¹⁸ Hartman, Clinton Wagner,¹⁹ Straight²⁰ and others. While it is undoubtedly true that we should look with suspicion on an hemoptysis which is at all profuse, and that time would show that most of such cases were tubercular, we can not, certainly, accept the dictum of Lennox Browne²¹ that "a hemorrhage from the larynx is almost always indicative of serious disease." On the contrary, the reverse is true.

Among the symptoms, that of a sudden impairment or complete loss of voice has been common. This has come on in the course of some severe or unusual vocal effort. Many of the patients have been singers, and the accident has occurred while in the practice of their art, either in the singing of some trying rôle or in vocalizing in practice. Pain is not a common symptom, but is sometimes present. Cough is a usual accompaniment of the condition, both in the hemorrhage from the free surface and in the submucous variety, and is caused by the presence of the blood clots and the pathologic changes taking place from the presence of the blood in the tissues. Difficulty in deglutition has been rarely noted. Dyspnea has been noted, of a mild form in some instances, but of an alarming character in others, from the obstruction in the lumen of the larynx, caused by clots of blood, or tumefactions, or diffused swelling of the laryngeal structures. In other cases the symptoms

15. *Trans. Amer. Laryn. Assn.*, 1897.

16. *Trans. Brit. Laryn. and Rhino. Assn.*, London and Philadelphia, 1893, vol. II, p. 64.

17. *Trans. Amer. Laryn. Assn.*, 1885.

17. *Münchener med. Woch.*, 1898, vol. xiv.

18. *Archives Internat. de Laryngologie*, Paris, 1891.

19. *Trans. Amer. Laryn. Assn.*, 1899.

20. *Annals Otology, Rhinology and Laryngology*, St. Louis, 1898, vol. VII, p. 278.

21. *Diseases of the Throat*, 4th ed., p. 274.

11. *Münchener med. Woch.*, 1888, vol. xxxv, p. 837.

12. *Klinischer Atlas der Laryngologie*, 1895.

13. *British Medical Sciences*, May 29, 1897.

14. *Wright's Dis. of Nose, Throat and Ear*, p. 813.

are very slight, consisting possibly of slight irritation, of a tendency to hawk and clear the throat, or of moderate hoarseness, and nothing more.

DIAGNOSIS.

With a knowledge of the causative factors and of the possibility of recognizing the condition with the laryngoscope, in many cases the diagnosis presents no great difficulties. It is so often impossible to view the actual oozing of blood from a vessel in which rhexis has occurred, that diagnosis must be doubtful until such condition is present at the time of examination. The suspicion that a case under observation is one of laryngeal hemorrhage should lead to an effort to get the patient to present himself for examination, if possible, at a time when bleeding is taking place. The recognition of the various dyscrasic factors in which it has been shown such hemorrhages might occur, should lead to careful investigation as to the presence of hemophilia, scorbutus, anemia, etc., and of the lungs, the heart, the kidneys, the liver and the blood, and also inquiries as to pregnancy, menstruation, etc. In fine, all conditions that may have played a rôle in the development of the disease should be investigated.

It should always be possible, in conjunction with a laryngoscopic examination, to determine the presence of cancer, syphilis or tuberculosis in the larynx, in which necrosis has caused the hemorrhage.

The recognition of the varied phenomena of tumor formation, coloration of the laryngeal membrane, blood clots on the surface, or submucous tumefaction and swelling, should be comparatively easy to one familiar with the use of the laryngoscope. In fact, on this instrument we must depend for primary or confirmatory diagnosis in every case.

Careful rhinoscopic examinations should always be made also that we may exclude the nose, nasopharynx and oral cavity, as the possible source of the bleeding.

The sudden onset of the hemorrhage during coughing, vomiting, or severe straining, or during or following vocal efforts in speaking or singing, may at once suggest the possible seat of the lesion and be confirmed by examination of the larynx.

I fancy, after all, that interest in this subject centers, largely, in the differential diagnosis of laryngeal and pulmonary hemorrhage. We should remember that most cases of profuse hemorrhage are from the lung, and that a free bleeding from mucous membranes of the throat or bronchi are very rare, but they do sometimes occur. Careful examination of the chest may reveal no signs of tubercular involvement there, but there may exist very small foci in the lungs, which may not be demonstrable by physical examination, and such areas have been found to be sites of copious hemorrhages. In such cases, if the bleeding point in the larynx has not been certainly located, the subsequent history may confirm a suspected pulmonary origin of the bleeding. Even in those cases in which blood clots are found covering the laryngeal membrane, if there has been spitting of fluid blood, it is well to remember that they may have been lodged there during hemorrhage which occurred below the larynx. The exciting cause of the hemorrhage, and the general condition of the patient, would be of importance in the study of such cases. The character of the blood in hemoptysis is well known, and should always be considered.

PROGNOSIS.

This is invariably good in cases of true laryngeal hemorrhage and no fatal case has been recorded.

TREATMENT.

Rest, so far as the use of the voice is concerned, is the most important item in the therapy for this condition, and too much stress can not be laid on the enforcement of this measure.

The avoidance of exciting cause, as in overstrain, overexercise of the voice, the application of a wrong method of singing, etc., should enter into the measures used for the prevention of subsequent attacks. Internal remedies may be indicated for the quieting of the cough, the allaying of irritation, or for general treatment of dyscrasiae causing the condition; and remedies like ergot, stypticin, etc., for the local effect on blood vessels.

Topically, the use of astringents is recommended. Some cases have been managed with the application of mild solutions of argentic nitrate, perchlorid of iron, alumol, the zinc salt, etc. I have found that one of the satisfactory remedies was adrenalin or a suprarenalin (1-1000) and its physiologic action has hastened absorption of exudates.

In every case, care should be taken that no harsh remedies are used, and only the mildest of applications need be made, as special stimulation is not required. Surgical measures need to be resorted to but rarely, but have, of necessity, been adopted in some cases. The incision of a hematoma, the removal of a small tumor formation, the cauterization of a bleeding point, have been found necessary in some cases.

CASE 1.—G. H., age 29, single, tenor in one of our visiting opera companies, consulted me in February, 1903, for a slight impairment of the voice, a diminished resonance, noticeable particularly in the upper register. He attributed the present condition to a severe vomiting spell of the evening before, caused by a disordered stomach.

History.—He was in perfect health otherwise, and had had no severe illness except an attack of pneumonia about twenty years before. He used alcoholics very moderately and tobacco not at all. He had always been subject to epistaxis, and although he had had only one attack thus far the present season, he had, in former years, repeated attacks, and the bleeding sometimes continued for several hours at a time. He had also noticed that a slight cut was often followed by prolonged bleeding. Whenever there was a slight contusion on any part of the body it was usually followed by a black and blue spot which remained for a day or so and then disappeared. Almost every day small blood blisters appeared, spontaneously, on the buccal surfaces of the cheeks and on the tongue. These he was accustomed to break open and they would disappear in a few hours. He had an attack of laryngeal trouble the preceding September, but it was much more severe than the present one and had continued for five weeks. During that time he was obliged to give his voice complete rest. Heredity was negative.

Examination.—He had accompanied the prima donna of the company to my office a day or so before, and had called my attention to the condition of the mouth and tongue, and I had looked at his larynx also. I had found that the vocal cords were quite red, but there was no swelling (a condition I have often seen in singers' larynges, when singing regularly and in good voice). At this time the voice was excellent, and he had been singing a heavy rôle three times a week during the season. When he consulted me later there were purpurae bullosa on the tongue and buccal mucous membrane, few in number and about the size of a small pea. The pharynx had several prominent blood vessels coursing over it, and these extended up into the nasopharynx. The larynx was diffusely congested, but the vocal cords were a brilliant crimson. There was no hemorrhage on the surface, and no bleeding vessels, but there seemed to be a suffusion of blood beneath the epithelium, uniform in its distribution. There was no swelling, and the muscular action of the cords appeared to be about perfect.

Treatment.—I applied as an astringent a 10 per cent. solu-

tion of alumnol, freely. He sang that evening, sparing his voice as much as possible, and improved so that he missed no performance, and in three or four days was in as good voice as ever, the larynx rapidly returning to its normal condition.

CASE 2.—S. A., aged 56, lawyer, came to me in the afternoon of March 22, complaining of hoarseness and irritation of the larynx, which had come on suddenly about noon of that day.

History.—He had not been using the voice unusually during the day, simply transacting business in his office with his clients. He had had some symptoms of a cold for a day or two, and said the mucous membrane of the nose and throat seemed dry. I had treated him for some years for chronic catarrhal inflammation.

Examination.—There was considerable viscid mucus clinging to the membrane of the pharyngeal wall and nasopharynx, and the nasal membrane was very dry. Congestion was not marked. On examination of the larynx the right cord was found normal in appearance. Coursing over the surface of the left cord, somewhat irregularly, from the inner edge, posteriorly, then externally, and separated from the edge about 1 mm. along its upper flat surface to the anterior insertion, was a band, vividly red, with well-defined demarkation, showing plainly extravasation of blood beneath the mucous membrane. This changed very little in twenty-four hours, then gradual absorption took place, and in a few days had disappeared.

Treatment.—The treatment consisted in an application daily of adrenalin solution (1 to 1,000), and at home the following spray was used two or three times a day:

B. Zinci sulphatis	gr. ii	11
Acidi borici	gr. viii	16
Menthol	gr. i	5
Aq. dest. q. s. ad.	ʒi	30

CASE 3.—F. E. J., male, married, whom I have known for a number of years, came to me in the early part of February with a history of an acute rhinitis about four weeks before his visit, and of becoming hoarse a few days afterward, after an evening of exposure while tobogganing, and he had been hoarse ever since.

Symptoms.—The throat felt dry and sore, and there was occasionally a feeling of intense dryness in the larynx, accompanied, at times, with a sharp but momentary pain. He had been having some bleeding from the nose nearly every day, small in amount, and caused by vigorous blowing and the dislodgment of small crusts of mucus. He had noticed also for the last week that he had coughed up small streaks of blood with his sputum every morning.

His brother had died a few months previously from a lingering tuberculosis, and I had treated him for a number of years for a chronic laryngeal catarrh before the pulmonary disease had developed. This knowledge of his brother's throat trouble and subsequent history made the patient very apprehensive. His general health was good, and he had gained forty pounds in the last year and a half.

Examination.—An examination of the chest was entirely negative. In an examination of the nose I found a slight abrasion on the cartilaginous septum on the right side; the pharynx was dry and congested, and the vocal cords were rather bright red and slightly swollen. I found no bleeding point then, but two days afterward he came to me early in the morning and I discovered one on the left vocal cord, near its posterior insertion and on its upper surface. From this point a small amount of blood coozed, and had flowed down over the edge of the cord, where it still remained as small coagula. Spraying the larynx dislodged these, but the bleeding point still remained. Within three days the spitting of blood ceased and the bleeding point disappeared. The treatment consisted of sprays of a 10 per cent. solution of alumnol and the following:

B. Adrenal.	ʒi	3 75
Acidi borici	grs. xvi	106
Aq. cinnamomi	ʒiv	15
Aq. camphoræ, hot.	ʒi	30
Aq. dest. q. s. ad.	ʒiii	60

Macerate for two hours; then filter.

Sig.: Spray the larynx two or three times daily.

The effect of this spray seemed quickly efficacious, his apprehensions as to pulmonary hemoptysis could be at once quieted, and he has had no return of the trouble.

CASE 4.—A. G. Wippen has kindly furnished me the notes of a case he has seen: Miss C., aged 22, a professional elocutionist, while imitating the shrill notes of a bird, suddenly lost her voice and could only speak in a whisper. She tried inhalations of steam, which had relieved her before when troubled with laryngitis, but without any benefit. The next day she was examined, and numerous little hemorrhagic spots were seen on both cords. The following day some of these spots had become confluent. The hemorrhage seemed to be confined to the two cords, and no blood was at any time coughed up, nor did the laryngeal applicator become tinged with blood. The use of steam inhalations, absolute rest of the voice, local applications of astringents and the administration of iodids effected the absorption of the hemorrhages within three weeks, when the patient resumed her occupation.

ABSTRACTS OF CASES.

The following are the brief abstracts of the cases recorded by the respective authors since 1884, which it has been possible for me to consult. A few reports have not been accessible to me. A report and a bibliography of those previous to that date have been given by Gleitsman.¹⁹

LENNOX BROWNE.²⁰ Girl, aged 18, seamstress, had complete loss of voice.

Examination.—There was a general anemia of the larynx, except the vocal cords, which were covered with moist blood, and, on removing it, the cords were found very hyperemic. There was general debility and amenorrhea. She had often spat and tasted blood in the morning, though only a little.

BUKOW.²² Female, aged 21. She was well built and strong and had never been sick. She had acute laryngitis, and had expectorated blood in four instances. The symptoms were cough, some anphny, bloody sputum, and no dyspnea.

Examination.—Laryngoscopic examination showed signs of laryngeal inflammation, particularly of the true and false cords. There were, here and there, some blood coagula, but no tumefaction of the mucosa. She recovered in two weeks.

DOBSON.²⁷ Robust man, aged 40. He spoke to an unusual degree at a public meeting the night before. The next morning he had symptoms of irritation in the larynx, with rawking, and could speak only in a hoarse whisper.

Examination.—The left vocal cord was found to be swollen to twice its normal size through its entire length and was bright red in color, the coloring being diffuse and even. Afterward a cystic growth appeared, and this was evidently opened and the voice cleared while he was coughing violently.

STREIBER.²⁵ Female, aged 34. Strong. She was pregnant, in the ninth month. She began to cough, after exposure, and fifteen days later expectorated blood. There was aphony, which was total for the higher notes, dyspnea, which occurred in paroxysms, but which was relieved with the ejection of small quantities of coagulated blood, after much cough. At times there was mucopurulent sputum with streaks of blood.

Examination.—This showed the laryngeal mucosa, and particularly that of the true cords, strongly reddened; the latter was literally wrapped all around with blood coagula, and the lumen of the larynx was much narrowed. The patient was cured in six weeks.

MOCH.²³ A patient developed a laryngitis as a sequence of pseudoleukæmia, with cough and bloody sputum. There was a dry catarrh of the nose and throat.

Examination.—This showed an extravasation of blood in the submucous tissues of a vocal cord and a crumpled crust on the laryngeal plaques, which he believed was due to decubitus. The patient recovered.

PLESKOFF.²⁴ Male, teacher, aged 41. Symptoms were pain in the larynx and slight hoarseness. He had been called to teach a larger class than usual and pain was worse while teaching it. He had had some cough and expectoration for years. Ten years before was hoarse for six weeks, two weeks before examination sputum was blood streaked, and four days before, this occurred again. The patient was healthy and robust.

Examination.—This revealed a diffuse but scarlet red coloration of both true cords like that of a catarrhal laryngitis, and a sharply outlined band, bright red, covered about half the breadth of the left vocal cord in the region of the processus vocalis, a submucous extravasation of blood. There was no ulceration, no cicatrization and no history of trauma. The author says this spontaneous laryngeal hemorrhage is very rare. Only two cases had been seen before this in the Heidelberg clinic in ten years.

PORTER.²¹ Case 1.—Miss K. She had had repeated bleedings from the larynx and had complained of hoarseness at times and some soreness in the chest region. She had a good family history. The site of the hemorrhage was a small ulcer on the right ventricular band. The bleeding was finally controlled, and had not returned in two years.

Case 2.—Mr. G., a government inspector of boats, aged 42, and robust. He was alarmed by expectorating blood. He was slightly hoarse. The bleeding point was found to be from the posterior end of the right vocal cord, which was red and swollen. This was controlled by an application of iron.

Case 3.—Miss L., aged 33. Delicate. No heredity known. The

22. Laryngoscopischer Atlas, Stuttgart, 1877, p. 84.

23. Internat. Centralblatt, Berlin, 1888.

24. Trans. Amer. Larynx Assn., 1890, vol. xi, p. 131.

larynx was red and the mucous membrane over the left arytenoid, the whole of the left side of the larynx and the vocal cords were swollen. At her third visit bleeding began while she was waiting, and a bleeding point was discovered near the posterior attachment of the left cord. In four months evidences were found of pulmonary congestion.

HARTMAN: Male, aged 28. The patient was strong and weighed 162 pounds. An hour after singing there was a sudden filling of the throat with two or three ounces of pure, bright blood. This was repeated the following morning.

Examination.—The nasal, oral and ear cavities were found normal. In the larynx was seen a ruptured blood vessel on the upper surface and middle of the left ventricular band. Blood was seen oozing from this, trickling down into the glottis and causing cough and spasms of dyspnea. Hearty coughing.

CLAYTON WAGNER: Dr. M., aged 28. Consulted him for hemoptysis. Patient of spare habit, but excellent health. Lungs were healthy. There was general hyperemia of the larynx. Minute drops of blood were seen oozing from the left ventricular band and ventricular wall one week later was a profuse hemorrhage. Drs. Flint and Lee thought this was bronchial. In this the author concurred, but believed it had its origin in the larynx. About four months later hemorrhage returned and afterward there were small clots expectorated after taking time on two occasions. On the occasion he had just two or three ounces of blood. He had several attacks, but there was no loss of weight or evidence of pulmonary disease.

MASSUCI: Man, aged 39. He was a singer, of robust health. There were suspicions of hereditary deafness, and he had had several times attacks of dyspnea. Hearty coughing. His symptoms were a sensation of a foreign body in the throat, a continuous and unrestrainable desire to cough, hoarseness and bloody expectoration. He had a dry pharyngitis.

Examination.—A transvasation was found on the arytenoids and under the mucous membrane of the cords, with a few hemorrhagic points in the trachea. He was well in 28 days.

LUC: Male, aged 35. Several months previous, while reading a paper in bed, he suddenly felt a liquid flowing down his throat. He expectorated blood, bright red in color. Three days after being seen, he was awakened about 3 a. m. by a desire to cough and expectorated a larger quantity of bright red blood, and this was done, in increased amount, on the next day. He was highly nervous and apprehensive of lung or heart disease.

Examination.—Nasal cavities were found normal. There was acute catarrh of the larynx, with general laryngeal congestion. There was a small erosion in the region of the cartilage of Santorini on the left side, the center of an irregular white spot of a violet color, the origin of the hemorrhage. Recovered in eight days.

TRETEL: Woman, aged 50. Healthy and of strong constitution. Married four years. Had no children and no abortion. Menstruation regular up to four months previous, when it ceased without known cause. There was no hemiplegia. In the middle of the previous December there was catarrh of the upper air passages. Two days later there was profuse menstruation. On the 18th of the month, coagula of blood were raised by persistent cough, and she became aphonic. Her voice was restored by relief by coughing up congealed blood, especially mornings.

Examination.—This revealed a slightly reddened epiglottis, the laryngeal walls markedly swollen and bright red. In the left middle portion was a blackish scab. The vocal cords were red in patches and swollen. The posterior pharyngeal wall was also swollen, and two coagula were removed from it by a brush, measuring 5 by 2 mm. each. The chest was normal. Patient cured in 20 days.

NOGARO: Male, aged 45. Family history negative. Had hyperemic catarrh of the larynx, due to edema, probably, and edema of the lower extremities. Two attacks of hemorrhoidal hemorrhages several months previous. Complained of hoarseness, aphonia, painful dryness of the throat and pain in deglutition, of about one month's duration, and a dry pharyngitis and acute catarrhal laryngitis. In eight days hemoptysis occurred.

Examination.—This showed the left vocal cord to be covered posteriorly, a hemorrhagic spot and small varicosities of the right vocal cord. The whole cord was markedly reddened and covered in places with congealed stry of blood, which could be easily removed with pincette. The condition was undoubtedly due to a passive pulmonary congestion, following the cirrhosis of the liver.

ROYLT: Two patients, singers at the opera, had hemorrhagic laryngitis several months previous, as a result of a hematoma. Another case of a patient with a vague history of hemiplegia in the family was cured.

DUNDAS GRANT: Woman, aged 24. Had aphonia and hoarseness at intervals for four years. The attacks were induced by sneezing or some vocal effort, and lasted a fortnight.

Examination.—M. This showed the left vocal cord to be covered by a loose layer of blood clot and projecting over the other cord, on phonation. This could not be removed, and was obviously submucous. When the tumor was removed, the hemorrhage seemed to arise from the anterior and middle third of the cord. Eight days later a hempsized tumor was discovered attached to the edge and upper surface of the cord. Baber reported in discussion that he had a similar case, and was understood to be correct.

GEVART: A lady cried loudly, and immediately was conscious of a sensation above the thyroid, accompanied by a change of voice, followed by aphony. There were no functional symptoms, save slight cough and expectoration of blood-streaked sputum.

Examination.—The right cord was found slightly congested, as was the whole laryngeal mucosa. The left cord was somewhat swollen, and of a deep ecythemic red color. The ecythymosis was completely absorbed in eight days.

SCHNITZLER: A singer, whose voice was good in the first act of a great opera, became completely aphonic after great vocal exertion. The following day, an examination showed the left cord relaxed and suffused with blood. Absorption took place gradually, and the voice was completely restored in a few days. A few months later the same mishap occurred under similar circumstances. Rest and astringents, locally applied, brought about a complete cure.

LANGMAD: He records five interesting cases in which there was sudden vocal disability. The lesion had a definite cause. Extravasation was found at the junction of the anterior and middle third of the vocal cord in each case; in one the hemorrhage was diffuse, in the other it consisted of a white mass of blood under the mucous membrane, with a diameter nearly that of the transverse diameter of the cord. Four of the patients were singers, and one an actor. The hemorrhage was caused by vocal strain in every case. There was no hemoptysis. All cases were cured.

SKRABOURG: Case 1.—Male, aged 37. Fourteen years previously had marked expectoration of blood, lasting two or three days, and for a few months subsequently occasionally expectorated small quantities. His general health was good. Seven years afterward he had a recurrence of the hemoptysis, with frequent repetitions during the succeeding four years. For three years before coming under observation the condition had been worse. At one time the bleeding had been very profuse for several days. For three weeks he had been spitting blood daily. The family history was excellent. There had been no catarrh nor general hemorrhages. The lungs were found normal.

Examination.—This showed general enlargement of the blood vessels of the larynx, epiglottis and base of the tongue. No bleeding point was detected. Singing in chorus was followed by marked bleeding the following morning. Improved at once under a spray of weak solution of argentic nitrate. The patient had had no recurrence in two months.

Case 2. Male, aged 35. Spat blood for sixteen years. The first, after running for a train. The intervals varied widely. They were after a profuse hemorrhage, but no decline in health. There were no abnormal lung findings. The family history was good. A bleeding point was found on the anterior third of the left cord. This was verified a number of times when bleeding was taking place. Treatment did not avail, and he died of tuberculosis, which he died from a profuse hemorrhage of the larynx. He had no symptoms of tuberculosis. Its possibility must be accepted.

GEYER: Case 1.—Mrs. K., aged 40. Menstruation regular, weakness marked, slight cough and hoarseness for about two days. She had had profuse hemoptysis for several weeks.

Examination.—This showed a hematoma, a collection of blood under the mucosa. This was removed, but reappeared and was again removed.

Case 2. Woman, aged 40. For ten years she had had frequent attacks of hoarseness, alternating with a sense of irritation in the throat.

Examination.—A small blood tumor was found in the larynx, which was removed and examined microscopically. It was found to consist of organized blood pigment, with some vascularization and a fibrous capsule, covered wholly by the mucosa.

GAUMER: Case 1.—Miss H., a singer. While exercising her voice, became suddenly hoarse.

Examination.—This showed the vocal cords to be of a vivid red color, as far down as the inferior surface.

Treatment and Result.—She was ordered to rest, and local astringents were applied. On the thirteenth day she intended to begin her vocal exercises, but on taking a hot inhalation of eucalyptus the voice again suddenly changed. It was found that the submucous hemorrhage had again appeared. Treatment was instituted for a longer period. A year later, having resumed her occupation, the same condition recurred, and the same ecythemic area was noted. Cough, as well as loss of voice, was present. Cure followed rest and the use of astringents.

Case 2.—The first baritone at the grand opera. He complained of inability to sing the high or low notes well, and of a gradual change of the voice. His right vocal cord was found reddened on its internal surface. Rest restored the voice.

Case 3.—M. C., architect. In 1855, while fearing the annual return of his hay fever, he suddenly lost his voice, preceding which he had a sensation of something breaking in the throat. There was no hemoptysis.

Examination.—This showed an intense redness of the left vocal cord, which appeared swollen in its entire length.

Case 4.—Mr. X, was of a nervous temperament. While taking a drink, a month previously, his voice suddenly changed.

Examination.—This showed uniform red injected appearance of the left vocal cord, contrasting markedly with the whiteness of the opposite cord. The hemorrhage was in a state of absorption.

LA SOTA Y LASTRA: A woman, aged 35, had suddenly a sensation of heat in the throat and difficulty of deglutition. She began coughing frequently. Four days before she began expectorating pure blood.

Examination.—This showed no abnormal condition of the chest or lesion of the blood vessels. Later, blood mixed with sputum and sometimes streaked with congeal. An examination of the larynx showed a congested and granular mucosa, with reddening of the velum and uvula, and the laryngeal mucosa in a tumefied condition, covered in some places with a semi-liquid blood, in others with coagula, particularly over the cords forming irregular dentations over the free border. The following day the coughing ceased, and there was dyspnea and aphonia, and the mucus was blood-streaked. A small dark conulum was found between the cords, which was removed and the dyspnea and aphonia disappeared.

100 State Street.

DISCUSSION.

DR. P. S. DONNELLAN, Philadelphia.—In my judgment the kernel of the question is whether the hemorrhage proceeds from the lungs or from the larynx, and whether the case is tubercular or non-tubercular. Whenever a case of this kind presents itself, we should always view it with suspicion and keep it under observation until we are able to exclude or include the possibility of tuberculosis. We should not only examine each case laryngologically, but all the secretions of the body should be carefully examined, especially the sputum. Re-

25. Archivi Italiani di Laringologia, 1889.

26. Courrier Médicale, Paris, 1893, vol. XIII, p. 311.

27. Revue de Laryngologie, etc., Paris, 1893, vol. XIII, p. 706.

28. Belgique Medicinale Grand Harlem, 1895, vol. II, p. 481.

cently I had an opportunity to see an interesting case of spitting of blood in a boy of fourteen; three or four days previously he had slight sore throat and fever, followed by profuse hemorrhage, which was coughed up. Investigation showed that this was due to sudden suppression of a scarlatina rash. He had run out into the street where the atmospheric air had a temperature of about 50 from a room where the temperature was 82, and this hemorrhage immediately resulted. He also had hemorrhagic nephritis. I now have under my care a physician who has had three or four hemorrhages from the larynx and have decided that they are due to gouty diathesis. He has been under observation for a year and a half, and in that time he has lost no flesh and shows no tubercle bacilli. Insurance companies are very suspicious of laryngeal hemorrhage, and look on every case with such a history as one to be carefully watched; first-class conservative companies will not issue to them ordinary policies unless an interval of ten years has elapsed since the last hemorrhage. Many cases are seen in connection with syphilis, cancer, etc., and as an early accompaniment of arteriosclerosis. An interesting case recently was traced to the sudden stoppage through means of operation of a bleeding hemorrhoid which had lasted for a number of years. Some cases of hemorrhage from the larynx have been reported as occurring during epidemics of influenza. We are all familiar with post-operative hemorrhage. I do not recall whether Dr. Rhodes alluded to hemorrhage from the nose, trickling down into the larynx during the hours of sleep, with its origin in the nose. As to syphilis as a cause, while the hemorrhage does not come directly from the larynx, it may trickle from an ulcerative area back of the larynx. I remember reading in THE JOURNAL of two cases reported by Dr. Page of Indianapolis where the blood had trickled into the throat from a syphilitic ulceration; one case was thought to be ulcer of the stomach, and a surgeon operated, but failed to cure the hemorrhage. Further examination showed it to be due to a specific ulceration back of the tongue, and the patient recovered under antisyphilitic treatment. Some cases of hemorrhage may occur underneath the mucous membrane and give no external evidence. Such cases should be regarded as very serious because of the possibility of sudden edema of the larynx and consequent asphyxia. As to treatment, general medication must not be lost sight of; cold compresses are good, with mustard water footbaths. Ergot is not regarded as of very high value in all cases of hemorrhage, and is not to be used in these cases because it contracts the arterioles, and this may lead to disastrous results. Adrenalin is useful.

DR. W. E. CASSELLBERRY, Chicago.—The kernel of the subject is in distinguishing laryngeal hemorrhage from true tubercular, pulmonary hemorrhage. Supplementing Dr. Rhodes' report, I have seen two cases of hemorrhagic extravasation of the vocal cord, both of which were due to abuse of the voice. I have also seen a case of profuse hemorrhage from the larynx in a singer who had hemangioma of the vocal cord. Such angiomatous vessels may be ruptured by energetic use of the voice.

DR. G. V. WOOLLEN, Indianapolis.—It is very necessary to discover the source of the hemorrhage. I wish to call attention to a case illustrative of that point. A gentleman came to me with hemorrhage from the throat. He was badly frightened. On examination, I found at the base of the tongue a traumatism, a slit—anteroposteriorly—the size of a small shirt buttonhole, which had been caused by swallowing something sharp. I assured him that he had no hemorrhage from the lung. He would not believe it, therefore I placed the mirror where he could see the lesion himself, and irritated it with a probe so that it bled. He was the brother of a physician, and I had him and two other physicians see the case. He insisted then and ever afterward that he had pulmonary hemorrhage, and two years later died from pulmonary tuberculosis. At the time we examined his chest carefully and found no evidences of tuberculosis.

DR. D. ROY, Atlanta, Ga.—Have these cases been followed up so that we may know something as to the prognosis, whether tuberculosis is likely to follow as a result of these primary symptoms? I have had cases of severe hemorrhages from the

base of the arytenoid cartilage without the least apparent cause of exertion on part of the patient. One of these patients came up two or three months later for life insurance, but this case has not yet been acted on. I have not seen anything in the literature as to the prognosis in such cases or the attitude the laryngologist should assume when questioned by the agents of such insurance companies.

DR. J. E. RHODES.—My cases have not been followed up long enough to determine, but in reading the abstracts I have made of the cases Dr. Roy will find all there is in the literature on the subject. I have excluded angrisma from the paper in order to avoid complicating the subject. I have tried to confine the discussion to true laryngeal hemorrhage and not to all cases of blood in the larynx. We should be careful in diagnosis to exclude bleeding from the posterior nares and ulceration. I agree that the great importance of the subject lies in the exclusion of pulmonary tuberculosis.

POISONING BY WOOD ALCOHOL.

CASES OF DEATH AND BLINDNESS FROM COLUMBIAN SPIRITS AND OTHER METHYLATED PREPARATIONS.

FRANK BULLER, M.D.

MONTREAL.

AND

CASEY A. WOOD, M.D.

CHICAGO.

(Concluded from page 1221.)

(A.) PUBLISHED CASES OF WOOD-ALCOHOL POISONING.

The following tables, prepared by Dr. Buller, are practically complete to June, 1904. As previously stated, they furnish characteristic accounts of intoxication from various methylated drinks, as well as from inhalation of the vapor of methyl alcohol. That only two of these cases occurred in Europe points the moral so often urged in these papers; wherever a government permits the sale of "deodorized" wood alcohol (as in the case of Columbian spirits in the United States and standard wood spirits in Canada), the only effective safeguard against the ingestion of the poison is removed and the annual sacrifice to death and blindness will certainly continue. Either the manufacture and sale of "deodorized" wood spirit should be absolutely prohibited, or, as in Germany and Great Britain, an un-taxed ethyl alcohol, rendered undrinkable by the addition of pyroligneous spirit, mineral oil, naphthalin or some other nauseous compound, should be employed in the arts in the place of Columbian spirits and similar dangerous preparations. Either enactment would prevent the use of Columbian spirits and other forms of "deodorized" wood alcohol in the adulteration of Jamaica ginger, lemon extract, bay rum, essence of lemon, whisky, witch hazel, cologne water, and innumerable other alcoholic mixtures now employed in the preparation of food and drink.

That this menace to the health of the community is an ever-present reality is evidenced by the recent death in New York within two days of seventeen persons from drinking whisky adulterated with wood alcohol. Commenting on this tragedy, Dr. H. W. Wiley, chief of the Government Bureau of Chemistry, expressed the opinion that "85 per cent. of the whisky sold in this country, in hotel restaurants, clubs and bars, is nothing less than a cheap imitation—an adulterated article distinctly injurious to the health."

A. METHYL ALCOHOL INTOXICATION. — PUBLISHED CASES.

NO.	REPORTER AND DATE	JOURNAL	AGE	SEX	OCCUPATION AND HABITS OF LIFE	MODE OF OCCURRENCE	PREPARATION AND QUANTITY OF SPIRITS CONSUMED	GENERAL EFFECT	VISUAL DISTURBANCES	RESULTS	REMARKS
1.	Viger and later by Meunier, 1878.	Revue Ophthalmologique, p. 669.	30	M	Washed out a varnish jar with two liters of alcohol and a half liter of the liquid.	As above stated.	An hour later in the evening, vomiting, headache, vomiting, and a sensation of pain and delirium; next day delirium gone.	Completely blind next day and remained so two years later. Improvement to such extent that he could see to get about.	Later on became entirely blind again and two years later, in 1881, he was cured. The optic nerves were not visible; vessels not markedly reduced in size. (Arch. Ophth., Medicale, June, 1877.)	This is said to be the first typical case of blindness from methyl alcohol poisoning reported by Viger in 1878. Medicinally, about fifteen minutes before death the conjunctiva became congested, and very much congested.	
2.	Dr. H. C. Kipp, 1888.	Baltimore Medical Journal.	28	M	Artistic painter; long to do some work occasionally.	At the end of a spree one Sunday, began to take twenty-four hours had taken a considerable quantity.	About a pint; the preparation was said to be 90 per cent pure alcohol and 10 per cent methyl alcohol.	When seen by Dr. Kipp on Aug. 6, eyes protruded widely dilated, pupils were of mild opisthotic position, respiration slow, mucous membrane of the throat, face, neck, headache, nausea and vomiting next day.	Masked by profound general effect.	Died in the course of a few hours from the time when first seen.	About fifteen minutes before death the conjunctiva became congested, and very much congested.
3.	Dr. A. G. Thompson, 1897.	Proc. of Philadelphia Academy of Nat. Sci., 1897, p. 472.	32	M	Sailor.	Drank about 20 ozs. of essence of Jamaica ginger in two days.	Essence of Jamaica ginger, 20 ozs.	Headache, nausea and vomiting next day.	Next day everything looked hazy; blindness complete by sixth day. Vision improved for four weeks and subsequent failure of vision.	Examination 3½ months subsequently showed V= counting fingers at 12 inches; optic nerves excruciatingly pale; lower outer quadrants completely of optic nerves.	Examination 3½ months subsequently showed V= counting fingers at 12 inches; optic nerves excruciatingly pale; lower outer quadrants completely of optic nerves.
4.	Dr. C. MacCoy and P. M. Michael, 1886.	Medical Record, Vol. 21, 1886, p. 472.	21	M	Attendant; habits good.	When convalescing from measles, drank about a quart of Jamaica ginger mixed with water and sugar, and repeated this dose in Christmas week, Dec. 1886.	Columbian spirits with water, 8 ozs.	After the first dose he experienced pleasant effects, and at first night exhibited symptoms of mild opisthotic position, awakening violent emesis and gastric pain.	Twenty-four hours after first dose, pupils widely dilated; vision = 0; double optic neuritis with congested retina.	Perception of light returned after 14 days but 12 months later was totally blind.	In this case the early symptoms were not observed and only imperfectly described.
5.	Dr. Hiram Woods, Jr., Baltimore, Md., Feb., 1899.	Medical Record, Chicago, 1899.	32	M	Bricklayer.	On an oyster boat, with a lot of men who drank Jamaica ginger mixed with water for five or six days, after this mixed with water.	Jamaica ginger, quantity not estimated.	No particular effect until early on Jan. 27, said to have frequent sharp lancinating pains in legs.	First noticed that vision after several hours after shells as they dropped into the water looked like drops of blood; vision then totally blind for four days; four weeks later could see to read.	After several weeks vision began failed on Feb. 7 could not see newspapers; headings; vision improved; optic nerves atrophied; contracted fields; absolute central scotomata.	After several weeks vision began failed on Feb. 7 could not see newspapers; headings; vision improved; optic nerves atrophied; contracted fields; absolute central scotomata.
6.	Dr. Hiram Woods, Jr., Baltimore, Md., 1899.	Medical Record, Chicago, 1899.	38	M	Workman in a mill; coffee drinker; took more gin and rum than usual on Saturdays.	During two days unsatisfactory hard work during a heavy snow, and then drank more gin and rum than usual on Saturdays.	Jamaica ginger mixed with water, also a little alcohol; quantity not known.	On Monday night 17 morphine taken with vomiting, diarrhoea, gastro-intestinal cramps, severe attacks occurred in the last of which "sight went quick as a flash."	After four days of vision returned, several times and then he became unresponsive on awakening Tuesday fully blind; afterwards vision partly returned.	After four days of vision returned, several times and then he became unresponsive on awakening Tuesday fully blind; afterwards vision partly returned.	After four days of vision returned, several times and then he became unresponsive on awakening Tuesday fully blind; afterwards vision partly returned.
7.	Dr. Hiram Woods, Jr., Baltimore, Md., Feb., 1899.	Medical Record, Chicago, 1899.	41	M	Stock breeder; heavy smoker; drank to excess.	Habitual inebriate and heavy smoker; had been in excess since 1895 or less for 3 years; the day before vision failed had taken 3 or 4 half bottles of whiskey besides other stimulants.	Ginger essence and other stimulants or that pint bottles.	On getting up next morning had a severe attack of nausea and vomiting. Sharp pains in the head.	Sudden blindness came on during this attack; vision returned slowly to some extent.	Vision reduced to counting fingers at about six inches; fields each limited to a small central scotomata.	Vision reduced to counting fingers at about six inches; fields each limited to a small central scotomata.
8.	Dr. Hiram Woods, Jr., Baltimore, Md., Feb., 1899.	Medical Record, Chicago, 1899.	50	M	Student in a law office.	In the habit of "going on" these, commencing with whiskey on "topping off" he drank during the week of the occurrence of Jamaica ginger.	As stated above.	No particular effect until four days later seen by Dr. Harlan, then pupils widely dilated, inextinguishable, optic nerves atrophied, optic chiasm and optic trunks prominent.	Five months later optic nerves atrophied, otherwise normal.	Five months later optic nerves atrophied, otherwise normal.	Five months later optic nerves atrophied, otherwise normal.
9.	Dr. Hiram Woods, Jr., Baltimore, Md., Feb., 1899.	Medical Record, Chicago, 1899.	32	M	Physicist; had taken 3 bottles of whiskey.	Drank 3 pints of whiskey on "topping off" with Jamaica ginger, took 6 or 7 bottles (1½ ozs. in each) be-	As stated above.	Next day felt indisposed, vomiting, diarrhoea, and abdominal pains; these continued through most of night.	On Sept. 28, "No light; these becoming clearly atrophic."	On Sept. 28, "No light; these becoming clearly atrophic."	On Sept. 28, "No light; these becoming clearly atrophic."

A. METHYL ALCOHOL INTOXICATION.—PUBLISHED CASES.—Continued.

No.	REPORTER AND DATE	JOURNAL	AGE	SEX	OCCUPATION AND HABITS OF LIFE	MODE OF OCCURRENCE	PREPARATION AND QUANTITY OF SPIRITS CONSUMED	GENERAL EFFECT	VISUAL DISTURBANCES	RESULTS	REMARKS	
19.	Dr. R. S. Phillips, Chicago, Dec. 1889.	Ophthalmic Record, Chicago.	36	M	Painter	Shelling some beer vats, 10 days. Shellac mixed with Colophony spirits 87 88 p.c. alcohol, 3 coats applied to each vat. On 5th day, light-headedness, vertigo, slight headache, 18 inches square. Others drank wood alcohol.	Vapor from vats men- tioned above in- flicted on patient, temperature 70° F.	In four days discontinued work on account of nau- sea, dizziness and head- ache.	On 5th day sight was lost; 6th day, totally blind. On 7th day, vision gradually returned until able to go around, two weeks later, sight again failed.	R. E., fingers at three feet; disc bluish tint, vessels normal, constant; L. E., disc white, vessels slightly contracted.	Inhalation only.	
20.	Dr. R. S. Moulton, 1900.	Proc. Medical Assoc. Kansas, 1900, 285-292.	35	M	Painter	Oct. 8, 1897, with 30 or 40 others drank wood alcohol.	About eight ounces of wood alcohol.	Weakness, feeble pulse, no unconsciousness.	Twenty-four hours, sight dim, entirely lost in a few days.	months later condition unchanged; pupils dilated and hard; color perception absent, field contracted with absorption; normal anatomy; R. V. 20; P. 10; optic nerve and retina; arterioles much contracted; L. V. 20; P. 10; slight pinkish hue of papilla.	Recovery of normal vision, no impairment in fields.	At this time, patient sorted to early in this case.
21.	Dr. E. Sturten, Jan. 5, 1901.	Journal of American Medical Association, Chicago.	Adult	M	Not stated.	The drug was taken about noon when he fell asleep and on awakening about blind, was totally blind.	Quantity of consumption not definitely known.	Not stated.	Total blindness in three hours; partial return of vision three hours later; complete recovery in 14 days.			
22.	Dr. H. Harlan, Baltimore, Feb., 1901.	Ophthalmic Record, Chicago.	30	M		A hard drinker; when he could not get whiskey or remedy drank essence of lemon, lemon, etc.; on Saturday drank three bottles of essence of peppermint and one of a bottle of essence of lemon.	Three bottles of essence of peppermint and one of a bottle of essence of lemon.	Unimpaired, sick and stupid on Sunday, eyesight became dim and by evening had complete darkness.	Both neuroretinitis and optic atrophy. Vision was 3,200 in each eye.	After treatment of pilocarpin, strychnia, and later K. I., he became better and then returned to Dr. Harlan's clinic, Dr. V. Hawkins wrote me details of the death of patient, who drank 600 cc of essence of ginger put up by the same firm as Jamaica ginger.	The peppermint was prepared by the same firm as the Jamaica ginger, and the latter was made by Dr. V. Hawkins.	
23.	Dr. H. Harlan, Baltimore, Feb., 1901.	Ophthalmic Record, Chicago.	25	M	Not given.	On election day, Nov. 1, he had taken seven bottles of Jamaica ginger, washed down with beer, and then took seven more.	Fourteen bottles of Jamaica ginger in one day.	Very sick, unconscious for three days; awake, almost blind, and since then vision has been failing.	The optic nerve showed atrophy, a good deal of variation in the vision from day to day.	Little if any improvement in vision when he left hospital; later became entirely blind.	The patient remained in the hospital.	
24.	Dr. Edward Jackson, Denver, Colo., April, 1901.	Medical Times, Denver.	30	M	Colored	Drank a drink or two of wood alcohol.	Unconscious for 48 hours.	Blind in 18 hours, after 26, slight improvement, went to normal in 23 weeks again failed.	Blind in 18 hours, after 26, slight improvement, went to normal in 23 weeks again failed.	Complete blindness.		
25.	Dr. G. E. DeSchweini, Haz. June, 1901.	Ophthalmic Record, Chicago.	30	M	Painter; police-aid and alcohol moderate.	After using wood alcohol varnish for some time we would have dizziness and temporary haziness, but after using for two months continued at varnishing felt sick and chilly, and one unable to work.	Used wood alcohol in the camp and to wash hands and arms after working.	Chilliness and pain in the legs in morning; no headache, nausea and vomiting.	At night unable to see in the gas-light; blind in room; absolute blindness for two weeks; two weeks later could see through glasses, but three weeks more vision failed again.	Complete blindness.		
26.	Dr. Harold Gifford, 1901.	Medical Record, Philadelphia, 81, 308-309.	35	M		On Nov. 23, 1900, took 2 or 3 drinks of spirits, felt terrible, odor of methyl alcohol, also perhaps some the next day.	Quantity uncertain, probably less than one ounce, but the jar from which the spirits were taken was labeled Cologne.	Felt ill that evening and poorly on Nov. 21 and 25.	On the morning of Nov. 26, sight began to fail; on Nov. 28, Dr. Gifford was called, 0. after four days vision began slowly to return.	Recovery of nearly normal vision after two months, though the optic changes and the field was contracted below.	L. eye had shrunken and contracted, been blind many years—once of optic atrophy, but during perfect vision; Dr. Gifford points out why the lesion was contracted in the optic nerves.	

A. METHYL ALCOHOL INTOXICATION.—PUBLISHED CASES—Continued.

NO. REPORTER AND DATE	JOURNAL	AGE	OCCUPATION AND HABITS OF LIFE	MODE OF OCCURRENCE	PREPARATION AND QUANTITY OF SPIRITS CONSUMED	GENERAL EFFECT	VISUAL DISTURBANCES	RESULTS	REMARKS
34. Dr. H. W. Ring, New Haven, Conn., July, 1902.	Trans. Amer. Ophthalmological Society, 1902.	43 F	Housewife	Drank about 1 1/2 of a sweet wine and black coffee, each of a mixture containing about half a pint of each at night and next day took about the same quantity of the mixture.	A mixture, took probably about five ozs. of wood alcohol.	The first night there was nausea and vomiting and intelligence, coma and dilated pupils and with sickening respiration and gradually dilated pupils.	As above stated.	Died the same day.	The nature of this case was not suspected by the attending physician.
35. Dr. H. W. Ring, New Haven, Conn., July, 1902.	Trans. Amer. Ophthalmological Society, 1902.	F	Housewife	Between noon and 7 p. m. drank about 1/2 oz. glasses of a mixture composed of 1/2 oz. of cherry wine, coffee and water, well sweetened.	A mixture; took in all about three ozs. or less of wood alcohol.	Next forenoon was dizzy, nauseated and vomited, cold with clammy perspiration and deep sickening respiration.	General effect too profound to note.	Died at 6 p. m. the same day.	It is likely there was some mistake as to the actual quantity taken by this patient.
36. Dr. H. W. Ring, New Haven, Conn., July, 1902.	Trans. Amer. Ophthalmological Society, 1902.	M	Workman	Drank four glasses of the mixture, well sweetened, and next morning one glass more.	A mixture; took in all about five ozs. of wood alcohol.	Worked till 3 p. m., on that day, then became gradually blind with morning still dizzy, nauseated and vomiting.	Remained totally blind.		
37. Dr. H. W. Ring, New Haven, Conn., July, 1902.	Trans. Amer. Ophthalmological Society, 1902.	M	Workman	Drank 6 or 8 glasses of the same mixture as preceding four cases.	A mixture; took in all about four and one half ozs. of wood alcohol.	Woke heavily that night, awoke at 5 a. m., but could not get up on account of dizziness, vertigo and headache; slept until 1:30 p. m., grew worse; at 4 p. m. vision nearly delirious with partly delirious, with noted tremor, restlessness, faintness, gait unsteady and loss of appetite.	Blurred vision which seems to be growing dimmer.	Recovery partial and pupils complete.	Two other persons partaking in this dose, much to a less extent, became totally blind, but no cerebral symptoms.
38. Dr. E. L. Bell, North Woodstock, N. H., 1902.	Trans. of the New Hampshire Medical Society.	M	Prisoner	As in case No. 40.	Same as case No. 40, though quantity taken less than was taken by those who died.	At 11 days later there was noted tremor, restlessness, faintness, gait unsteady and loss of appetite.	Blurred vision which seems to be growing dimmer.	Recovery partial and pupils complete.	Par. case.
39. Dr. E. L. Bell, North Woodstock, N. H., 1902.	Trans. of the New Hampshire Medical Society.	M	Carpenter	Had at one time been a hard drinker, but had not been on a spree for some time; admitted his case shortly after he was taken a considerable quantity of wood alcohol.	Wood alcohol, quantity unknown.	Intense, agonizing pain, vomiting, delirium, faintness, small pulse, face pale, pupils dilated.	A few hours after he was first seen the vision became dim, all objects looked white to him.	He soon became delirious, then lapsed into coma and died about 10:30 a. m. on the following day.	This patient was seen by Dr. Bell on Aug. 29, 1896, and is therefore one of the first cases known in this country.
40. Dr. E. L. Bell, North Woodstock, N. H., 1902.	Trans. of the New Hampshire Medical Society.	M	Woodman	Drank freely of wood alcohol which had been sent them for "good" when they had ordered some, but some friends to the same.	Wood alcohol, quantity not stated.	Seen on the following day; one was already dead, the other delirious; severe abdominal pain, faintness, gait unsteady, inco-ordination, seen followed by coma and nausea and vomiting in the morning, later in the day headache and feeble movement of the eyes.	Effect too profound to admit of information on this point.	Death in both cases.	
41. Dr. E. L. Bell, North Woodstock, N. H., 1902.	Trans. New Hampshire Medical Society.	M		Drank some of the same stuff as taken by the ones who died; they were seen the same day.	Wood alcohol, quantity not stated.	Nausea and vomiting in the morning, later in the day headache and feeble movement of the eyes.	Dim vision, objects appeared as seen through a thick fog; pupils dilated, vision otherwise normal.	Recovery with some slight defect of vision of a permanent character.	
42. Dr. E. L. Bell, North Woodstock, N. H., 1902.	Trans. New Hampshire Medical Society.	M	Carpenter	Seven convicts obtained in quantity consumed by each, not known.	Columbian spirit; quantity consumed by each, not known.	Next morning at 6 o'clock, fainting at 8 a. m., very rapid, weak pulse, dilated pupils, white tongue, they soon became unconscious.	Masked by violence of general effect.	Two died the same morning, 2 p. m. the following day.	Par. cases

43.	Dr. J. W. Sherer, May 9, 1903.	Philadelphia Medical Journal.	32 M Farmer.	Four persons celebrating anniversary of their marriage, were drinking champagne containing cheap alcohol, water and other materials.	As stated above.	Next day very sick, nausea, headache, sweats, stiffness in limbs, lasting some three days.	Vision began to fail after 2 1/2 hours; absolute scotoma, field of vision what contracted; L. F. P. only, optic nerves dilated to more than normal.	The writer's description of the left vision field is somewhat inconsistent with his statement that it was contracted to more than normal.
44.	Dr. J. W. Sherer, May 9, 1903.	Philadelphia Medical Journal.	M Farmer, probably drunk probably occasionally.	Same as case No. 41, but drank less of the mixture.	Same as case No. 41.	Dizzy, nauseated, headache and vomiting.	Vision became very dim for a few days, then gradually returned to normal. 6/3. L. = 6/12.	Recovery.
45.	Dr. G. E. Barstow, South Manchester, N. H., May, 1903.	Charlotte (N. C.) Medical Journal.	36 M	Drank with four others 18 oz. bottles of lemon extract.	Patron's part of the methylated extract was drunk at 2:30 p. m.	Following night vomiting, headache, vertigo, tinnitus, and general aching about spine.	Eyesight began to fail in 2 1/2 hours; on 3rd day, double shadows; by 10 a. m. emia of retinal veins.	Patient slowly improved in 24 hours; on 5th day several months had been gained most of lost sight; field remained contracted.
46.	Dr. H. H. Main, Barry, Ill., Sept. 5, 1903.	American Medical News, Vol. 10, No. 10.	41 M Watchmaker.	Habitual inebriate, for several successive days being unable to obtain whiskey he had been drinking at a saloon on Feb. 17, sizzit began to fail and he stopped drinking.	Lemon extract, which contained methyl alcohol, quantity consumed had stated.	On Feb. 18, there was frontal headache, nausea, rapid pulse, labored breathing, the eyes were closed and he was restless and scared-looking but his mental faculties were but slightly affected.	Became rapidly worse with intense suffering, lapsed into coma and died in 24 hours. Death was caused by drinking lemon extract.	No ophthalmoscopic examination was made. A post-mortem examination of the lungs was caused by drinking lemon extract.
47.	Dr. M. E. Armstrong, Bridgetown, N. S., Oct., 1903.	Maritime Medical News, Halifax, N. S.	33 M Public-sterling and varnishing.	Living in a Scott (prohibition) town he drank whisky on Sunday and Monday evening between 7 p. m. and 12 he also drank about 7 ozs. of methylated spirits, diluted with water.	About a pint of hay run on each of two succeeding days. He was drunk and retained wood alcohol, h. o. l., finishing up with 7 ozs. of methylated spirits, diluted with water.	Vomiting, and a series of pains, during the evening, slight well, but next morning he was very anxious expression, great general distress, and at 3 p. m. became dull and later comatose.	Dim vision same evening, followed by double shadows; by 10 a. m. total blindness.	When seen by Dr. Armstrong at 1 p. m., the patient's pupils had been contracted in a dilator of spirit and the pulse was about normal, body with a normal temperature. On 11 a. m. patient with a subnormal temperature same as at 10 a. m. at 12 a. m. patient terminated in death.
48.	Dr. M. E. Armstrong, Bridgetown, N. S., Oct. 1903.	Maritime Medical News.	35 M Laborer.	Habitual inebriate after a drinking bout of several days, and by the time he had obtained from a hardware store.	Common methylated spirits, of which he had drunk a bottle with water, between 7 p. m. and midnight.	Before retiring had some vomiting, gastric pain, and next morning still had abdominal pains, which grew rapidly worse, at 1 p. m. the pupils were dilated and quite blind.	Total blindness, 13 hours after last dose of the spirit.	About 5 p. m. became very dull, then comatose, metacare, and died.
49.	Dr. F. Buller, Montreal, June, 1904.	Montreal Medical Journal.	34 F Dress-maker, habits strict, temperate.	Took by mistake Feb. 1902 a quantity of medicine used as a liniment for rheumatism, just after a vapor-bath.	About a wine glass = 3 or 4 ozs. of methyl alcohol containing wintergreen, introduced for external use only.	Some dull, next morning asleep and at the end of two hours awoke feeling very ill, with intense headache and quite blind.	Total blindness, lasted about two weeks then vision slowly returned to present condition.	Counts fingers at three feet, each eye, fields small, absolute scotomata, double shadows, metacare, by treatment except that peripheral field enlarged, showing effects from a single moderate dose; it is not likely to be regained in wintergreen increased the toxic effect of the alcohol.
50.	Dr. F. Buller, Montreal, June, 1904.	Montreal Medical Journal.	30 M Barber, always temperate.	Took by mistake on the 1903 a dose from a bottle which he supposed to be a simple tonic he had used at times for indigestion.	A wine glass of methylated spirits, perhaps 3 or 4 ozs.	None till next morning, then some dizziness, so that he could not see to do his work, was told he looked ill.	Varied for several days, became total blindness for 8 days; great improvement of 4 days about middle of April, but he could not work, then failed again.	Counts fingers at 3 feet, L. V. = fingers at 3 feet, field consisted of 4 small spots, the condition was permanent when some months later.

NO. REPORTER AND DATE	JOVENAL	SEX	OCCUPATION AND HABITS OF LIFE	MODE OF OCCURRENCE	PREPARATION AND QUANTITY OF SPIRITS CONSUMED	GENERAL EFFECT	VISCERAL DISTURBANCES	RESULTS	REMARKS
51. Dr. F. Bailew, Montreal, Jan. 1901.	42 M	M	Carpenter, habitually temperate.	Took a small wine glass of what was supposed to be ordinary apple brandy in the morning and evening for several days, and on the 8th, three glasses in all.	Beyond the statement that it contained methyl alcohol, no other facts are wanted.	No ill effects until Monday, Nov. 15, V. = fingers gradually improved under active treatment; at 2 foot each eye, pupils rather dilated and sluggish. On Dec. 7, V. = 2 in. On Dec. 22, V. = 2 in. fields narrowed, fundus crossed, dimness, a mild spasmodic headache; on Tuesday awoke entirely blind.	After several days of blindness, on the 11th morning outduly blind.	Gradually improved under active treatment; at 2 foot each eye, pupils rather dilated and sluggish. On Dec. 7, V. = 2 in. On Dec. 22, V. = 2 in. fields narrowed, fundus crossed, dimness, a mild spasmodic headache; on Tuesday awoke entirely blind.	A pure case showing effects of a moderate quantity of methyl alcohol on a healthy and temperate man; in chronic toxic, visual fields contracted, vision R. 6/15, L. 6/27. On Dec. 22, V. = 2 in. blindness came on, showed no changes; visual fields rather dilated.
52. Dr. W. E. Brewer, Cleveland, O., Feb. 1901.	47 M	M	Labourer.	After a seven days' spree with some strange liquor, he awoke on the 8th, with a white eye, called wood alcohol.	The wood alcohol was that used for burning in an alcohol lamp. He had consumed a pint of spirits was drunk a divided dose of some wood alcohol.	Prostration and vomiting; after several days with blurred vision.	After several days of blindness, on the 11th morning outduly blind.	At end of 49 months, R. = 20, V. = 2 in. nerves highly atrophic, visual fields rather small, visual fields much reduced.	Seen by Dr. Foucher some months after the accident, as he is said to have come to Montreal.
53. Dr. Foucher, Montreal, March, 1901.	22 M	M	Labourer.	Admitted to alcohol and tobacco; during a morning, presumably for the first time, drank a divided dose of some wood alcohol.	He then began to have nausea and dimness of vision. There was vomiting, headache and some vertigo.	At 2 p.m. could no longer stand, at 5 was found lying on the floor during the night awoke with nausea and vomiting in the morning was prostrated by action.	"Half blind" the day after taking the alcohol.	Seen by Dr. Foucher some months after the accident, as he is said to have come to Montreal.	
54. Dr. W. H. Wilder, Chicago, May 10, 1901.	33 M	M	China Doctor.	On Dec. 21, 1903, drank some of the methyl alcohol used in his work of drying colors.	About a pint of methyl alcohol between 8 a. m. and noon.	He then began to have nausea and dimness of vision. There was vomiting, headache and some vertigo.	By 6 p.m. he was seen by a physician and then was blind, fingers were numb, pupils dilated, on the morning, totally blind remained so 14 days; recovered in two weeks or more.	At end of two and a half months, R. = 20, V. = 2 in. nerves highly atrophic, visual fields rather small, visual fields much reduced.	At end of two and a half months, R. = 20, V. = 2 in. nerves highly atrophic, visual fields rather small, visual fields much reduced.

DEVIATIONS OF THE NASAL SEPTUM.
A REVIEW OF ONE HUNDRED OPERATIONS FOR CORRECTION.*

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The 100 cases which form the basis for the observations on septal deviations have been selected from the case books of both hospital and private work.

Each case was one of more or less marked deviation. Care has been taken not to include in this list mere cartilaginous or osseous spurs, so that those cases tabulated under the head of "Spurs" represent cases in which these outgrowths were removed because it was thought that the physiologic function of the nasal chambers could be restored without recourse to the more formidable operative procedures.

In tabulating the result of the operations, a good result is noted when the object sought has been attained and does not mean that in each case recorded as "good" a perfectly straight septum has been secured, nor that each case has been entirely uneventful in its course.

Cases classified as "fair" were those which could not be considered successful either from an artistic or functional standpoint, but in which better breathing space and more comfort to the patient was secured.

The cases of failure require no comment, except to make an attempt to explain the cause.

In 100 cases there were 65 in which the Asch operation was resorted to—of these, in 47 the result is noted good. In 11 it was fair, 3 were failures and 3 failed to report after the operation, and the subsequent history is unknown.

In one case the Asch operation resulted in failure, but it was subsequently successfully corrected by a modified Watson-Gleason operation.

Taking these 65 cases of Asch operation, it is noted there were 48 in which the cartilaginous septum alone was deflected, and in these the Asch method was the sole operative measure employed. In the other 17 cases there were deviations of both osseous and cartilaginous portions of the septum with other complications such as synechiae, bands of cicatricial tissue, dislocation of the columar cartilage, etc., in which supplementary operative measures were employed. In most of these complicated cases, spurs were removed by the saw either at the time or subsequent to the operation. In 5 of the mixed cartilaginous and osseous deviations the Asch alone was performed.

Of the 48 uncomplicated cartilaginous deviations in which the Asch was done, in 37 a good result is recorded; in 6 the result was fair, while 3 failed to report, and the ultimate result is unknown.

Taking up the 17 complicated cases (mixed cartilaginous and osseous deviations): In 5 the Asch operation was relied on to correct the difficulty—of these 2 were only fairly successful, the other 3 were failures, one of these latter was subsequently successfully corrected by a modified Gleason-Watson operation.

Of the remaining 12 cases of this group, spurs, both cartilaginous and osseous, were removed either at the time or subsequent to the operation, and of these 11 were successful and 1 was fairly successful.

In 23 of the 100 cases the deviated septum was corrected by the Watson-Gleason method, supplemented

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and modified to meet the exigencies of the case. Of these 23 cases, in 9 the deviation involved only the cartilaginous septum. The reason this operation was selected as the proper one, was that in each instance a condition existed making the Asch operation inadvisable. In most of the cases, the deviation was so pronounced as to entirely block the nasal chamber, making it impossible to introduce the Asch instruments. Fourteen of the cases were well marked examples of cartilago-osseous deviations, which experience had taught were not well adapted for correction by the Asch method.

Of the 9 cartilaginous deviations in 8 the result was good, in 1 it was fair.

Of the 14 mixed (cartilago-osseous) in 11 the result was good; 2 fair, and in 1 the result is unknown.

Many of the complicated deviations presented conditions which made adherence to the strict lines of the Watson-Gleason operation inadvisable. For instance: In 4 cases it was necessary to remove large bony spurs before any operation could hope to be successful. In 2 others a dislocated columnar cartilage was excised before the operation was feasible—and in 1 case, masses of cicatricial tissue and a synechia were dissected out before attempting the operation.

The last group of 12 cases were those in which a careful study of the case made it seem possible to correct the physiologic disturbance by removing a mass of redundant cartilaginous or osseous tissue, or both. In all of these, the result justifies the measure adopted, for in each case good breathing space was secured and the subjective symptoms resulting from the obstruction were relieved.

In one case only of this group was any untoward symptom or sequela presented. In this case an attack of influenza seemed to be responsible for a septic attack, during which healing was retarded, and a large perforation resulted. The ultimate result, however, was all that could be desired.

In the 100 cases here tabulated, perforations occurred in 5. Four of these were after the Asch and 1 in which a spur was removed. The fact that no perforations resulted in the group of 23 cases in which the Watson-Gleason method was used, does not indicate that they are less likely to occur after this than other methods for correction. It is merely a fortunate circumstance. In other years and with other groups of cases, I have had perforations after this method in about the same proportion as in others.

SUMMARY OF CASES.

The total number of Asch operations was 65; Watson-Gleason operations, 23; number of spurs removed, 12.

The number of Asch operations in which the result was good was 47; fair results, 11, and 3 cases were failures.

One case which resulted in failure by the Asch operation was subsequently successfully treated by the Watson-Gleason operation.

The number of Watson-Gleason operations in which the result was good was 19; fair results were obtained in 3 cases, and in one case the result was unknown.

Good results were obtained in all the spur operations.

CONCLUSIONS.

The conclusions reached from a careful study of these and other cases are:

1. There is no single operation suitable for all cases of deflection of the nasal septum.

2. Each case should be a study unto itself and the

judgment of the surgeon must determine the operative measure best suited to that particular case.

3. The Asch operation is eminently satisfactory in the large number of cases in which the cartilaginous septum is alone deflected.

4. Osseous deviation and cartilago-osseous deviations are not suitable for correction by the Asch method.

5. Deviations of both the cartilaginous and osseous septum offer the most difficult problem to solve, and no one operation meets every indication, but in many cases the Watson-Gleason operation, modified to suit the case, offers a good chance for success.

6. Careful observation will discover a fair proportion of cases in which the removal of spurs either cartilaginous or bony, or both, will accomplish the best result; and it is more desirable to attain the result by this method than by the more formidable division of the septum.

7. There are a certain number of cases which must be classed as inoperable.

8. Perforations occur in about the same number of cases in all operations in which an entire division of the tissues of the septum is effected.

REMARKS ON SEPTAL OPERATIONS.

Operations for the correction of deviated septa are undertaken for the purpose of restoring lost or diminished function to the nasal chamber. The disturbance of function is made manifest to the patient by difficulty or impossibility of nasal respiration, necessitating mouth breathing, with all the ills this latter condition entails. Among the lesser, though by no means unimportant, effect of deviated septa there may be interference with excretory ducts, e.g., the nasal duct and the orifices of the accessory sinuses, and pressure neuroses. Any one of these conditions justifies an attempt to relieve by correction of the deviated septum. On the other hand, the correction of a deviated septum in a case in which there are no disturbing symptoms, is open to criticism.

Septal deviations, except in recent cases, are rarely sharply defined; we find associated with the septal irregularity thickening of the tissues—cartilaginous, in those cases in which the cartilage alone is involved; bony, in those in which the bone is also deflected, so that we have in each case a septum pushed out of line, plus a redundancy of tissue composed of either cartilage or bone, depending on the portion of the septum involved. This redundancy of tissue is not confined to the nasal chamber toward which the septum is deflected—not infrequently the concavity is found filled with these thickened masses.

These, then, are the difficulties to be overcome in the operation for the correction of the trouble, and that operation will be most successful which overcomes these difficulties. It is of more importance to carefully study a case on these lines than to enter into an elaborate description of the character of a deviation as to its position in the nasal chamber. It matters little whether a deflection is along the horizontal or vertical axis or is sigmoid in its shape so long as we have a proper appreciation of the amount of deviation, and the concurrent thickening. Each case should be studied in itself and both nasal chambers should be thoroughly investigated, the extent of the deviation noted, and the amount of thickened tissue comprised within the deviated area carefully estimated.

It is apparent from the complicated nature of the

difficulties to be overcome, that no one operation will meet every indication in the correction of a deviated septum. With a careful study of each case, we are in a position to decide which operation or combination of operative procedures will meet the indications in the case before us.

The more simple the operation, the less damage done to the nasal tissues, the better the result, and the less discomfort to the patient. If our study leads us to the belief that by paring off here and there, we may obtain sufficient room to restore the function of the nasal chamber, and to take off pressure on sensitive areas, there seems no good reason to do the more formidable, lengthy and painful operation, or to be more explicit.

If in a given case the removal of an exostosis or eehondrosis gives sufficient space in the nasal chamber to ensure good respiration, and take off pressure, the accurate replacement of a septum to a straight line becomes an unnecessary, not to say painful, refinement.

The early methods employed for the correction of deviated septa had for their object the one idea of making the septum movable at its base, thus enabling the operator to push it over to the position he desired.

The Roberts operation consisted of an incision along the line of the greatest convexity; the septum was then pushed over to the desired position and a pin introduced through the tissues externally held the septum in the corrected position.

The Steele operation aimed to break up the septum at its base, thus making it movable, by means of specially designed punch forceps—after correction the septum was retained by means similar to that of Roberts. While these operations were successful in a certain proportion of cases, they failed in a much larger number because knowledge of the conditions to be overcome in the early days of rhinology was not well understood.

In the modern operations, the thought of the designer of an operation has been to provide both for the correction of the deviation and the redundancy of the tissues.

Of all the modern methods, the Asch operation has been in my hands the most satisfactory for the correction of purely cartilaginous deviations. The cases which would seem to make an exception are those in which the deviation is so pronounced as to leave no space for the introduction of instruments between the septum and the outer wall of the nasal chamber, but even in such, it is in many cases a simple matter to make an incision underneath the most prominent portion, and push the septum over sufficiently to give space for the forceps. However, as many of the cases of pronounced cartilaginous deviation are associated with osseous deformity, and as will be seen later, the Asch operation is not deemed suitable for such, it would seem better to employ some other method in these.

The advantages of the Asch in the class of cases to which reference has been made, is its simplicity and the rapidity with which it may be accomplished. The results may not be better than other methods, but they are generally good and it is easy of execution.

The use of splints causes some annoyance, it is true, but usually this lasts but a few days, and the sense of comfort which they give to the surgeon as to the permanency of the correction more than counterbalances the discomfort.

In most of my cases this operation has been done under cocaine anesthesia. Previous to the adoption of the Asch operation I had been accustomed to perform these septal operations under cocaine.

The Roberts, the Steele, and later the operation which has since become known as the Watson or Gleason operation were all done many times without the use of general anesthetics, and in the main were accomplished with ease and without severe distress to the patient. The Asch operation is, in my judgment, a much less formidable one than any of those enumerated and accomplished in a much shorter space of time. It is for these reasons I have never felt that it was necessary to change the general plan to which I had been accustomed in the management of these septal operations.

The Asch operation, while leaving little to be desired in simple cartilaginous deviations, can not be relied on alone in those cases in which there is great thickening of the deviated portion of the septum. In such it becomes necessary either to remove these thickenings prior to the operation, or at a subsequent period.

With the purely osseous or the cartilaginno-osseous deviations, the case is different. In these the Asch operation has in my hands not been successful and for such we must turn our attention to some other method.

Fortunately we have in the operation known variously as the Watson or the Gleason operation, one that is admirably suited for such cases. This method of correction aims to provide for the redundancy by forcing the thickened portions through the incisions in the septum over to the roomy nasal chamber from whence it may be subsequently removed should it be deemed necessary.

Of course, this same operation gives very excellent results in the purely cartilaginous deviations, but the Asch is preferred for reasons already given.

The Watson-Gleason operation, however, does not adequately provide for every osseous or cartilaginno-osseous deviation. There are cases in which the osseous thickenings are so great or the position they occupy in the nasal chamber such that they can not be included within the deviated flap which is thrust through the septal incision. In these, however, the removal may be accomplished by the saw, either prior or subsequent to the operation for correction.

One or the other of these operative procedures, with modifications and supplementary operations to suit the needs of the case, with the selection of certain appropriate cases for the removal of spurs as the sole method of correction, will meet, in my judgment, all indications in any operable case of deviation of the nasal septum.

A number of operations have been designed, one purpose of which is to preserve the mucous membrane of the septum. Some of these aim merely to preserve the membrane on the opposite side to the deviation; others are planned to save that on both sides of the septum.

Theoretically, the preservation of the mucous membrane of the septum with its rich blood supply is to be desired. Practically, however, few cases of deviated septa are observed in which the mucous membrane may be separated from the underlying cartilage save by tedious and prolonged dissection, and in the osseous portion of the septum, the anatomic position of the part with the limited amount of workable space renders such dissection practically impossible; but even if it should be possible to make a clean dissection, it is a question whether the benefit derived therefrom compensates for the tedious operation with its attendant fatigue to both operator and patient.

For a number of years I have ceased the attempt to preserve the mucous membrane of the septum on either side, and from the reports of operations so performed

as compared with my own in the matter of perforations, tardy healing and other postoperative embarrassments, I have seen no reasons to regret the step.

Krieg, Boennighaus, Krebs, and more recently Hajek, in Europe, and almost simultaneously Freer in this country, have described and warmly recommended what is known as the "window resection." In this operation the mucous membrane is dissected from the deviated portion of the septum and that portion of the septum which is included in the deviation is entirely removed, the mucous membrane alone remaining in the place formerly occupied by the cartilage. It is stated that ultimately the space resected becomes the seat of a thick fibrous tissue.

Hajek states that in 35 of the 100 cases in which this operation was performed, and which he was able to follow for from one to two years, the results were uniformly good, and that similar good results are not obtained by any of the usual methods. He further says: "I ought, it is true, to add at once that the method is complicated, technically difficult and of long duration (half an hour to one and a half hours), and that it requires much patience on the part of the patient and operator. For this reason the value of the method must not be gauged by the results of the first few cases on which anyone may operate, as quiet and circumspect working is only acquired after some time. To the difficulty just named the disadvantage was added of a large wounded surface on the convexity being left until cicatrization had taken place, and not rarely even afterwards formation of crusts becomes an increased source of subjective troubles for the patient. One could not help feeling sometimes that the price which the patient had to pay, in order to obtain in course of time a free passage through the nose, was rather too costly."

An endorsement of this sort from so high an authority and expert rhinologist as Hajek will not tend to popularize this operation; indeed, while so difficult and tedious an operation is a testimony of the technical skill of the operator it is for this reason not likely to be popular because few possess such skill; more than this, however, there are but a limited number of patients knowing the nature of the operation beforehand would be willing to undertake it to obtain, as Hajek observes, "a free passage through the nose."

American rhinologists must certainly take exception to the statement of Hajek's, that results are obtained by the window resection operation, not possible by other methods.

Operations designed by American rhinologists are little known abroad. In a noteworthy discussion on intranasal operations held during last winter before the London Laryngological Society, at which many of the most distinguished laryngologists of Great Britain were present, much was said of the French, German and English operations and little of the American.

The Asch operation was the only one even mentioned, and but one speaker made any claims to having practiced it, and this in only a few cases.

In an editorial in the *Journal of Laryngology* of January, 1904, devoted to the above meeting of the London Laryngological Society, the editor says: "The question of the preparation and after treatment in cases of intranasal operations is one to which no experienced rhinologist will refuse his earnest attention. To many such, it must be astounding to read the recommendations of energetic surgical treatment in the interior of this organ found in various articles, and notably those issuing on the other side of the Atlantic.

"There may be climatic conditions or other circumstances leading to immunity from postoperative embarrassments on which the practitioners in these islands cannot depend. None will deny that the noses with which we have here to deal, decline in many cases to recover from the operative interference in the kindly way to which many of our Transatlantic colleagues seem to be accustomed."

Passing by the sarcasm which is contained in this editorial, in the reference to American intranasal operations, it is evident from the editorial and the comments brought out in the above mentioned discussion, that the British rhinologist has many difficulties attending the postoperative period of his intranasal operations. It is also evident that methods introduced by American rhinologists have very little place.

No American rhinologist can truthfully say that all his intranasal surgical measures have an uneventful postoperative period, but we do not often see such distressing results as many of our London colleagues picture.

Almost every village in this land has a rhinologist who will show you good results from an Asch, a Watson, a Gleason or many other operations, and these are obtained for the most part without the horrible picture of septic complications and other disturbances which the editor draws. Nor is it necessary to invoke the aid of climate, for this vast land provides most any kind of climate.

As to "energetic surgery," can any of our American operations vie in energy with those of Krieg, Boennighaus, Hajek or Moure, and yet these are the operations that received most favorable mention at the London Laryngological Society.

With the many devices for the correction of deviated septa at our command, there are few cases which may not be relieved by one or the other method or combination of methods. Still there are cases in which it were better to stay our hand, and a few which may be called inoperable. Notably those in which syphilis or previous operative interference have left large cicatricial masses in each nasal chamber possibly coupled with a crumpled and crushed septum.

We have all seen these cases and some of us perhaps have learned from experience the wisdom of abstinence from active interference.

DISCUSSION.

DR. R. C. MYLES, New York City.—There is some lack of comprehension in many minds as to the methods pursued by different operators. I have had experience with each of the different methods and have seen failures resulting from the work of each of these men themselves. Asch insisted that the bony septum had nothing to do with this operation, and yet constant reference is made to the bony septum in speaking of the Asch operation. It may be that someone has since modified it in that particular. For the general surgeon, no other operation is equal to it, but while in some cases it may be our duty to do this operation, there are other methods which are better. The physician should ask himself whether he would personally submit to this operation. As to the triangular cartilage, that is a different proposition. In some cases it is better to take off part of the outgrowth and a little of the outer wall, and this I do in many of my cases. I find that is much better than extensive breaking up of the septum. As to the Watson-Gleason operation, it is excellent if the case is a suitable one, but if the septum is thin it is not applicable. The septum is not stiff enough to hold in position and some other operation will be found better. Perforation is one of the most serious propositions we encounter. They do not bother the

operation much because he does not see them. The anterior perforations are the only ones which give any trouble. I have seen them extend all the way from the sphenoid to the end of the septum.

DR. EMIL MAYER, New York City—The Asch operation deals only with the cartilaginous septum, and all the writings of Asch and also my own distinctly state that the cartilaginous septum is to be thus treated. The results obtained by Dr. Gibb in treating the cartilaginous deviations by the Asch operation are certainly very gratifying. I have no hesitation in indorsing that method to its fullest extent, and believe that for simplicity, rapidity of performance and ultimate results, it is the best method yet devised. No one method is good for all cases and no one should be welded to a single procedure. The operation is certainly best done under general anesthesia, and I recall a case that delayed operation for over a year because of the unwillingness of the patient to undergo the anesthesia. He finally consented to take ether, and was very grateful to me after for my insistence. The incisions should go through from the deflected side, and the segments broken through with the finger; the straightening forceps should not be twisted about but introduced in place, tightly closed, and held with all the firmness possible, but without rotary motion. Regarding the tubes, there is some complaint that the tubes irritate the tip of the nose and also that granulations form. Others favor the non-removal of the tube for a fortnight after operation. We are all ingenious enough to devise instruments to fit unusual conditions; why not fit the tubes to our patients? I can show tubes of all manner of shapes that have been fitted to various patients, and a perfectly fitting tube can not produce ulceration. Granulations are readily swept away. I remove the tube daily and I have fewer perforations than those who do not, and materially reduce the length of time of wearing the tube. Seven years ago I operated on a child of five years for deviation, doing an Asch operation. The septum was straight and a slight linear perforation resulted. Three months ago he fell on some stones, there was great ecchymosis and on its subsidence a deviation as bad as ever existed. I did here the Watson-Gleason operation, using the perforation for the posterior incision with most gratifying results. In conclusion I wish to reiterate that it behooves us to select such a method as will be best suited to the individual case.

DR. GEORGE L. RICHARDS, Fall River, Mass.—I would urge one operation which seems to me simpler, and, in many cases, better than the Asch operation or any of its modifications. Much of the difficulty in after-treatment arises from the fact that it is hard to keep the inferior segments in place. I make a horizontal incision on the convex side the full length of the convexity, cutting obliquely from below upwards and going clear through into the opposite nostril. Enough of the cartilage of the lower segment is then dissected out in the same manner as in the submucous operation to take care of the redundancy which occurs when the septum is brought into the vertical position. In order to maintain the lower segment in position the nasal saw is then taken and the lower segment sawed almost through at its base at the very floor of the nose. With the finger it is then easily straightened so as to be brought into the vertical position and in direct contact with the upper fragment. A loose-fitting hollow splint is maintained in position for a number of days until complete union in the new position has taken place. This operation can be done under cocaine and will result in a straight open nostril. It is limited entirely to operations on the cartilaginous septum.

DR. L. E. WHITE, Boston—I differ with Dr. Gibb, for I think there is one method of correcting all deviations. I have never seen one that I was not willing to attempt. The ordinary cartilaginous conditions in the anterior part are easily corrected by the resection method. The objection that it takes too long does not apply to these cases, for it can be done under cocaine anesthesia with the patient in the recumbent posture. In looking over my records I find that I have done 33 with the saw, 10 by the Watson-Gleason method and 5 Asch operations.

I have now abandoned all these and adopted the window resection method, of which I have done 27. The results following the last named are better than in all the others. It is true that I have had three perforations out of these 27, but they occurred in my first eight cases. I have had no perforations in the last 19. So I think these three were due to inexperience, the lack of proper instruments, and in one case to either pressure of the gauze or too much adrenalin, which caused sloughing. This operation is more accurate, since it is done under the eye and every part of the deflection can be seen as it is removed. We have a higher standard in window resection work, for we do not call a result good unless we get the septum in the median line. Splints do not have to be worn. They are a great source of annoyance to the patient. There is greater rapidity of recovery. The mucous membrane is frequently smooth at the end of three weeks, while the other methods require five or six. The patient can go to work two days after this method has been employed. There is also lack of pain, due to absence of traumatism and greater freedom from sepsis.

DR. W. S. ANDERSON, Detroit—I speak in favor of the window resection method. I have done the other operations a number of times, but feel that the window resection method is the most satisfactory. In my experience, cartilaginous deviations alone are not very common. My cases usually have some bony deviation as well, and the resection operation seems to give the best results. It takes longer to do the operation, but the shorter after-treatment compensates for this. Another advantage is that it can be done under cocaine. Patients are not confined to their bed or room and the after-treatment is such that a business man does not have to be away from his business more than a day or two. The operation on the cartilaginous septum alone can be done quickly, but the bony part takes a longer time. I have had a few perforations, but they were all in my earlier cases. I do not believe we can practice any operation without an occasional perforation.

DR. OTTO T. FREER, Chicago—I continue to correct all varieties of deflections of the nasal septum by the window resection or submucous method, for the principle of that operation, the absolute removal of the bent cartilage or bone, unlike the fracturing methods, makes complete and lasting relief from the nasal obstruction a positive certainty, no matter what be the size, shape or position of the deviation. The window resection needs no longer either defense or advocates. It needs, however, to be saved from such of its friends as are attempting to do the operation with an imperfect conception of its character and crude instruments; imperfect results due to work of this kind will injure its popularity. Both from publications and personal communications I have found that the idea prevails that the mucoperichondrium or mucoperiosteum covering the deviation should be pushed back by blunt or chisel-like instruments, much as the skin and periosteum are scraped off from the mastoid process. This notion is incorrect. The soft cartilage does not offer a good surface for scraping and, in addition, in almost every case, the mucoperichondrium, over the anterior one-third to three-fourths of the area of the cartilaginous deviation on both sides, is so firmly grown on to the cartilage that only sharp dissection with keen, thin-bladed knives of proper shape makes the separation of the mucous membrane from its attachment possible. Back of the vertical summit of the deflection on the convex side and above and behind the deepest hollow on the concave one the mucosa may usually be undermined, not pushed off, with dulled thin-bladed instruments; thicker chisel-shaped ones are not at all suited to the purpose. The multiplicity of my instruments for dissection has been criticised. The reason for their number is the necessity for many little blades attached at various angles to dissect parallel to the many planes offered by different deviations. In addition the knives must be suited to cut deep in the naris or far in front; some must be rounded and sharp on their front ends for places where the side of the blade can not be used; some blades must be dull and others have a razor edge. All these qualities necessarily multiply the instruments somewhat, but, their number enables the operator to always find the knife to

dissect most readily in a given place. All the blades were designed gradually as successive operations showed the need of peculiar shapes. In the average case not more than perhaps eight different blades will be used, but the odd ones will fill a need at some time. The shank and handle of the knives should be in a straight line. If they form a so-called nasal angle the sense of direction of the hand is interfered with and its motions are made complicated. The little cartilage knives are very important as they enable the operator to remove the entire cartilaginous deflection in one piece in most cases, thus saving a great deal of time and reducing the time of operation in cartilaginous deflections often to but thirty minutes. For forceps I still prefer the Grünwald punch. It reaches to the back of the nares and is not so large that it interferes with exact vision. A forceps that does not reach to the posterior border of the vomer in a large man is too short for use. The use of the chisel I confine to the base of the septum since Dr. Christian R. Holmes, at the Saratoga session in 1902, spoke warningly of its employment on the higher parts of the septum on account of the danger of shattering the delicate bone and creating far-reaching fissures. I operate now on all cases with the patient recumbent on a high operating chair. This avoids the faintness that often overcomes him when sitting, puts him at ease and the operator has more freedom of motion when he stands beside his patient than when he is sitting. To trim off remains of the deviation along the base of the septum I have the patient sit in a chair for a few minutes at the end of the operation. As a substitute for the expensive Kirschstein light a 50-candle power, pigtail filament, stereopticon, incandescent, Edison light, attached to a stand, may be used for reflection with the head mirror.

Dr. E. E. FOSTER, New Bedford, Mass.—The resection of the nasal septum mentioned by Dr. Gibb has not received in our country the proper amount of consideration and trial that it deserves. The Germans have for a long time resected the septum with much better results than we obtain from the Asch, the Gleason or any of the modifications of these or similar methods. Freer and White have been resecting the septum for the past two or three years and report good results. Their mucous incisions, however, are made in such a way that retraction, curling, perforations and granulations are more apt to occur than in the more simple operation of Killian, Jansen, Menzel, et al. Their operations are also complicated with many specially devised instruments. The submucous resection of the septum as done by Professor Killian consists of one straight incision through the mucous membrane over the cartilaginous part of the septum, about three-quarters of an inch long and nearly at right angles with the floor of the nose. The perichondrium and periosteum of this side of the septum are elevated from that part of the septum to be removed; then an incision is made through the cartilage, in line with the first mucous incision, to the perichondrium of the opposite side. Through this last incision the opposite mucous surface can easily be elevated from the septum. The two mucous surfaces thus elevated are separated with a long Killian speculum, leaving the cartilage between the blades. The septum can now be removed with scissors, Hartmann's concho-tome or Jansen-Middleton's forceps. In a few cases a chisel may be used to remove the lower part of the vomer, but should not be used until the overlying bone has been removed. The mucous incision can easily be closed with one or more sutures, but as a usual thing they are not required. The inferior meati are loosely packed with cotton, to be removed on the following day. I saw a large number of patients in Killian's clinic on whom this operation had been performed. All had a straight, smooth septum. In many of the older cases the septum was firm, there being a re-formation between the two mucous layers. I did not see a deformity of the nose as a result of the operation. The Killian long speculum and the elevator are the only instruments required that are not contained in a laryngologist's armamentarium.

Dr. H. H. BRIGGS, Asheville, N. C.—I have had experience with 11 cases of resection operation. The first two were done with the instruments used in ordinary nasal work, and

were successful in restoring the function of the nostril except that perforations resulted, one 3 mm. by 6 mm. and the other nearly twice as large. The remaining cases were done with the Freer instruments devised especially for the resection operation, and the results have been very gratifying. I have had some difficulty in maintaining the flaps in place, but have overcome this in the last few cases by inserting a suture through the corners of the flaps and through the mucous membrane immediately below, after which the packing can be done without fear that the flaps may be misplaced. I consider the resection operation the preferable one in the great majority of deflections. It is tedious and requires much time and patience, but you are amply repaid for this in the end.

Dr. KASPAR FISCHER, San Francisco—In all intranasal operations in which splints are not necessary we have to decide whether we should pack the nose or not. If we do not pack the nose we are liable to be called out at any time of the night on account of a secondary hemorrhage; if we do pack, the patient may pass a sleepless night from the discomfort of the packing. I would like to draw your attention to my method of using collodium as a dressing after nose operations, published in the *Archives of Otolaryngology*, 1902.

Dr. JOSEPH S. GIBB—I am glad that Dr. Myles and Dr. Mayer are, in the main, in accord with my views as to the indications for both the Asch operation and the Watson-Gleason. I fully coincide with Dr. Myles in that the Watson-Gleason does not meet every indication in bony deviations, and that it is necessary, in some cases, to do supplementary operative work. Dr. Mayer has given me too high a number of good results in the Asch when he states there were 47 cures in 48 cases. The figures were 47 cases in which the result was good, 11 in which the result was fair, and 3 failures. I have not followed the practice of Dr. Mayer to use general anesthesia in the Asch operation. Nearly all the cases reported were done under local anesthesia. This, I presume, is a matter of custom. I have been accustomed, for years past, of employing only local anesthetics in all the various methods for the correction of deviated septa, so that when I began to do the Asch, a much less formidable operation than many of its predecessors, I could see no reason to change my method. In the main the results have been good, and I never use general anesthesia in these operations unless requested by the patient. In reply to Drs. White, Anderson, Foster and Freer, who have spoken so favorably of the "window resection" method, I would say that the time limit did not permit me to reach this part of my subject, and that I have little to add to what is said in the body of the paper. While I have had little experience with this method, I still believe, as stated in the conclusions, that it will not meet every case. I am sure there are cases of marked cartilaginous and osseous deviations in narrow nares, complicated, as is so often the case, by largely hypertrophied turbinates, in which the mucous membrane is so "thinned out" over the deviated portion as to make anything like a clean dissection absolutely impossible.

TUBERCULAR LARYNGITIS; PROGNOSIS AND TREATMENT.*

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In considering the prognosis of tubercular laryngitis it is my desire to do so under three heads:

1. In regard to local lesions.
2. In regard to restoration of function.
3. In regard to life.

Irrespective of the character of the local lesions it is impossible to give an abstract prognosis concerning them.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otolaryngology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

Most careful consideration must be given the pulmonary and general condition of the patient. With extensive and rapidly breaking down pulmonary areas the reparative process in the larynx may be *nil*, as it is in other parts of the body. With slight pulmonary involvement, general condition good, the prognosis is more favorable. Laryngeal manifestations seldom improve under any treatment unless the pulmonary and general conditions improve.

With increased activity of the pulmonary disease, further infection of the larynx is likely to occur through the lymphatics and vessels or by direct infection of the bacilli in the sputum; or, again, the laryngeal disease progresses owing to the general resistance being diminished. We must consider the location of the lesion, area and depth of the infection, and also if many distinct places are involved. If the entire larynx is affected, including the perichondrium and cartilages, the case is hopeless. Ulcerations in the commissure and on the epiglottis are, in my experience, most intractable. Those involving the true and false vocal cords seem to yield more quickly. Most prompt and energetic treatment is necessary to limit destruction of the vocal cords in order to save the voice. There is a direct relation between extent and depth of ulceration and cure. Deep infiltrations are followed by the most extensive ulcerations. The more superficial ulcerations are more amenable to treatment.

LESIONS IN LARYNX.

The lesions found in the larynx may be placed under the following heads:

1. Infiltration: Superficial and deep.
2. Ulceration: Superficial and deep.

Both conditions are associated with more or less edema, which is usually found in the parts with underlying loose connective tissue, as in the epiglottis and aryepiglottic folds.

Infiltrations, both superficial and deep, may remain quiescent indefinitely, depending on the blood supply and the change in the tubercles. The tubercles undergo the same change as in other parts of the body, viz.: *a*, softening; *b*, fibroid limitation (encapsulation); *c*, calcification. Ulceration follows softening; this in turn may be followed by cicatrization as a result of treatment. I have never seen a case of spontaneous cure of tubercular ulceration in the larynx. If fibroid change surround the tubercle, it may remain quiescent, but it is not destroyed. The term cure can only be applied to given laryngeal lesions which are replaced by scar tissue or to softened areas which have become impregnated with lime salts.

Restoration of voice will depend on the amount of muscular involvement and on the integrity of the vocal cords and freedom of the articulations. Laryngeal tuberculosis seldom if ever produces death *per se*.

INFLUENCE OF CLIMATE.

It is of the utmost importance that the pulmonary and general conditions be improved as rapidly as possible. The removal of the patient to a proper climate is imperative. The arrest of the pulmonary disease will lessen the probability of further laryngeal infection.

While good results have sometimes been obtained by laryngologists despite unfavorable climatic conditions, yet the prognosis in regard to life, as well as a cure of the laryngeal lesions, is much more favorable in a suitable climate.

PROGNOSIS.

To say that all cases of laryngeal tuberculosis are fa-

tal is erroneous; I have seen many cases in one stage or another recover; some who were apparently doomed, in which extensive involvement of the larynx had occurred, including considerable destruction of the epiglottis. I have had two cases in the last year where from one-fourth to one-third of the epiglottis was destroyed, and yet the patients recovered.

Many have recovered where the true and false cords and commissure were affected, either alone or in combination.

In every case it is our duty to give these patients the benefit of our best efforts as early and as thoroughly as possible.

Too often patients present themselves with a hopeless condition of the lungs as well as of the larynx, yet we must not be discouraged in our efforts to save those who have a possible chance for life.

TREATMENT.

In case active surgical procedures are deemed unwise, the treatment consists of thoroughly cleansing the larynx, followed by soothing applications and sprays. I have seen cases of infiltration remain quiescent from one to five years, and still the parts are intact; therefore, we can not deem it best to endeavor to remove this infiltrated area in all cases.

If surgical procedures are decided on, however, the infiltrated area should be very thoroughly removed, and the parts stimulated to promote cicatrization. When once ulceration has occurred, however, I have seen nothing but good follow a thorough curettement and the energetic application of strong germicidal remedies. If vegetations are engrafted on the ulcerated areas they should be removed before any other treatment is instituted, so that the remedies may be more effective. The treatment by electrolysis has not been widely used, nor has the influence of the x-rays or radium been sufficiently demonstrated to warrant their general use.

In the treatment of the ulcerations many remedies have been used, and I desire to again call attention to the value of formaldehyd. Since my report in regard to this remedy, read before this Section in Denver in 1898, I am still further convinced that it is a remedy of very great value. It is satisfactory as a germicide, tends to shrink the exuberant granulations and stimulates the healing process. It is probably more penetrating than any other remedy which we possess. The best results are to be obtained by the persistent use of formaldehyd. In addition to the office treatment, I direct my patients to spray the larynx several times daily with a formaldehyd solution (gtt. 1 to 3 to ounce). The local applications of formaldehyd are made with a stronger solution, 3 to 5 per cent. This I follow with insufflation of aristol and orthoform, and lastly, the intratracheal and laryngeal injection of oil containing menthol oil of cinnamon, etc. Formaldehyd should be thoroughly rubbed in.

Too much stress can not be laid on the proper use of this remedy, as many have failed to get its beneficial results owing to its too infrequent use. In addition to its influence on the ulcerated areas, it is a splendid prophylactic. My experience with formaldehyd extends over a period of ten years, and I have seen the most gratifying results from its use.

DISCUSSION.

DR. W. FREUDENTHAL, New York City.—It does not accord with my experience of tubercular laryngitis that the local manifestations seldom improve unless the general condition gets better. In laryngeal tuberculosis we may expect anything

and everything, and I have seen cases improve very much while the process in the lungs was getting worse rapidly. When we succeed in putting these ulcerations at rest by means of a narcotic, Nature will do the rest, and they often heal up while the process in the lungs is getting worse. Another method of treatment I have pursued has been the use of radium intralaryngeally. I have introduced it into the larynx and left it there for ten minutes at first, and then for half an hour, daily. The result was very interesting. Some of you remember the time when Koch's tuberculin was first injected and the changes that were produced in the larynx. The changes observed after the use of radium were almost identically the same. This patient had a large larynx, with ulceration of both vocal cords, but after a few sittings infiltration set up, edema appeared, and after the tenth day I had to stop treatment for a day. These infiltrations grew so that she could speak with some voice, and she was delighted. While I did not accomplish a great deal, it was an interesting experiment.

DR. W. S. ANDERSON, Detroit—The treatment of laryngeal tuberculosis with soothing applications gives better results than with those that are irritating. I also wish to indorse the value of intratracheal injections. I find them very efficacious in relieving the symptoms, allaying cough and improving the patient's general condition. I always use olive oil as a base, and such drugs as guaiacol, camphor, menthol, oil of thyme, oil of wintergreen and oil of eucalyptus, and have found them very helpful.

DR. W. E. CASSELLBERRY, Chicago—I welcome any new remedy for tuberculosis of the larynx in the hope of improved results, but confess in advance to skepticism. I have treated many cases in different ways, and the more I see of it the more I feel that local remedies have but little influence on the ultimate outcome of the disease, although often of incalculable value to relieve pain and distress. A few cases recover and some run a slow course, with periods of distinct betterment, but the definite improvements which I have observed have followed increasing the general resistance by correct mode of life rather than local medication. Concerning the surgical treatment, I am in accord with Dr. Gallaher, that one should hesitate before breaking up a mere infiltration. I have seen the use of the curette followed by a rapid aggravation of the condition. If, however, there is already an active ulceration, which is circumscribed and accessible, so that one can make a thorough curettement, I have seen the best results follow, especially if supplemented by the application of lactic acid. Therefore, I do not wish to disparage surgical treatment, but to plead for a wise selection of cases on which the curette is to be used. I differ somewhat as regards tuberculosis of the larynx going *pari passu* with the condition in the lungs. I have seen cases where death was practically dependent on the larynx, and I have also seen the reverse condition, where the larynx continued to improve while the lungs grew progressively worse. However, these cases may be exceptional. I would like to know how Dr. Gallaher manages to have the patient spray his own larynx. I have no apparatus by which a patient can spray his own larynx effectively with other than oily medicaments. In this connection, I would like to call attention to the spraying nozzle of Dr. Freer, which goes around the epiglottis and into the larynx, but it requires a physician to use it.

DR. KATE W. BALDWIN, Philadelphia—I want to mention the use of carbolic acid in these cases of tuberculosis of the larynx. After thorough cocaineization, the ulcer is touched with carbolic acid. I have seen a number of cases where the ulcer was absolutely cured in this way, especially where the treatment was instituted in connection with the x-rays.

DR. ROSS H. SKILLERN, Philadelphia—I agree with Dr. Freudenthal regarding the laryngeal and pulmonary lesions not being dependent on each other, so far as the general condition of the patient is concerned. I have often noted marked improvement in the local lesion, while the general systemic condition of the patient was growing steadily worse. The prognosis depends more on the general systemic condition than on the throat lesion and may be said to be favorable if the case is

seen at an early stage of its development and the tuberculous deposit in the larynx is localized. Extensive curettement should only be employed in those cases in which there is a fair chance of curing the disease. Regarding the preparation anesthetic, I have used it for some months, but fail to note any advantages over orthoform, although when the latter loses its effect anesthetic may be used as a very satisfactory substitute.

DR. OTTO T. FREER, Chicago—I think the galvanocautery should not pass unnoticed as a therapeutic measure in tubercular ulceration of the larynx. It produced complete recovery in one of my cases presenting epiglottic and interarytenoid superficial tubercular ulcers. The edematous infiltrations of tuberculosis are, of course, not suited for it. Recovery in any case of tubercular laryngitis, in my experience, is a rare event, and I was surprised at the rapidity with which thorough cauterization in this case arrested the disease. The good vitality of the patient and her moderate susceptibility to tuberculosis were aids in producing the recovery. If these conditions had not been present the treatment would doubtless merely have aggravated the disease.

DR. J. F. MCCONNELL, Las Cruces, N. M.—I have seen a great many of these cases which have come from high altitudes down to a low altitude in very bad condition. I have used a 2 per cent. solution of methylene blue in these cases with most gratifying results after all analgesics had failed. I apply it in the ordinary manner with the McKenzie forceps, in a 2 per cent. aqueous solution, taking care to get a good quality of methylene blue. The action is so prompt that in three or four hours all the annoying symptoms are relieved and the patient gets great benefit from this palliation. I know of no real effect on the course of the disease other than that due to climatic conditions, but it has a very decided palliative action, and is well worth trying.

DR. THOMAS J. GALLAHER—The method of spraying the larynx is not learned in a day, but these patients make repeated efforts and eventually yield to instruction. It is done with difficulty in a number of cases, but it does a great deal of good. It is simply a question of trial, and I am satisfied I can teach four out of ten to use the spray. After an experience of fifteen years with a large number of cases of laryngeal tuberculosis, I make the statement with a good deal of thought that the condition in the larynx does not often improve unless that of the lung improves also; but the converse of that I have not found to be true. While the larynx may be retrograding, the lung is often improved, this probably being due to the climatic effects on the pulmonary areas. In many cases nothing but breaking down of the larynx can result, though the lung may improve very rapidly. The curette must be used carefully, and we should always hesitate about breaking up a fibrous capsule. If it is once undertaken, it should be done with the idea of thorough removal, and it must not be attempted unless that can be done. After ulceration has begun, I do not know of any other treatment which compares with it. It is capable of producing much good, for the larynx is breaking down more and more; many of these cases will not improve without it. Methylene blue and intratracheal injections of various kinds all have their place. The influence of these on the cough is often quite marked and lasts for some time.

Black Penis from Dose of Antipyrin.—M. Malherbe of Nantes was consulted by a young man, recently infected with syphilis, on account of a large bluish-black patch which had suddenly appeared on the dorsum of the penis. He supposed that gangrene was imminent, but Malherbe reassured him on learning that he had taken 1.5 gm. of antipyrin six hours before to banish an attack of migraine. Aside from the discoloration the tissues were entirely normal, and there was no other discoloration elsewhere on the body. Fournier called attention more than five years ago to this possible action of antipyrin on the penis. Malherbe thinks that the phenomenon is due to an intense congestion entailing actual ecchymosis. The young man was in the habit of taking 1 to 2 gm. of antipyrin occasionally to cure migraine and had always found it answer the purpose, with no by-effects. The details are given in the *Gazette Méd. de Nantes* of June 18.

INTUBATION.

INCLUDING A REPORT OF SOME UNUSUAL CASES.*

BURT RUSSELL SHURLY, M.D.
DETROIT, MICH.

Notwithstanding the active opposition of many prominent British and continental specialists, the administration of large doses of antidiphtheritic serum and intubation have become generally recognized as among the most successful life-saving methods in the hands of the pediatrician or laryngologist. This treatment, however, of laryngeal diphtheria in private practice has not attained the wide field of usefulness which it deserves. The larger and earlier doses of antitoxin have developed new indications for the treatment of tube cases, and greatly reduced the mortality.

In an experience with over 350 intubations with antitoxins in private practice some peculiar difficulties have been encountered which I have not observed to have been recorded in our literature, except meagerly. The usual technic of intubation may be necessarily modified in a hurried introduction of the tube. When the handle of the introducer can not be pressed well down against the chest wall, the tube may be passed in a horizontal, lateral position into the pharynx, and then tipped to the vertical, engaging the left index finger when in position; or the index finger and the tube resting against it in proper position may be passed simultaneously to the opening of the larynx.

A study of the various modifications of the O'Dwyer instruments made by Collin, Baer, Tsakeris, Egide, Rabot, Bauer, Fisher, Trumpp, Bayeau and others is exceedingly interesting. We are led to the conclusion that the European surgeon is endeavoring to avoid the use of our perfect American instruments, but with more expensive results. Let us join with Waxham, Nicoll, McCollom, McNaughton and others in a plea for the ideal instruments and tubes of O'Dwyer. Let them remain in their perfection as a fitting monument to the genius of the master who presented them. Two or more sets of seven tubes are essential for careful work.

The operation should not be attempted without practice on the phantom, anesthetized dogs, or the cadaver. Traumatism, followed by superficial and deep ulceration, retained tubes, or the spasmodic ulcerous condition, characterized by frequent autoextubations, result in many cases when an ill-fitting tube is worn. The selection of a proper tube for each patient deserves the most careful consideration. The great value of experience in technic and the dangers and accidents of intubation have been pointed out by the numerous writers.

Variations in the size of the lumen of the larynx are found in different races. An Italian child of three years frequently requires a two-year tube, while those of Polish or Bohemian parentage, for example, will frequently wear a tube a size larger than the American subject. The presence of adenoids and other nasal obstructions so common in children who develop severe laryngeal diphtheria are also important factors in the development of malformations. These patients often require smaller tubes than the age would indicate. The peculiar abnormal topography of the larynx, as a high or low variety, may be noted as a family anomaly, where two or more intubations are required in the same household. The expert sense of touch alone can reveal the peculiar deviation from the normal larynx in the living child. A

plea is made for an accurate interpretation of abnormalities or pathologic conditions by digital examination of the larynx. This is not attained without considerable practice.

The laryngologist who is not an intubationist does not frequently resort to digital examination of the larynx. As the late Dr. O'Dwyer has said, little is known about malformation of the larynx in children. A considerable number of infants undoubtedly die of undetected congenital stenosis of the syphilitic, vestibular, web or pouch varieties. The diagnosis must be carefully made before operation. I have been called to intubate cases of asthma, pneumonia, acute laryngitis, laryngismus stridulus, retropharyngeal abscess, foreign body in the trachea, laryngitis of measles, and edema, which were mistaken for the stenosis of diphtheritic laryngitis.

Intubation is usually considered an easy operation, especially in a child from 3 to 4 years of age. In point of fact, it may be exceedingly difficult or impossible. Ingals and Abt of Chicago and Ranke of Munich report impossible cases. My experience will add one case to the list. Operation was attempted many times by my colleague, Dr. P. M. Hickey, and myself in a child 1½ years of age, suffering from laryngeal diphtheria until tracheotomy was necessary. The right arytenoid region was infiltrated and firm under the finger. The one-year tube was used and engaged the laryngeal opening perfectly. With gentle pressure it could be advanced about one-half inch, only to meet with a firm obstruction. Intubation was attempted after tracheotomy, with the same result. When the child died some days later of bronchopneumonia, a postmortem was refused. The patient apparently had a congenital stenosis just below the right arytenoid.

In endeavoring to teach students the proper technic serious difficulties are presented, which are given meager consideration in the various books on the subject. Some men never can learn to intubate. The prominent difficulties, briefly stated, are: Large or clumsy fingers, imperfect tactile sensibility, insufficient attention to detail, poor knowledge of the anatomy of the larynx and adjacent structures, the use of too much force or tendency to carry the tube too far posteriorly into the esophagus. A considerable number of cases have come under my observation recently where the former operator had failed to intubate. The causes of failure have been carefully studied. They are exceedingly interesting and instructive. An intubationist can not be considered an expert until he has performed the operation on at least 25 cases. The usual difficulties are then overcome and confidence is established.

CAUSES OF FAILURE TO INTUBATE.

The most common causes of failure are, first, the faulty position of the patient. With the head thrown well back, we have a direct route into the esophagus. With the patient "held as if hung from the head," the larynx is readily entered.

Second, proper technic is dependent on drawing the tongue well forward. We frequently note the effort of patients who have been previously intubated to resist the introduction of the tube by forcing the root of the tongue backward and holding the epiglottis well over the opening of the larynx.

Third, spasm of the glottis may cause the tube to slip over into the esophagus or engage the folds of mucous membrane on either side. This is easily prevented by holding the tube in place until the patient takes a deep inspiration.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otolaryngology, and approved for publication by the Executive Committee: Drs. G. Hudson Makken, George L. Richards and John F. Barnhill.

Fourth, peculiarities of structure or conditions about the epiglottis may interfere with the operation. In children from 6 months to 2 years, the flexible epiglottis may curl downward and posteriorly under the index finger, making it difficult to restrain the normal function of the cartilage. Edema may make the operation difficult.

Fifth, the cause of failure is frequently due to the use of a larger tube than necessary.

Sixth, hypertrophy or edematous arytenoids, a large leathery diphtheritic exudate, a sharp lateral or anterior curve of the laryngeal bands or tumors greatly increase the difficulties.

Seventh, the use of force is only mentioned to be condemned.

The resulting hemorrhages, syncope, false passages and other traumatism are unnecessary.

Gentle, firm pressure may be required to force the tube through a subglottic obstruction into position after the obturator has been removed. A deep inspiration offers a favorable moment to exercise this steady pressure.

OBSTRUCTION OF TUBE WITH MEMBRANE.

The use of large doses of antitoxin has increased the so-called danger of pushing down the diphtheritic membrane ahead of the tube. The exudate separates more rapidly and easily from the mucous membrane under the action of the serum, and this accident occurs frequently. It is usually to the advantage of the patient, however. The sudden withdrawal of the tube immediately during the paroxysm of coughing may be attended by the expulsion of a cast of membrane. Where difficulty is experienced in dislodging the detached membrane from the larynx or trachea, mechanical emesis produced by placing the handle of a spoon against the base of the tongue and pharyngeal wall is usually sufficient. This may be followed by several teaspoonful doses of spts. frumenti until coughing is produced. Repeated intubations may succeed if these measures fail. Severe hemorrhage and syncope during a skillful operation are extremely rare.

Obstruction of the tube with loose membrane is much more frequent when antitoxin is given 12 to 24 hours before operation. Casts of the larynx and bronchi are frequently expelled as such in these cases at the time of intubation, or they may be pushed below the tube. When the familiar valve-like sound is heard with each expiration it denotes the danger of obstruction.

CARE AND EXTRACTION OF TUBE.

Large doses of antidiphtheritic serum have made possible a procedure that obviates the danger of sudden death from obstruction of the tube, facilitates the extraction, and in private practice has been found entirely practicable, especially among children over three years of age. Where this method has been followed of leaving the string fastened with adhesive plaster across the left cheek, no prolonged or retained tubes have been necessary. Where antitoxin has been given in large doses, 24 hours or more before the operation, the tube is usually worn from two to three days. It is possible during so brief a period to allow the string to remain in place. Under these conditions the nurse can easily remove the tube in case of danger, and the anxiety of the parents is greatly relieved when prepared for this emergency. In some cases among ungovernable children and unreliable parents this method is not a success. Leaving the string is obviously not necessary in hospital practice, where the services of a trained nurse and expert intubator are always on call; but in private city practice it is convenient, simple, practicable in older children, and also in

many selected cases under three years of age. The technique, accidents and dangers of extraction are eliminated. It is a well-known fact that edema of the tissues in the region of the epiglottis and arytenoids often follows the most careful manipulation, and a slight swelling about the entrance of the larynx may result in obstruction enough to require reintubation. Gentle removal of the tube with the string has been followed by no obstructive edema in my series of cases. In a few cases the string seemed to increase the difficulty in taking nourishment, but post-pharyngeal paralysis also existed in several as the explanation of the trouble. When genuine interference with swallowing is encountered, the string or tube may be removed.

A case which illustrates one of the unusual accidents of extraction came under my observation some months ago. A previously healthy child, 4½ years of age, was intubated with a three-year tube for the relief of stenosis due to laryngeal diphtheria of the descending type. Three thousand units of antitoxin as an initial dose were administered, and the child placed in an improvised croup tent. Although the sepsis was extensive from an infected area involving the tonsils, both pillars and a portion of the pharyngeal wall, the child made an uninterrupted recovery until the morning of the fourth day, when extraction was attempted. As the closed jaw of the extractor was resting against the head of the tube, with a deep inspiration the child raised up suddenly and the head of the tube was pressed below the cords. An effort to remove it by the method known as enucleation proved unsuccessful, as the cartilaginous rings of the trachea were exceedingly firm at this age. Five possible methods may be available in these cases. First, evulsion or enucleation; second, a specially modified slender extractor with a long curve and sharply pointed beak; third, the use of a general anesthetic and the extractor; fourth, the extractor and x-ray; fifth, tracheotomy as a last resort. In this case the special extractor was inserted below the cords, while the left hand held the larynx from the exterior. The instrument could be felt to come in contact with the head of the tube, and gentle pressure with a delicate side-to-side motion was sufficient to engage the proper opening and remove the tube.

INTUBATION FOR OTHER CONDITIONS.

Intubation for the relief of dyspnea due to multiple papillomata in children is successful as a measure of temporary relief. The theory of producing sufficient pressure by the tube to produce absorption of the growth has not received the practical verification expected. A case that illustrates the limitations of the operation in this condition came under my observation.

CASE 1.—H. L., a boy aged 4 years, was referred to me by Dr. E. L. Shurly. He was suffering from a slowly progressive difficulty in respiration, with complete aphonia.

Symptoms.—The dyspnea became so great at times that danger of asphyxia was imminent. The attacks of laryngeal spasm with great cyanosis increased and surgical interference was demanded.

Treatment and Result.—He was sent to Harper Hospital and intubation was performed with complete relief. The tube was worn for some months, during which time it was removed each week and reinserted after some hours of natural respiration. Persistent treatment by this method resulted in normal respiration without the tube for an interval of three to four days. The patient returned to his home in a neighboring city and instructed to have intubation performed at home. A week later he was returned in a serious condition, with the information that no physician in the city was able to intubate.

Subsequent Treatment.—Tracheotomy was performed and the

larynx put at rest for over a month. Subsequent operations were also performed by Dr. E. L. Shurly during my extended absence from the city, when portions of the papillomata were removed through the tracheotomy wound and finally a thyrotomy was performed, with almost complete restoration of voice.

Intubation for papillomata can be classified as a temporary measure of relief only, and when performed tracheotomy instruments should always be at hand. It is possible that gelatin alum or other astringents or medicaments, when applied as a coating about the tube, might be useful in these conditions.

INTUBATION IN THE ADULT.

Intubation in the adult for the relief of acute stenosis is not attended by the successful results obtained by the intubation of the child, although Casselberry reported six cases, with five recoveries. While operation with the use of a laryngoscopic mirror is the method generally indicated in chronic stenosis, cases of acute obstruction in private practice present conditions which demand hurried intubations with the index finger as a guide. The adult cases that require intubation for acute conditions are, fortunately, very rare. Three cases have come under my observation. They are two cases of acute secondary edema, both of which were fatal, and one of diphtheria, as follows:

CASE 2.—Mrs. F. B., age 29 years, was seen in consultation with Dr. Burgess Dec. 19, 1903, on the sixth day of the disease, and sent at once to Harper Hospital.

Examination.—Examination revealed a diphtheritic exudate over the tonsils, pillars, pharynx, uvula and epiglottis. Laryngoscopy showed the extension of the pseudo-membrane over the arytenoids and downward, apparently completely obstructing the lumen. Respirations were thirty and very labored.

Treatment.—Four thousand units of antitoxin were administered, and intubation, with the index finger as a guide, was performed at once. The tube was immediately expelled with a complete cast of the larynx, and the trachea beyond the bifurcation, followed by perfectly easy respiration. Three subsequent intubations were necessary (two performed by Dr. P. M. Hickey in my absence), and a thick leathery cast of the larynx was expelled at each operation, although 12,000 units of diphtheritic antitoxin and 20 c.c. of antistreptococcus serum were administered during the forty-eight-hour interval. Although the laryngeal dyspnea was entirely relieved, the patient died on the ninth day of anuria and septicaemia of the streptococcus and Klebs-Loeffler varieties. In this case it was unnecessary to leave the tube in place.

The adult larynx is extremely irritable in this condition, as reported by Dr. Casselberry in his paper, "Intubation in Acute Stenosis."

CONCLUSIONS.

1. O'Dwyer tubes and instruments are generally satisfactory. No cheap modifications or substitutes are required.
2. Digital exploration of structures about the entrance of the larynx are as relatively important in diagnosis as examination of the nasopharynx.
3. Failure to intubate is due to the operator, except in very rare cases, in which it is impossible to intubate.
4. Obstruction of the tube is more frequent after large doses of antitoxin. Therefore, the string should be left when indicated.
5. Early intubation is advocated in private practice and removal of the tube at the beginning of the fourth day.
6. Early removal of the tube and large doses of antitoxin before operation are in direct ratio.
7. Intubation is usually indicated as the primary operation in papillomata of children and acute stenosis in adults.

DISCUSSION.

DR. GEORGE F. COTT, Buffalo, N. Y.—We are all aware that intubation is becoming a lost art, now relegated to the surgeon. I have been wondering why laryngologists do not practice it more, and have been told it is because they are afraid of carrying infection from diphtheritic patients. I do not believe that, for these same men take care of tubercular and syphilitic throats. I have also been told that probably some of the younger men do not practice intubation because they are afraid of carrying the infection to their babies. I said that I did not believe that either. I have never had any trouble, nor have I taken any precautions except as to my hands. It is difficult to teach intubation. I have tried it on the adult cadaver in the dissecting room and found that a poor practice. It is difficult to get bodies of young children for intubation purposes. I mentioned these difficulties to a class, and one of the young physicians, taking a post-graduate course, offered himself as a volunteer, and I intubated him twice. He never volunteered again, however. Intubation puts the larynx into an irritated condition for from twenty-four to forty-eight hours. The young man wrote up his experience, and I read it to one of the societies. It is important to know when to intubate and what result to expect. Dr. Shurly has intubated 350 cases; I have intubated 109, and have had almost every accident except a false passage. I have been called to cases a number of times where the child was turning blue, the reflexes were abolished and it was gasping for breath, but pulse quite full and normal. The tube may be put in in half a second, and the child will live in every instance. Here you have a peculiar condition, want of oxygen, with a normal pulse. When you have poisoning from the Klebs-Loeffler bacillus you have a very rapid and compressible pulse, an indication of acute fatty degeneration. In that case the child will die every time, with or without intubation. It does not die from suffocation, but from the bacillary alkaloidal absorption. In the course of the next few years students will probably know very little of the art of intubation. Since the advent of antitoxin, it is almost impossible to get a good intubator. When you have a membrane in the throat and nose, it is also in the trachea, and the string must be left on the tube, or the child will be suffocated by the membrane occluding the tube. When you are sure the trachea, nose and throat are free of membrane, then you can take the string out. If a man is not expert enough to remove the tube, it is well to leave the string in and tie the child's hands so that it can not possibly pull out the tube. The tube may be left indefinitely. I have intubated one child as many as fifty or a hundred times in six months. It is as well to-day as ever and has a perfect voice. A healthy larynx can not stand much irritation, but a diseased larynx can stand anything.

DR. W. E. CASSELBERRY, Chicago—Intubation is becoming a lost art, not for the reasons mentioned, but because antitoxin cut short the stage of constriction of the larynx. When I heard Dr. Shurly refer to 350 cases of intubation since the introduction of antitoxin, I confess that I was surprised, and can only infer that for some reason, in certain districts in Detroit, the diagnosis of diphtheria is not made sufficiently early. I have had very few cases of intubation since the advent of antitoxin. This reason for the decline of intubation is supplemented by the other, that more physicians are capable to-day of making intubation than formerly. I have not found it difficult to teach intubation. I have taught one hundred men annually the initial steps, and many of these students subsequently perfected themselves in practice. The instruction is on young cadavers which are accumulated by the institution for this purpose. The class is divided into sections, and each member is compelled first to make a digital examination for study of the pharynx and larynx, then to make an intubation and extubation. Pediatricists and general surgeons also are conversant with the art. Fewer cases and more operators may mean diminished skill with which to meet complications, but the general good has been subserved. As to the absolute inability to make an intubation in any given case, the unexpected is especially liable to happen with this procedure. I recall a case of Dr. Plummer's which came to autopsy, at which it was demon-

strated that the inner caliber of the cricoid cartilage would not permit the passage of the smallest tube of the O'Dwyer set. In a case of my own, a partial ankylosis of the jaw precluded a proper manipulation of the instruments. A sphincter-like spasmodic closure of the larynx interrupting the passage of the tube is a real possibility. I have seen this happen in laryngeal diphtheria in a girl of twenty years of age on whom I was making intubation under laryngoscopic observation. With two phases of this subject I have been especially interested—the posture method of feeding, and intubation in the adult. Intubation in the adult is a good procedure when you can perform it under laryngoscopic observation, but I have warned the profession against it when the patient is moribund or recumbent, usually on a slouchy bed and unable to sit up, and when the diagnosis is not accurately made. In such emergency cases, usually of erysipelatous or infectuous edema of the larynx or those with an underlying syphilitic or tuberculous stenosis, tracheotomy is much the safer and more satisfactory operation. One's index finger is too short to guide the tube in most adults, and, moreover, the mere insertion of the finger into the throat when the patient is already in *extremis* may cause immediate death. The so-called posture method of feeding after intubation of the larynx, which originated, and which was instrumental in popularizing the operation by satisfying the distressing thirst of patients without the danger of "swallowing pneumonia," consists in feeding while the head and chest are inclined downward, at such an angle as to preclude liquids from gravitating through the tube into the lungs, the ability in this position to "swallow upward" being, of course, retained. I wish to report continued success and satisfaction with this method of feeding with the head and chest on a downwardly inclined plane.

DR. KATE W. BALDWIN, Philadelphia—I will say for the benefit of those teaching on the cadaver, that it is of advantage to do a preliminary tracheotomy and thereby control the tube with the finger from below. It adds very much to the facility with which the tube is introduced and also in the removal.

DR. B. R. SHURLY—I should like to see the day when we can have an expert intubator in every large city. There are a great many practitioners in our city who have returned from courses in the east without being able to do an intubation, and I can not agree with Dr. Casselberry that intubation is easily learned, even with courses of instruction. I have trained my students carefully with the phantom, the cadaver and on the dog, and by the time they were through they were able to perform the manipulations. Yet I am often called in by some of these very men for cases of not unusual difficulty. There are new indications which have developed since we began to use large doses of antitoxin. The tube can be removed much earlier, especially when the string is left on. The fact that I have had so many cases under my observation in Detroit is due to the large Polish settlement there. They are densely ignorant, live in unhygienic conditions, disease thrives among them, and they will not call in a physician until after the disease is under way three or four days. This makes intubation necessary in a great many cases.

Graduates of Medical Schools.—In THE JOURNAL, Aug. 13, 1904, we published a table showing the results of state board examinations in 1903 and remarked that many deductions might be made from the tabulated facts, but that we left it to others to make them. In a letter to the editor of the *New York Medical Journal* a correspondent has made certain deductions from the standpoint of a Philadelphian. He shows that graduates of the Philadelphia schools give a smaller percentage of failures than the graduates of schools in other cities and that the proportion of failures by graduates of Washington schools was more than three times that of the graduates from Philadelphia, and of those from Baltimore, Louisville, and St. Louis, respectively, it was over *four, five* and *six* times that of the Philadelphia candidates.

A CHIEF PREDISPOSING CAUSE OF APPENDICITIS.

A PRELIMINARY NOTE WITH A FEW LABORATORY EXPERIMENTS.*

GEORGE RUBIN, M.D.

[From the Pathological Laboratories, Rush Medical College, University of Chicago.]

CHICAGO.

One evening in the fall of last year I was called to the bedside of a man who had suddenly become ill with symptoms typical of acute appendicitis, viz., chills, nausea and vomiting, general abdominal pain and local tenderness over the ileocecal region. The patient's history was as follows:

An American, of German extraction, 40 years of age, unmarried, stenographer, almost a total abstainer, and of excellent habits in general. Family history excellent. He has always been well, with the exception of a diarrhea several months ago, of a few weeks' duration, from which he made a complete recovery. For a week or so preceding his last illness he was troubled with flatulency, though it caused him slight inconvenience.

After remaining in bed for ten days, and with appropriate medical treatment, the patient made an uneventful recovery from appendicitis.

In considering the case in all its bearings, but especially with regard to the intestinal flatus preceding his attack, the following questions arose: Why is appendicitis rare in infancy and early childhood and also in persons of advanced years? If, according to some authors, who claim that appendicitis is due principally and primarily to infection or to an extension of infection from the bowel, then the disease ought to be by far more common during the early years of childhood. The susceptibility at this time to infection in general, and especially to intestinal infection, is well known; at least there are no *a priori* reasons for believing that infection of the appendix from the bowel or through other channels, e. g., lymphatic or blood system, might not occur as readily in infants as in adults. We might assume from this that infection occurs at a later stage in the evolution of appendicitis.

The etiologic connection between appendicitis and fecal concretion, though not emphasized as much at present as formerly—in many text-books, however, still occupies a conspicuous position. If this were an important factor in the production of appendicitis, the disease would surely be more common in persons advanced in years, owing to their greater liability to formation of concretions and calculi generally. If the same conditions govern the development of concretions or calculi in various parts of the body, then we might also rightfully expect women to have appendicitis more frequently than is the case, judging from their marked predisposition to gall-stone disease.

Constipation is, according to a number of authors, a condition that favors the development of appendicitis. But such a view becomes untenable in considering the great disproportion of appendicitis in the sexes. If constipation really played an important rôle in predisposing to this disease, instead of having one female to about three males, the converse would surely be the case.

The occurrence of appendicitis in about three-fourths of all cases between the ages of 10 and 30, also appears enigmatic from the point of view of infection as the primary cause, considering the greater resistance possessed at such a time than by children under 10 years of age.

* Read before the Chicago Medical Society, May 11, 1904.

An explanation that would answer all the foregoing questions rationally is, I believe, the following: The accumulation of gases below the ileocecal valve and their voluntary retention;¹ the ensuing distension of the cecum and dilatation in various degrees of the ceco-appendicular orifice; the entrance into the appendix of larger fecal masses than are readily expelled; the interference with the vascular circulation and resulting erosion of the mucosa of the appendix with subsequent infection; these altogether give rise to a series of symptoms well known to you all.

Let us now see how this explanation will fit the several questions under consideration. First, regarding the rarity of appendicitis in infancy and early childhood; such individuals are not likely to retain gases voluntarily; as soon as there is a certain amount in the colon and rectum it is passed off automatically, hence no distension or overdistension of the cecum and no impaction in the appendix take place.

The same argument will hold good, I believe, regarding the rarity of appendicitis in anthropoid apes: Bland-Sutton² states, "In all the specimens of anthropoid apes which have come into my hands for dissection, I have always made a point of examining the appendix, and have never succeeded in detecting disease or even concretions."

J. H. Campbell, also quoted by the same author, has examined a large number of monkeys from the gardens of the Zoological Society of London, and also failed to find appendicular disease.

It will perhaps be well to mention a conversation I had with Dr. Hassin (now of this city), who had practiced medicine in Siberia for four years, a part of that time in the capacity of a military physician, where he says appendicitis is exceedingly rare, and the same he says is true among the moujiks (peasants) in Russia. Another conversation I had with Major Farrell of this city, who had had considerable experience (in the capacity of army surgeon and otherwise) with the natives of the Philippine Islands, South Africa, the West Indies, New Guinea and Borneo, has also shown that appendicitis is exceedingly rare among them.

It will also be interesting to consider in this connection the rarity of this disease in asylums and among imbeciles. One would expect a much larger proportion of cases in such individuals owing to the fact that their digestive organs are greatly overtaxed by excessive amounts of food as well as by all sorts of foreign substances and indigestible articles. If healthy persons should subject their digestive organs to similar treatment the outcome might be very different. It has often been observed that attacks of appendicitis follow indiscretions in diet. Such occurrences might be explained by the abnormal production of gases due to increased fermentation which, in consequence, under certain conditions, cause a distension of the cecum and hence favor an attack of appendicitis.

Now relative to the infrequency of the disease in elderly persons, we know that the latter lead, comparatively speaking, a more retired life: they stay at home the greater part of their time, and are mostly so situated that they are not obliged to retain their bowel contents—including gases—for hours at a time, as is often the case with younger persons. Another explanation might be the persistence of certain anatomic peculiarities, mode of

life or other conditions which helped them to escape the disease in their earlier years.

The occurrence of appendicitis in nearly three-fourths of the cases between the ages of 10 and 30, may be explained by the fact that these decades are spent principally in schools, colleges, universities and similar institutions. It is also the most propitious period of life for amusements of all sorts, e. g., theaters, receptions, balls, parties, etc., and especially is this true of the latter decade.

The great disproportion in the sexes can be largely explained on a numerical basis. It is a fact that there are more males in the various educational and professional institutions than females; furthermore, nearly all men spend their days in offices or other places of business where, owing to the urgency of their affairs, they very often have to forego certain natural demands for various lengths of time. Meetings of societies, clubs, lodges, directorial boards, juries, etc., where men remain closeted for hours at a time, ought also to be seriously considered. Traveling might be added to the above list.

In view of the foregoing arguments, all of which seem to corroborate the theory proposed, the following experiments were undertaken. The technic was as follows:

Portions of bowel about 50 cm. long, including cecum and appendix, were resected from subjects dead of diseases other than would affect that part of the intestinal tract. After cleansing the bowel the colonic end was ligated; shot ranging in size from 4 to 11 metric scale, peas and beans were introduced through the ileum end, and the bowel manipulated so as to imitate peristalsis more or less. The rolling of these bodies was often done with more vigor than normal peristalsis would effect. It was observed that none of the contents entered the appendiceal cavity, although the appendix was held at the most pendant point. Then the bowel, still containing those substances, was inflated, the same process of rolling repeated, with the result that in all the experiments with one exception (where only one small shot entered owing to an hypertrophied appendiceal wall and a constricted lumen) the appendix was filled with shot, and in two cases peas of medium size also gained entrance. Ten such experiments were carried out. It may be added here that the appendix was readily balloned during the process of inflation. It is reasonable to suppose that similar phenomena might occur in the living.

The amount of pressure employed in the experiments and that which might occur in the normal living subject is a matter of conjecture. It seems that much less gas would be required to dilate the ceco-appendicular orifice in the living than is the case with the laboratory experiments, owing to the pressure brought to bear on the cecum by the surrounding structures and especially by that of the abdominal wall.

Fitz recorded nineteen out of 257 cases of appendicitis that were supposed to be due to indirect violence. Such cases might be explained in the following manner, first the forcing of a larger mass of fecal matter through the ceco-appendicular opening than the appendix is able to expel, following that, trauma to the mucosa with subsequent infection taking place. It seems not improbable that heavy labor, such as lifting, may operate in a similar manner, i. e., owing to the increased intra-abdominal pressure produced by tension of the abdominal wall. Athletics might be considered in the same category. These considerations help us also to explain the marked disproportion in the sexes.

Regarding the size of the obstructing mass no definite

1. With some exceptions when it might be involuntary, i. e., obstruction anywhere between the cecum and anus.

2. A private communication to Kelynaek, from the latter's book, "The Pathology of the Vermiform Appendix," 1893, p. 5, London.

statement can be made. The calibers of appendices vary very much. What would be an insignificant particle for one might completely obstruct another. Likewise little can be said about the rôle the valve of Gerlach plays in preventing matter from entering the appendix. Of the several specimens of bowel that I have examined, in only one was there a lengthening of the mucosa that might have been called a valve.

Under ordinary circumstances the mucous lining itself is sufficient to act as such.

Van Zwahlenberg² has recently published several series of experiments in which he shows that obstruction is a chief factor in the production of appendicitis, but he considers the subsequent distension of the appendix with fluid, which impedes the circulation, to be the essential cause. That the circulation of the appendix might be more readily interfered with from an inflammation of the lymphoid tissue in which the appendix is especially rich, apparently escaped his notice.

Distension of the appendiceal cavity with fluid would take place rather gradually, and symptoms—if any were produced—would not come on so abruptly. Furthermore, cysts of the appendix are not very uncommon and they are seldom associated with inflammation of that organ. I found one in the course of the several experiments, where the distal half of the appendix contained a considerable amount of fluid with no other abnormal changes.

Importance has been attached by some authors to Clado's discovery of a special peritoneal fold connecting the ovary and appendix (appendeo-ovarian ligament). Its supposed extra blood supply is thought to explain the comparative infrequency of appendicitis in females. Even if Clado's ligament were a constant anatomic structure (which it is not), it would not explain the disproportion of the disease in the two sexes, or the rarity of the disease in male infants and young boys and in old men, since the main arterial supply is seldom primarily affected from the inflammatory process within the appendix wall.

Before this question will be definitely settled further experiments will, perhaps, be necessary.

In conclusion I wish to sincerely thank Professor Le Count for many suggestions and in supplying me with material. I am also greatly indebted to Drs. Bassoe and Stober for their kindness in providing me with desired specimens for the experiments.

Clinical Reports.

A CASE OF PRECOCIOUS MENSTRUATION.*

M. J. FORD, M. D.,
OMAHA.

Patient.—I was recently called to see a child who had swallowed a baby pin and was at once struck with the unusual development of the child. It was two years and four months of age, but had the body and limbs of a much older child.

History.—The child was born May 13, 1902, and the mother noticed soon after its birth that the external genitals were enlarged. She asked her attendant about it and was told that it was a little swelling, which would soon disappear. The child was fretful and cried practically all the time when awake till it was six months old. Its sleep had never been good, and it was always restless. When six months old the mother noticed that the child was bleeding as if menstruating. The flow became very free and the child sank into its first peaceful sleep. The flow continued for 3 or 4 days, just as

mother, but she did not consult her physician. After 28 days the flow again made its appearance and continued for the same time and in the same quantity. Since then the child has menstruated every 28 days regularly for the same number of days and showing the same quantity, soiling 2 napkins a day, except that on two occasions there was a little delay, corrected by warm drinks and foot baths.

Family History.—There is nothing abnormal to be found in the history of the grandparents or parents. The parents are Americans, aged 33 and 32. The mother began her menstrual life at 14, and it has been a normal one. The only peculiarity noticed was that she was unable to feel well and hearty in this pregnancy as in two previous ones. Nausea was not unduly prolonged in early pregnancy.

The mother reports that the child, though fretful and restless prior to the establishment of menstruation, has been perfectly well ever since. Other than the condition named as preceding the first menses, there has been no prodrome to the successive menstruations. The mother has seen nothing to indicate any attempt to masturbate. The child opposes exposure more than ordinary children of her age and shows decided modesty.

Examination Before the Society.—The child is of normal height and face for one of her age. The breasts are well developed and of good size, as are the nipples. The trunk and legs show the development of a much older child. The hips are broad and rounded, and the calves well developed. The mons veneris is large and covered with a good growth of long, silky hair, which is light in color but beginning to change to a darker shade. The labia are large and very prominent.

Comment.—So far as the literature in private and public libraries shows, there is but one recorded case of menstruation before the age of one year, and that showed the establishment of the menses just prior to that age. This case is unique in that the menses were established at apparently the earliest age on record.

FIBRO-ADENOMA OF THE LACHRYMAL GLAND.

LYMAN SKEEN, JR., M.D., PH.D.
OGDEN, UTAH.

Patient.—Mr. J. A. T., aged 82, came to me in July, 1904, with a tumor the size of a hazel nut at the outer canthus of left eye.

History.—A history of gradual development with no pain was obtained. The patient had been told that cancer existed and the sun glass and x-rays had been used as treatment. One operation on the under surface of the lid had been done before I saw the case.

Examination.—The tumor was pressing on the eyeball and interfered with its movement; a portion of the growth presented below the border of the upper eyelid. A clear fluid was discharged from a sinus near the outer edge of the orbit.

Diagnosis.—Benign tumor of the lachrymal gland.

Operation.—Under general anesthesia the entire mass was removed *en masse* through an incision along the eyebrow. On microscopic examination it proved to be a fibro-adenoma of the lachrymal gland. The wound healed without complications and with no tendency to recurrence.

I present this case not only because of the rare occurrence of tumors of this gland, but because of the excellent result obtained by this radical operation.

Mouth and Rectal Temperature.—Ostenfeld writes to the *Zift. f. Tuberculose*, V, 5, to extol the advantages of the rectum for determination of the temperature in tuberculosis. By careful comparison of the temperature findings in the mouth and in the rectum it is possible to determine the difference for each individual. When this is once ascertained the temperature can then be taken in the mouth thereafter, making allowance for the difference.

3. THE JOURNAL A. M. A., vol. XIII, No. 13, p. 820.

* This case was presented to the Omaha (Douglas County) Medical Society, Sept. 27, 1903.

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THE IRRITABLE BLADDER.

As the science of medicine grows older the use of such general terms as "irritable bladder" becomes less and less common on account of the fact that the pathologic conditions underlying such symptoms become gradually known, and the use of the symptom as a disease name ceases. At first sight irritable bladder as a symptom-complex seems to belong to the class of diseases which have disappeared in the manner above mentioned, but a recent study by Hirsch¹ shows that although in many instances this condition is merely a symptom of other diseases, there are cases in which it can not be explained in this way.

According to Hirsch cases which are described under the head of irritable bladder should have as their predominant symptoms frequency of urination with clear urine and a bladder which appears normal to the cystoscope. Hirsch admits that the number of such cases has been reduced since the cystoscope came into more general use, but he shows by a review of the literature that they still exist. The symptoms in these cases vary with the severity of the case. In the mild cases the predominant symptom is an increase in the frequency and the intensity of the desire to urinate. The patient may urinate as often as every fifteen minutes, or rarely as often as every five minutes. This urinary urgency may be present in the waking hours only, or may persist also during the sleeping hours. In more severe cases there is added an actual urinary distress, by which is meant an absolute necessity to pass urine when the desire appears. In some cases this results in wetting the clothes, in others there is a spasm of the sphincter with temporary suppression which may have to be relieved by the catheter. In the very severe cases actual pain, in the form of the so-called vesical colic, may be present, and may radiate from its original site in the bladder to the genitals or the intestines, or even to the abdominal wall in the neighborhood. Associated with the strictly vesical symptoms we find in the more severe cases symptoms referable to the intestines, and also symptoms on the part of the general system. The intestinal symptoms, readily explained by the nervous connection between the bladder and the intestines, take the form of a desire to pass feces coincident with the urinary desire, or of a nervous diarrhea or constipation. The general symptoms may occur during the attack in the form of cold

sweats, shivering, vomiting and pallor, or may persist the whole time and are then mental and take the form of mental depression or hypochondria. The sole objective symptom in the majority of these cases is a hyperesthesia of the bladder wall, which is especially apt to involve the fundus or the neck of the bladder. This hyperesthesia may occur merely as an increase in the normal sensibility to tension or as an abnormal sensibility to pressure; in the latter case this sensibility may be made manifest by the effects of hardened feces in the rectum, or may be first detected by the physical examination made by the physician.

The urine in this condition may in many instances show no abnormality, the reaction, quantity and physical and chemical characteristics being unchanged. In some cases characteristics are present which render the urine more irritating, such as hyperacidity, concentration, excess of phosphates or oxalates, or the presence of sugar. Some authors have claimed, too, that the consumption of alcoholic beverages, especially those which contain carbonic acid gas, may lead to the elimination of irritating substances. In long-continued cases of irritable bladder the quantity of urine may be demonstrably increased.

The main underlying condition in all cases, according to Hirsch, is hyperesthesia of the bladder wall, but just what leads to this hyperesthesia is by no means apparent. Numerous cystoscopic examinations, and a few autopsies, have shown that pathologically cases of this condition can be divided into two groups, those which show absolutely no pathologic change, and those which show local or general hyperemia of the bladder wall. The first group of cases is in all probability purely nervous in character. In the second group the hyperemia seems to belong with the so-called non-inflammatory hyperemias, or at any rate is not due to inflammatory changes which can be detected. As would be expected, the nervous form is much influenced by psychic disturbances, while the hyperemic form is influenced by any factor causing an increased blood supply to the pelvic organs. The prognosis of this condition is bad, especially in the more severe forms, and the fact that the treatment is unsatisfactory is well borne out by the two or three pages of remedies which Hirsch publishes. It seems likely that future work may bring out the true factor underlying this condition, but for the present it appears that we are still justified in classing certain cases as "irritable bladder."

CRUSADE AGAINST OVERCROWDING AND THE TENEMENT EVIL.

Buffalo has recently inaugurated a health crusade which is interesting and instructive in many ways. Since the first of last May a rigid tenement-house inspection, followed by enforced repairs, improvements and even condemnations, has been carried on, and now, at the end of five months only, an amount of work has

1. Centralblatt für die Grenzgebiete der Medizin u. Chirurgie, v. l. VIII, Nos. 13 and 14; THE JOURNAL, page 1093.

been accomplished which is a source of pride to the city itself and an example to other cities in this country. Buffalo's experience is especially valuable because it shows what is needed and what can be done in middle-sized cities. We are all so familiar with the enormous housing problems of our large cities, with squalid pictures of the dirt, darkness and overcrowding in which the "other half" of New York, Boston, Chicago, etc., are obliged to live, that we are apt to treat lightly the less spectacular conditions in smaller cities. Yet in many of these cities the evils of overcrowded, insanitary tenements do exist, though they are numbered by tens instead of hundreds, and it is these smaller cities which can really grapple with the evil and overcome it. The cities in Massachusetts and New York should find this task far easier than cities in many other states, for the excellent state tenement-house laws make in these two states the erection at the present time of insanitary houses almost impossible, and they have only to do away with the existing slum tenements to feel secure that they will never in the future be made to face the situation which confronts such cities as New York and London, and which has cost and must in the future cost millions of dollars before it can be regarded as satisfactorily settled.

Buffalo is fortunate in possessing a health officer of vigor, for, according to the existing statutes, a reform in the housing conditions depends largely on him. Landlords may be proceeded against through indictments by a grand jury, but this procedure is slow and cumbersome, while the health officer has authority to vacate, after a hearing, any building which is unfit for habitation. A description of some of the housing conditions of Buffalo, together with a sketch of the reform movement, is given in a recent number of *Charities*,¹ by G. W. Gillette, a member of the committee of physicians and public-spirited citizens who undertook the investigation on which the action of the Department of Health was based.

An unusually harmonious action on the part of public officials and private citizens facilitated the work. The co-operation of the district attorney's office and of the bureau of buildings was secured, the daily papers gave the movement their heartiest support, and the Charity Organization Society undertook to care for the evicted tenants. At the time of writing, Mr. Gillette states that forty of the worst tenements have either been vacated or put in order, and he believes that if one hundred and fifty are subjected to this treatment the city will be really cleaned up. A certain number of landlords, alarmed at the new activity of the department, have begun repairs without waiting for notifications.

The evils discovered in Buffalo were those which we may expect to find in many cities of its size—dark bedrooms, filthy, insanitary water-closets and absence of fire-escapes. The common plea of tenement landlords,

that the filthy habits of their foreign-born tenants make decent conditions impossible, was not justified by the Buffalo investigating committee, who found the tenants—mostly Italians—surprisingly clean, but the houses badly constructed and in worse repair.

It is to be hoped that the crusade thus begun will go on, and that the work will be directed not only to the abolition of existing insanitary tenements, but to the prevention of underhand violations of the law prohibiting the erection of such buildings. It is also to be hoped that other cities will follow Buffalo's example. The proper legal means for doing so are already in the hands of many other cities: it is almost certainly true that evils calling out for remedy exist in their midst, and the necessary vigor, courage and public spirit should not be lacking in any of them. Nor should the smaller cities think themselves secure. A city slum is a thing of insidious growth; a tall tenement springs up here, a rear building creeps in there, and suddenly the town realizes that it has a plague spot, a center of poverty and sickness which has grown, no one knows how, which will take time and money to eradicate, and which might have been prevented by a little knowledge gained from the sad experience of our large cities.

THE NEGRI BODIES.

About a year ago¹ Dr. A. Negri of the University of Pavia described certain bodies which he had observed in the nervous system of animals dead of hydrophobia. These bodies are found in the protoplasm of nerve cells and occasionally in the processes, but not in the nucleus, though they may be in contact with it. Their distribution in various parts of the nervous system is fairly constant. They are usually found in greatest abundance and are also, as a rule, larger in the hippocampus major, but also appear frequently in the Purkinje cells in the cerebellum, in the pyramidal cells of the cerebral cortex, and often in the pons, the spinal ganglia, the gasserian ganglia and in the spinal cord.

The bodies are round or oval in shape or may be oblong and somewhat irregular. They vary a great deal in size, depending on their location in the nervous system, the stage of the disease and also on the animal in which they are found. Forms occur in size from the smallest, which can just be seen with the highest power of the microscope, to those which measure as high as 25 microns in length. Usually they are from 4 to 10 microns in diameter. They may be stained with any of the ordinary stains used for tissue, and are shown very well in fresh tissues teased in a dilute acetic acid solution. Negri has found the bodies in dogs, cats, rabbits and human beings, and has observed them in experimental rabies, as well as in that acquired in the natural way, though they are larger in the experimental form. These bodies successfully resist putrefaction for several days, and are not destroyed by immersion in glycerin. In

1. *Charities*, Oct. 1, 1904, p. 31.

1. *Zeitschrift f. Hyg. u. Inf.*, vol. xlv, No. 3.

rabies produced by inoculation in the sciatic nerve, the bodies are chiefly found in the cord and spinal ganglia, and rarely in the brain; or if present, they are very small. He says that there is a difference in the symptoms corresponding to this distribution. They appear usually in the cells of the hippocampus major about the same time that the first symptoms occur, or a day or two earlier, and at this stage are very small.

In a second paper² Negri emphasizes the importance of the presence of these bodies in the diagnosis of rabies in suspected animals. In 75 animals, mostly dogs, the diagnosis of rabies was made by the inoculation method in 52, in 50 of which the bodies were found. Of the two remaining cases one animal was killed before the symptoms came on, and so too early for the bodies to appear. The failure to find the bodies in the other case was probably due to an exceptional localization of the parasite which sometimes occurs. The bodies were not found in any of the 25 remaining cases, which were negative to the inoculation test. He concludes that the bodies are constant in rabid animals, and are never found in any other conditions. He believes that these bodies are parasites—probably protozoa—and have an etiologic relationship to hydrophobia, though he frankly admits that such has not been proven.

Many other Italian investigators have confirmed the observations of Negri, among whom may be mentioned Bertarelli, Volpino, Daddi and Guarnieri. Guarnieri believes that he has observed distinct segmentation in the parasite. Volpino, in 40 cases, found the bodies present in all those in which the inoculation test was positive, and absent in those resulting negatively to the test. Bertarelli found the bodies in the hippocampus major in the human. Little work apparently has been done on these bodies outside of Italy.

These results certainly are of great importance if they do nothing more than furnish a reliable and rapid means of diagnosis; and such the observations, if reliable, seem to have established. One must admit also that Negri is justified in assuming as a working hypothesis that these bodies are parasites. Artefacts, degeneration forms and the like must, of course, be carefully excluded. The fact that the virus of hydrophobia will pass through a porcelain filter in no way contradicts the view that they are parasites, for it is possible for the organism to have different stages of development, in some of which ultramicroscopic forms may exist. In fact, Negri observed some of these bodies so small that they could barely be seen with the highest powers of the microscope.

THE PROTECTIVE AND CURATIVE VALUE OF ANTI-STREPTOCOCCUS SERUM.

With the preparation of the antitoxin of diphtheria and its successful therapeutic employment, it was

hoped that other forms of serum might be found to have a corresponding utility. This hope, however, has been realized only in small degree, and to the future must be left the determination of the causes for this relative disappointment. Streptococcus infection especially is so common and it appears in so many forms that it would be a boon indeed if a serum could be prepared capable of conferring immunity to such infection and of bringing about recovery from it. Past failure has been attributed to differences in the species of streptococci giving rise to the several infections. In the course of an investigation undertaken primarily to secure information as to the identity of the streptococci found in milk and those in the human organism in health and disease, Dr. D. H. Bergey¹ made some observations for the purpose of shedding light on the question of immunity to streptococcus infection. Goats and rabbits were treated at intervals of from a week to ten days for periods of from three to nine months with repeated and increasing doses of certain streptococci isolated from cows' milk and from human beings, and the sera of these animals were then tested as to their agglutinating, protective and curative properties. It was found that the serum of animals immunized with cultures of streptococci acquires an agglutinating power for all varieties of streptococci, although the agglutination occurs in somewhat higher dilutions for the homologous culture than for those derived from other animals. It was not possible to differentiate definitely between cultures of streptococci of human and those of animal origin. The serum of animals immunized with cultures of streptococci exhibited neither bactericidal activity with respect to the micro-organisms nor antitoxic effect with respect to the action of the filtrates of the cultures.

It would appear, therefore, that the immunity to streptococcus infection is of a somewhat more complex character than that to some other infections. In the case of the latter, antitoxins are formed in the body which neutralize the toxins generated by the causative bacteria, for example, the diphtheria bacillus and the tetanus bacillus; or the blood serum of the organism acquires a bactericidal power capable of destroying the specific bacteria themselves, as in typhoid fever, cholera, dysentery.

In view of the relatively small amount of toxin developed in streptococcus cultures, and the absence of evident bactericidal properties in the serum of animals treated with streptococci, it seems reasonable to conclude that phagocytosis is an important factor in the development of immunity to streptococcus infection. From the evidence, both clinical and experimental, thus far accumulated, it may be concluded that antistreptococcus sera as at present prepared have but slight protective and curative value.

1. Univ. of Penn. Med. Bull., xvii, Nos. 5 & 6, p. 171.

2. Zeitschrift f. Hyg. u. Inf., vol. xliii, No. 3.

THE ETIOLOGY OF DYSBASIA ANGIOSCLEROTICA.

The senior Erb, at the last Congress of Internal Medicine held at Leipsic, gave an epitome of his observations on this disease since the publication of his long article on the subject in 1898. In his earlier paper he showed the close relation of "intermittent lameness" (*intermittierendes Hinken*) to arteriosclerotic changes in the vessels of the leg and foot. His more recent studies are of great interest in connection with the etiology of the affection.

Since the disease is a form of arteriosclerosis, the same causes that are held responsible for arteriosclerosis in general may be assumed to play a part in its etiology, but certain peculiar facts seem worthy of emphasis. In the first place the disease is one of the upper classes rather than of the lower; of 45 cases studied by Erb only two were not within his clinic; the rest were private cases. Secondly, it is a disease of men rather than of women; an analysis of 127 cases showed 120 men and only 7 women. Thirdly, Jews seem especially predisposed, though not so predominantly as some authors have believed. Higier, Goldblam and Idelson reported 58 cases, of which 55 were Jews, but in Erb's recent experience he found only 14 Jews affected to 29 Christians. Fourthly, the disease is rare before the age of 40. Of 45 cases, 8 occurred under 40 (only one under 30) and 37 above the 40th year, the latter cases being tolerably evenly distributed through the fifth, sixth and seventh decades of life. Fifthly, it is noteworthy that a previous syphilitic infection was demonstrable in only 10 of 45 cases, i. e., in 22.77 per cent.; since, according to Erb's statistics based on a study of 10,000 patients of the better class, 21.5 per cent. have syphilis, the existence of any especial relation between intermittent lameness and lues may be denied. Sixthly, there is no evidence that the use of alcohol is an important etiologic factor. Thirty-two of the 45 patients were either total abstainers or had used alcohol in strict moderation; only 7 admitted drinking to excess. Eighthly, it seems very probable that the excessive use of tobacco is one of the causes of the affection. Of 38 cases in which habits regarding tobacco were carefully inquired into, only 13 did not smoke at all or smoked in strict moderation, while 10 had been "heavy smokers," and no less than 15 had used tobacco in enormous excess (forty to sixty cigarettes or ten, fifteen or more cigars daily). In 14 of the excessive smokers, the abuse of tobacco was the only discoverable factor which could be thought responsible, the patients being free from a history of syphilis, alcoholic excess, exposure to cold and diabetes. The extreme rarity of the disease in women is a striking fact in this connection. Ninthly, injury from cold, especially to the feet and legs, was noted in 12 instances; the patients referred to "many cold baths," "frozen feet," "much work in water," "standing in snow," etc. Finally, gout, diabetes, lead poisoning and neurotic taint do not appear prominently in the histories of the cases.

It is worthy of record that in Erb's cases he found very frequently a number of possible etiologic factors combined. For example, syphilis with excessive use of tobacco; syphilis with abuse of both alcohol and tobacco; exposure to cold with excessive smoking; abuse of tobacco and alcohol with cold, etc. In four cases absolutely none of these injurious influences could be detected.

Erb's conclusion of the whole study is that syphilis and alcohol are of doubtful influence or act relatively slightly; that exposure to cold, especially of the feet, is of greater significance, and that finally the abuse of tobacco is of very great importance in the etiology of the disease. It is, as he says, very difficult to understand, however, just why the arteries of the lower extremities should be picked out. Possibly some vasomotor influence, as yet not recognized, is concerned in the process.

WOOD ALCOHOL NOT FOR INTERNAL USE.

The investigations of Drs. Buller and Wood, which we have been publishing,¹ illustrate how many articles may be the means of blindness and death because of the wood alcohol which they contain. Agitation of the subject ought to result in many new laws on the statute books of the various states to provide for protection against the misuse of wood alcohol. In our Medicolegal Department this week we quote from the law of Maryland, which provides a penalty for the use of wood alcohol in any extract, essence or fluid used for flavoring articles of food and drink. This is good for Maryland. Now what about the rest of the country?

INORGANIC CONSTITUENTS OF TUMORS.

Now that the enthusiasm for finding an organism as the causal agent in malignant tumors has somewhat diminished, it will be noted with interest that the direction the investigation of new growths is taking is along chemical lines. This is fully in accord with the general trend of modern biology and medicine. Undoubtedly, the chemical side has been too much neglected, though the progress of investigation of the problem from this point of view is entirely dependent on the progress of general physiologic chemistry, and this we know is comparatively a new field. In recent years attention has been called in many ways to the importance of the inorganic constituents of the organism in promoting vital activities. Though these elements are all present in small quantities and some in even the minutest quantities, still their action appears to be specific and their presence indispensable to the organism. The presence of iodine in the thyroid is a familiar example. Potassium is an element found in greater abundance in a young, rapidly growing organism than in the older, mature organism. Calcium, sodium, magnesium and iron may be mentioned as other inorganic elements all playing important rôles in the body metabolism. Investigation of the inorganic constituents of tumors of various kinds has recently been

1. THE JOURNAL, October 1, 8, 15, 22 and 29.

undertaken by Beebe.¹ Only a few observations were made, and hence any conclusions drawn therefrom would be necessarily untrustworthy. While no striking results were obtained, Beebe calls attention to the relatively large amount of calcium and the small amount of potassium in the older and more degenerated tumors, while in the young and rapidly growing tumors the reverse is true. If this fact is found to be generally true, it conforms to the well-established idea that potassium in some way operates to bring forth cellular activity, and therefore may play an important part in the metabolism of new growths. Certainly the field is well chosen, and interesting results may be expected from further research in this line.

SEA BURIAL.

Notwithstanding the popular jocosity on the subject, there is no special friendship or alliance between the medical profession and the undertakers. The latter profit by our failures and their business suffers by our success. We can not, however, indifferently and complacently regard the recent proposal by the president of the New York State Embalmers' Association that a law be passed prohibiting burials at sea. The mercenary spirit of the proposition is evident, and its insanitary character is also sufficiently clear. The only possible objection to a sea burial, aside from personal and sentimental ones, is the loss to the soil of the fertilizing constituents of the human organism, and that is too utterly absurd to notice. On the other hand, the retention of bodies on a ship, often with very imperfect means of preservation, and especially in the case of death from certain diseases, might be extremely dangerous. Still, the passage of such laws is a possibility. Similar gems of commercial cupidity appear sometimes on our law books, but they usually have a sort of pseudo-sanitary or other claim for excuse, which is wanting for the above-mentioned proposition.

DUST IN CITY AIR.

An immense amount of dust is daily inhaled by those living in a great city. No additional evidence on the point is needed, but the reported experiments in a New York hotel are interesting. This hotel has a ventilating system by which fresh air is supplied to each room after having been filtered through fine cheesecloth screens. It is reported that a barrel of dust was thus filtered from the air in the course of a week. It is presumed that the air was secured from a point where the least dust already existed so that without doubt a far greater amount circulated at other places—for example, on the street level where traffic was passing by. In cleaning the hotel pneumatic suction appliances are used, and in sweeping the halls and rooms in this hygienic manner, two and a half barrels of dust, it is said, were collected during one week. The hotel advises that the windows should not be opened, as the air supplied by the ventilating system is purer than that which can be obtained from outside. This system of interior ventilation and purification of air, which has been estab-

lished in many public buildings, etc., marks a distinct advance, and may be expected to be one of the regular features of our buildings and homes in the not far distant future.

THE CURABILITY OF LEPROSY.

In his latest report, the Surgeon General of the Army gives an account of favorable results obtained in the case of a soldier who had contracted leprosy, and expresses a hope, if not a belief, that this disorder may become amenable to medical treatment. With the means afforded by modern science, especially the mysterious x-ray and other similar agencies, there does seem room for hope that some forms at least of the disorder may yet succumb to medical science. There is no reason to suppose that the leprosy bacillus, which has apparently so little vitality outside the human organism, is absolutely resistant to all medical treatment within the bodies of its victims. At least, we may hope to abate some of its symptoms and rob the disorder of some of its most repulsive features. Dr. O'Reilly's report gives us additional evidence to that received from other sources of the possibility of something being done to destroy this opprobrium of medicine. We can not hope to overcome disease in general, but there is no reason why any single disease should be always and invariably resistant to therapeutic measures, and leprosy need not be the exception.

THE BEGINNING OF ARTERIOSCLEROSIS.

A discussion of the subject is not proposed; only the recording of a note and a suggestion. The recent literature indicating some probability of the supreme etiologic rôle of hyperfunction of the adrenals in the production of arteriosclerosis has opened a wide field of physiologic and pathologic research. In addition to the experimental work necessary exactly to establish the causative relation of the adrenals to arterial disease, it is exceedingly desirable to have careful clinical observation of the early cases of arteriosclerosis. In no other line of work do physicians have the opportunity to observe the beginnings of any arterial disease as that which comes to the examiner for life insurance. He it is, almost solely, who every now and then has the chance carefully to examine arterial sclerosis in young men, and at its first stage. At this time it is usually overlooked by the examiner, because up to the present most physicians do not look for it except in those of advanced years. The observant examiner knows this to be a faulty practice, as it is by no means infrequent to find slight thickening of the radials and temporals in men under 35 years of age. Therefore, it is urged that examiners look more particularly for this condition, make all possible history and notes of the case, and then, if practicable, advise the applicant's physician of the existing condition, with the suggestion that the case be followed up and studied as closely as possible for a long period of time. Without doubt, the general adoption of this method by careful workers would add greatly to our knowledge of the early clinical course and associations of arteriosclerosis. In any event, the appearance of the adrenal hypothesis bids

fair rapidly to throw some real light on the thus far extremely dark problem of the etiology of vascular sclerosis. While we make this suggestion specifically to this disease, it should apply to many others. The physician who is an examiner for life insurance has a peculiar advantage over others; he has the opportunity of examining the well man, the man who is supposed to be healthy. The earnest student will often run across a case in which he may detect a possible beginning of a chronic disease, and by a hint to the family physician a continuous study of its development may be carried on.

THE VALUE OF TALLQVIST'S HEMOGLOBINOMETER.

Most of the laboratory procedures designed to aid the practitioner are so time consuming or so technical that they are neglected altogether or turned over to the specialist. Any instrument which is cheap, simple and reasonably reliable ought, therefore, to come into instant favor with the profession, especially if the technical operation consumes only one or two minutes. Such an instrument is the Tallqvist hemoglobinometer, an instrument which was introduced two or three years ago, but which does not seem to have received the wide use which it merits. The comparison of a drop of blood on filter paper with a graduated color scale is so simple that many physicians have probably considered it inaccurate. It is well to bear in mind that accuracy in such procedures as estimating the hemoglobin is only relative with the best machines, and it is certainly more desirable that a large number of examinations should be made with a relatively inaccurate instrument than that a very few should be made with one which is relatively accurate. This is particularly the case if the range of error of the less accurate machine is known and is not so great as to exclude its use. Recently Verth and Schumacher¹ have made a large number of estimations with the Tallqvist scale, comparing them with 100 estimations made with the Fleischl hemoglobinometer. They find that there is an average variation in the reading of the Tallqvist scale of 10 per cent. from the reading of the Fleischl hemoglobinometer. This is not a marked difference, inasmuch as almost as great a variation often results in the readings of two observers examining the same blood. Verth and Schumacher come to the conclusion that the Tallqvist scale is perfectly reliable for all practical purposes. Tallqvist himself, in a recent paper,² adds his testimony, and that of Cabot and others whom he quotes from the literature, as to the general usefulness of the method. He adds one or two points which will be of service. In severe anemias he states that on holding the filter paper up to the light a moist ring is seen about the blood spot. This does not appear, as a rule, in chlorosis, but is seldom absent in pernicious anemia. In leukemia it is to be noted that the drop of blood is taken up by the filter paper with difficulty, dries slowly and irregularly so that the blood spot has a mottled appearance, and differs in gloss from the comparison scale.

THE PURE FOOD BILL.

The agitation in favor of the Pure Food Bill, which has been relaxed since the adjournment of Congress, will be resumed next winter when Congress is again in session. The evidence presented to the committees of the House and of the Senate in the past has been sufficient to warrant the most radical legislation for the protection of the people against the adulteration of food, drugs, etc. But as time goes on, other evidence is developing. The showing made by Bulley and Wood in our columns, in the full report on the effects of wood alcohol, is of itself sufficient to warrant legislation to protect the people against this substitution. The adulteration of whisky with wood alcohol in New York, to which we referred last week, and which caused the deaths of over twenty persons, comes at an opportune time to emphasize this point as regards wood alcohol. But there are other things happening, and these should be noted by those who want arguments next winter. For example, Dr. H. W. Wiley of the Government Bureau of Chemistry states that about 85 per cent. of all the whisky sold throughout the country is adulterated. He comments further that if pure whisky, except in the most moderate quantities, is injurious to the human system, how much more so, then, must be this adulterated preparation. Another instance is the fact that only a few days ago the New York police arrested some men belonging to a gang who are said to have disposed of half a million dollars' worth of bogus drugs. Some of their substitution was of coal-tar products and some of "patent medicines." While we are not particularly interested in the latter, nevertheless the fact remains that the public should be protected from taking any worse concoctions than those which it intends to take. It behooves us to give wide publicity to all these facts, and to bring to hear, on our representatives in the National Legislature next winter all the legitimate arguments we can to bring about the passage of the bill. The influence of money and commercial enterprise on the other side of the question must be counteracted by the thorough education of the people. And here is a field in which we can work now and continuously, for if we educate the people to a realization of the widespread substitution in drugs, and to the many and varied ways in which the health and even the lives of the people are sacrificed for commercial interests, it will not be long before their representatives will act.

Medical News.

GEORGIA.

Journal Applies for Charter.—Drs. Miller B. Hutchins and Bernard Wolf, Atlanta, have filed application for a charter for the Atlanta Medical Journal Company, with a paid-up capital of \$5,000.

Physician Injured.—Dr. Charles E. Murphey, Atlanta, while riding in his automobile was thrown out, when the wheels ran into a defective place in the pavement, and was seriously bruised and sustained internal injuries.

To Fight Tuberculosis.—The Georgia State Commission on Tuberculosis met in Macon, October 19, and organized with Dr. Charles Hicks, Dublin, chairman, and Dr. Bernard Wolf,

1. Münchener med. Woch., No. 20, 1904.
2. Berliner klin. Woch., No. 35, 1904.

Atlanta, secretary. The most important action taken was the adoption of the following resolution:

Resolved, That the members of this commission endeavor to secure statistics on each point mentioned in the bill creating this commission by correspondence with such physicians in the districts as deemed best by the members, or by any other means, and that they report the result to the secretary of this commission by April 1, 1905.

The bill calls for the report of the number of cases, number contracted, number imported, and a report as to whether physicians of the state are in favor of taking measures for the prevention of the disease.

ILLINOIS.

Seriously Ill.—Dr. Charles S. Young, Geneseo, is seriously ill from septicæmia supposed to have been contracted in performing an operation.

Smallpox.—There are nine cases of smallpox in and near Irving, the infection coming from East St. Louis.—The situation at Chatsworth is improving and quarantine will soon be raised.—The patients at Peru are progressing satisfactorily toward recovery.

Langdon Not Indicted.—In the case of Dr. P. R. Langdon, Kankakee, who was brought back from Europe charged with causing the death of a woman by a criminal operation, the grand jury failed to return an indictment, the vote being 11 for and 12 against.

Chicago.

Money to Combat Smallpox.—The City Council, at its meeting October 24, approved Health Commissioner Reynolds' request for an appropriation of \$15,000 to be used in fighting smallpox.

Personal.—Dr. Raymond C. Turck will go to Alma, Mich., November 1 as medical director and business manager of the Alma Springs sanitarium.—Dr. Frederick F. Garrison has located at Grand Boulevard and Forty-seventh Street.

County Hospital Staff Must Stand Examination.—Under a recently promulgated rule of the Board of County Commissioners, all physicians, whatever their age, rank or professional standing, will be obliged to pass a strict examination before they can be placed on the attending staff of Cook County Hospital. The board also voted to reduce the staff from 113 to 65.

The Week's Deaths.—During the week ended October 22, 462 deaths were reported, equivalent to an annual rate of 12.50 per 1,000. Consumption caused 54 deaths; acute intestinal diseases, 48; Bright's disease, 43; violence, 42; heart diseases, 38; pneumonia, 31, and cancer, 28. The increase of 38 deaths during the week is due to 9 more from Bright's disease, 13 from cancer, 9 from diphtheria, 11 from heart diseases, 5 from nervous diseases and 16 from violence.

Davis Park.—At the memorial services for Dr. N. S. Davis, referred to elsewhere, a letter was read from the president of the park commissioners of Chicago, in which it was announced that on account "of Dr. Davis' services to the city of Chicago and because of the high esteem in which he was held by the citizens," the South Park commissioners had named one of the new parks "Davis Square," in honor of Dr. Davis. It is bounded by Forty-fourth Street, Forty-fifth Street, Marshfield and Hermitage Avenues, contains a little over ten acres, and in the park field house a tablet will be placed in memory of Dr. Davis.

Memorial Service for Dr. N. S. Davis.—The friends, associates, students and admirers of the late Nathan Smith Davis filled Powers' Theater, October 23, at a memorial service, held to bear tribute to his character and achievements. Dr. Frank Billings spoke of Dr. Davis as a constructive worker in his profession; Dr. John H. Hollister, a lifelong friend, gave reminiscences of Dr. Davis' career; Bishop Lancaster Spalding, Peoria, delivered one of the principal addresses, and Bishop Stephen M. Merrill of Chicago the other. Over 1,000 were in attendance. The addresses will be printed in book form for distribution.

A Significant Warning.—The Department of Health in the current issue of the *Bulletin* discusses the smallpox situation as follows:

In the absence of any demonstrable source or cause of the 30 separate smallpox infection centers discovered during the week, the probability is strengthened that they have one common origin, to-wit, infected bedding and clothing of undetected cases that occurred last winter and spring. Because these cases were undetected, no disinfection of their bedding and clothing was secured; with the advent of warm weather blankets, underwear, etc., were packed away until the abnormally cold weather of the first few days of October brought them into use in artificially heated and poorly ventilated rooms, favorable to the active growth and diffusion of the contagion.

The most searching investigation has failed to show any connection between the infection centers; they are widely separated; the families were unknown to one another and did not interchange visits. Some of the victims had been away from the city; they had nothing in common, except the coincident development of the disease at a period directly related to the cold weather of three weeks previous.

It is true, nevertheless, that the majority of the cases had one significant feature in common: Of the 30 victims 27 had never been vaccinated at all, and the three exceptions had never been re-vaccinated. These latter were 34, 39 and 42 years of age respectively and bore imperfect, non-typical marks of vaccination attempted in childhood.

The lesson is obvious: For parents, see that your children are properly vaccinated forthwith. For adults—if not effectively re-vaccinated within the last few years, have the operation performed at once.

For parents the lesson gains added significance from the fact that ten of the cases or one-third are of children under 6 years of age. Last year's figures showed that a population of 245,000 under 6 years of age furnished 89 cases, or one case to every 2,750 of this age group—130 per cent. more than in the population over 6 years of age. Out of these 89 cases there were 14 deaths—a mortality rate of 15.7 per cent., or 23.6 per cent. greater than the mortality rate among those over 6 years.

The younger the child the more severe and fatal is smallpox.

KANSAS.

Proposed Sanitary Law.—As boards of health of Kansas cities are now powerless to remove nuisances, charging the cost to property owners, the State Board of Health is having a bill prepared for introduction in the next legislature giving boards of health in all cities authority to abate nuisances and charge the cost to the property on which they exist.

State Hospital for Epileptics Open.—The first group of cottages in the female department of the Kansas State Hospital for Epileptics at Parsons was opened for patients October 17, when 88 patients were transferred from the state hospitals for the insane. The male epileptics were transferred at the opening of the institution last year. The entire epileptic population of the state hospitals for the insane has now been removed to Parsons. The hospital has at present 265 patients, with a total capacity of 400. It is built on the cottage plan and is designed to accommodate 800 to 1,000 patients when completed. The construction and arrangement of the buildings afford ample opportunity for classification. Both sane and insane epileptics are received for treatment.

MARYLAND.

Baltimore.

Applies for Pardon.—Application has been made to the Governor for the pardon of Dr. George C. Worthington, who was sentenced in May, 1899, to ten years' imprisonment for practicing criminal abortion.

Osler Memorial.—The movement for a memorial to Dr. William Osler is now taking the direction of a great medical and library building. A very high figure is set for the collections, which it is thought will be national—possibly international—in extent.

Elected Presidents.—The following were elected presidents of their respective societies for the year: Johns Hopkins Medical Society, Dr. Joseph C. Bloodgood; Johns Hopkins Hospital Historical Club, Dr. Thomas McCrae; Medical Journal Club, Dr. John Ruhrah, and University Hospital Medical Society, Dr. John C. Hemmeter.

Personal.—Dr. Henrietta M. Thomas, daughter of the late Dr. Richard H. Thomas, will spend the winter in England, where she has relatives.—Dr. Alice L. Ernst, who has charge of a large hospital at Jhansi, India, under direction of the Woman's Union Foreign Missionary Society of New York, is taking a post-graduate course in Johns Hopkins Medical School.

NEW YORK.

Gold Medal for the Craig Colony.—The Craig Colony for Epileptics, Sonyea, has been awarded a gold medal for its exhibit at the St. Louis Exposition. The exhibit consisted of models, in groups, of thirty-eight of the sixty-six buildings that comprise this institution.

Bogus Doctors Fined.—Attorney Lewis, representing the state medical association, prosecuted a number of persons for practicing as physicians without proper registration. Four were convicted and fined, the sums ranging from \$35 to \$150, with the alternative of from ten to sixty days in jail.

Smallpox.—A serious outbreak of smallpox has occurred in the French settlement of Malone. The early outbreak is stated to be due to the unusually cold weather, over 70 cases having been reported.—Five cases of smallpox have ap-

peared among the bricklayers of Croton Point. It is supposed to have been brought from Hackensack, N. J.

Vaccination Compulsory.—At a special term of the Supreme Court in Albany the decision in a case in which the plaintiff had attacked the law on the ground that it was a violation of that provision of the constitution which provided that every child in the state should be afforded the opportunity to have a common school education, upheld the law that a child could not attend a public school unless vaccinated.

Society Hampered by Lack of Funds.—The Medical Society of the County of New York, replying to the criticism of the small number of medical charlatans punished through its efforts, gives as a reason lack of funds. The society has curtailed its scientific features in order to devote its funds to the suppression of quacks. It is also hampered by the difficulty of getting victims to testify, by certain defects in the medical law, and by objectionable advertising.

County Society and Club Practice.—At a regular meeting of the Fulton County Medical Society, held at Johnstown, Oct. 13, 1904, the following amendment to the by-laws of the society was unanimously adopted:

On and after the first day of January, 1905, no member of this society shall accept the position of club, society or organization physician, or do or agree to do any medical or surgical work for any club, society or organization at a less rate than the regular customary charges for like services rendered by other physicians for patients not members of such club, society or organization.

Also, in no case shall any physician agree to attend the families of the members of such club, society or organization at half price or a less price than the regular rate.

Nothing in this section shall be construed as preventing any member from attending the worthy poor at a less rate or from giving free service to those who are too poor to pay anything, or from acting as city, county or town physician, health officer, or from serving under any political appointments.

Any violation of this by-law shall be considered unprofessional conduct and shall render the member guilty thereof liable to suspension or expulsion from this society, as the society may determine.

Buffalo.

Tuberculous Houses Disinfected.—About 100 houses in which tuberculosis has existed are to be disinfected by the Department of Health.

Must Be Vaccinated.—Now that the Court of Appeals has affirmed the right of the educational authorities to exclude from the public schools pupils who refuse to be vaccinated, those who refuse to submit to the operation will be denied the use of the public schools in Buffalo.

Daily Medical Inspection of Schools.—A complete system of medical inspection of the schools has been established. A physician is sent daily to every school and the scholars are inspected as to contagious or infectious diseases. Trained nurses are assigned to the schools in the poorer districts. Children are made to keep themselves clean and three nurses make home inspections. They show the parents the necessity of keeping the children clean and healthy.

Exclusion and Fumigation.—For the benefit of the public school teachers the Board of Education published the following: "The Board of Health requires that the children of the household in which the contagious disease exists be excluded from the school until the termination of the disease and fumigation of the premises by the Board of Health. This applies to all contagious diseases except smallpox, when all the children in the house in which the case exists are excluded."

September Deaths.—The monthly report of the Department of Health for September shows a death rate of 15.88 per 1,000. The principal causes of death were: Consumption, 41; cholera infantum, 26; diphtheria, 7; typhoid fever, 15; debility, 48; cancer, 24; apoplexy, 21; valvular disease of the heart, 31; pneumonia, 17; appendicitis, 6; enterocolitis, 15; gastroenteritis, 20; ileocolitis, 12; nephritis, 22, and violence, 31. The total deaths for September were 503, as compared to 454 for September, 1903.

New York City.

Diphtheria Epidemic.—Nearly fifty pupils in public schools at Bay Ridge and Fort Hamilton in Brooklyn have been stricken with diphtheria.

Widal-Ehrlich Tests Free.—New York City makes the Widal blood examination and the Ehrlich diazo reaction as well as blood examinations for malaria gratis. This is in addition to sputum analyses.

Free from Smallpox.—During the past four or five years the city has been remarkably free from smallpox. There have been so few cases that the smallpox quarters on North Brothers Island has been cleared out.

Charitable Bequests.—Under the will of the late Moritz Frankenthal, the Hebrew Infant Asylum, the Montefiore Home for Chronic Invalids, the Home for Aged and Infirm Hebrews, Mt. Sinai Hospital and other charities received \$1,000 each.

Health Department Gets Prize.—Dr. Darlington, of the Health Commission of New York, received word that the department's exhibit at the St. Louis fair had been awarded the grand prize, the highest honor that this class of exhibits can get.

Entertainment for Hospital.—The Garde Républicaine Band of France gave a concert for the benefit of the French Hospital, which realized about \$4,000. The French government has contributed \$20,000 toward the erection of this building, now nearing completion.

Teacher for Consumptives.—The Board of Education has granted the request made by the Association for Improving the Condition of the Poor, for a teacher at the Seaside tent camp, Coney Island. These children have tuberculosis of bones, and the board, therefore, thinks that there is no danger of contagion.

Croton Water Not Contaminated.—The health commissioner, after going over the Croton watershed and examining the supply, says that from a bacteriologic standpoint the water is perfectly safe, though he thought that the Italian colonies located in close proximity should be removed. This might require special state legislation.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended October 15, 320 cases of tuberculosis, with 157 deaths; 275 cases of diphtheria, with 26 deaths; 140 cases of typhoid fever, with 26 deaths; 109 cases of scarlet fever, with 8 deaths; 26 cases of varicella; 52 cases of measles, with 6 deaths, and 13 deaths from cerebrospinal meningitis.

Pneumonia Inquiry Begins.—The pneumonia commission has had its first meeting in the offices of the Board of Health. The subjects discussed here were the frequency and variation of the occurrence of pneumonia, evidence of its communicability, mouth infection, seasonable relations and the collection of statistics and geographical relations. Dr. Edward G. Janeway was chosen chairman of the commission and Dr. T. Mitchell Prudden was made secretary. The commission was subdivided into a clinical committee and a bacteriologic committee.

New Dean.—The deanship of the College of Physicians and Surgeons of Columbia University, which has been filled by Dr. John G. Curtis as acting dean since the resignation of Dr. McLane, in June, 1903, has been filled by the election for the statutory term of Dr. Samuel W. Lambert, professor of applied therapeutics. Dr. Lambert becomes ex-officio a member of the Columbia University Council, of the board of trustees of the Roosevelt Hospital, and of the boards of managers of the Sloane Maternity Hospital and of the Vanderbilt Clinic.

OHIO.

Valentine in Cincinnati.—Dr. A. Ravogli gave a reception at his home in Clifton, October 17, in honor of his guest, Dr. Ferd. C. Valentine of New York City, who delivered an address before the Cincinnati Academy of Medicine.

Appointments.—Dr. Charles B. Rogers, formerly assistant physician at the Massillon State Hospital, has been made resident physician at the Cincinnati Sanitarium, College Hill.—Dr. John B. Alcorn, Gallipolis, has been appointed second assistant physician at the state penitentiary, Columbus.

County Society Does Its Duty.—Through the efforts of the Columbiana County Medical Society, Charles D. Stevenson, a practitioner of magnetism and electro-therapeutics, was indicted for illegal practice of medicine, pleaded guilty, and was sentenced to pay a fine of \$25 and costs, and to stand committed until payment of the fine and costs.

PENNSYLVANIA.

Philadelphia.

Physicians' Offices Robbed.—During the past few weeks a woman has visited the offices of physicians throughout the city and has stolen office furniture and instruments.

Lectures to Teachers.—Arrangements are being made by the Department of Health and Charities for a series of lectures to school teachers on "The Detection of Contagious Diseases," by Jay F. Schamberg of the Municipal Hospital.

Births During 1902 and 1903.—During 1903 there were 15,031 male and 14,810 female births, making a total of 29,841.

In 1902, 13,796 males and 13,017 females were born, making a total of 26,813, thus showing an increase in 1903 of 3,028 or 11.3 per cent.

University Medical Council.—The following have been chosen members of the Council of the Department of Medicine in the University of Pennsylvania: Dr. Alfred Stengel, to represent the professors of clinical medicine; Dr. Edward Martin, the professors of clinical surgery; Dr. Charles K. Mills, the professors and clinical professors of specialties, and Dr. Howard Fussell, teachers below the rank of clinical professors.

Copper as an Antiseptic.—Dr. George T. Moore, chief of the laboratory of plant physiology of the Department of Agriculture, spoke in this city October 21 on copper, both the metal and sulphate, as a germicide. As a bactericide, he said it possessed three cardinal points, efficiency, harmlessness and cost, and cited scientific authorities as to the harmlessness of the solution. He asserted that reservoirs holding 80,000,000 gallons had been treated successfully at a cost not greater than \$50. (See THE JOURNAL, Oct. 15, 1904, page 1157.)

Health Report.—The total number of deaths for the week was 380, a decrease of 34 from the record of last week and a decrease of 10 as compared with the corresponding period of last year. Typhoid fever cases show a marked decrease, but the total number of contagious disease cases exceeds those of last week, owing to the prevalence of scarlet fever and diphtheria. Two hundred and thirty-three cases of contagious disease, with 22 deaths, were reported during the week, as compared with 211 cases and 22 deaths during the preceding week. Eighty-eight deaths were due to diseases of the lungs.

Meat Preservative Adulteration.—C. W. Spencer was convicted of having sold meat preserved by the use of sodium sulphite. This case has aroused much interest throughout the state, and testimony was given by Drs. James C. Wilson, Philadelphia; Victor C. Vaughan, Ann Arbor, Mich.; Adolph Koenig, Pittsburg, and also by Edward M. Chase, chemist in the Department of Agriculture, Washington, all of whom testified for the commonwealth. They all asserted that this agent was harmful and poisonous. Dr. Wilson stated that the material combined with the hydrochloric acid in the stomach and thus interfered with digestion. He also asserted that from its absorption it destroyed the blood and therefore was responsible for anemia. Drs. Hobart A. Hare, Robert G. Eccles, Robert N. Willson and Oscar Leibrich of Berlin testified for the defense.

Food Preservatives Discussed.—At the meeting of the Medical Jurisprudence Society in the College of Physicians, October 17, Dr. William S. Wadsworth, coroner's physician, and Dr. Solomon Solis-Cohen advocated the establishment of legislation to eliminate the use of drugs as preservatives. They stated that only prolonged experiments, made under every possible condition, should be accepted as proof that any preservative is harmless. Dr. Henry Leffmann, speaking on the legislation of the sale of foods, said: "The adoption of food laws is merely the beginning of the work of suppressing adulteration. It is necessary to institute investigations, obtain and analyze specimens, make results public and bring prosecution." He further said that analytical results should be obtained and reported quickly, and that all the prosecutions shall be brought not more than a month after the purchase of the sample, and that the formal trial should not be more than six months later. He also advocated a system of warning to dealers. The first offense, he said, should be met by written notice to the offender, that a second offense would be prosecuted. Dr. Thomas L. Coley read a paper on the results of experiments he had made with benzoic acid and sodium benzoate. Benzoic acid, he says, is not a poisonous drug, and he could find no deaths recorded from its use. He cited an instance where one man took 680 grains without any bad result. He found by experiment that it has no bad effects on digestion in the proportion of one to ten. In food preservatives he found that it was used only in the proportion of 1 to 1,000. Vinegar, he stated, was more powerful for harm than any of the acids used as food preservatives.

TENNESSEE.

Old Gallatin Physicians Ill.—Dr. Andrew J. Swaney is critically ill with heart disease, and Dr. Thomas M. Woodson with paralysis.

Recommend Isolation Hospital.—The Davidson County Board of Health at its quarterly session in Nashville, October 3, unanimously recommended the erection of an isolation hospital at a cost of \$6,000 or less.

Smallpox.—At the meeting of the State Board of Health, October 5, a tabular statement was presented showing the prevalence of smallpox in the state for the six months ended September 15. There were 2,486 cases reported from 64 counties, 1,374 white and 1,112 colored, with a total mortality of 59. On September 15 there were 58 cases in the state, 14 of which were in Cooke County and 9 in Marion County.

Medical Departments Open.—The Medical Department of Vanderbilt University, Nashville, opened October 3. Dr. William Litterer has been made adjunct professor of pathology, bacteriology and physiology, and Dr. Robert S. Doak, adjunct professor of ophthalmology. The Medical Department of the University of Tennessee, Nashville, was formally opened October 3. The Medical Department of the University of Nashville opened for its fall session, October 1. The Medical Department of Grant University, Chattanooga, opened informally October 3.

WISCONSIN.

Typhoid Epidemic.—In Port Washington, a town of 3,400 population, 72 cases of typhoid fever have been reported, with four deaths.

School Inspectors Chosen.—Drs. Max V. Beust and John A. L. Bradford have been selected as medical examiners for the La Crosse schools for the coming year.

Ill and Injured.—Dr. Solon Marks, Milwaukee, slipped and fell recently, fracturing his hip.—Dr. Alfred L. Buchan, Racine, recently sustained serious wounds and bruises by falling through a window.

Personal.—Dr. Adolph Sonntag has been appointed house physician of Emergency Hospital, Milwaukee, succeeding Dr. George Hughes, who has received an appointment as physician at the Devil's Lake Indian reservation, North Dakota.

GENERAL.

Yellow Fever Stamped Out.—Yellow fever seems to be practically stamped out in southwest Texas and on the Mexican border. The United States Public Health and Marine-Hospital Service has withdrawn the sanitary force which has been stationed in the border section of the state.

California Physicians' Directory.—A new edition of the Official Register and Directory of Physicians and Surgeons in the State of California has just been received. This edition includes the names of physicians in Oregon and Washington and a list of hospitals and trained nurses. It also contains a copy of the laws regulating the practice of medicine in the three states and gives a list of the California state and county medical societies with their officers.

Sanitation in Cuba.—It is reported that the sanitary conditions of the cities in the eastern part of Cuba are becoming worse. The minority members of the Senate special committee on the question of resumption of government aid for the sanitation of cities has submitted a bill appropriating \$2,000,000 for that purpose. Of this sum \$500,000 is apportioned to Havana, \$123,000 to Santiago and \$143,000 to Puerto Principe. The majority of the committee oppose the granting of so much assistance.

Warning Against Impostor.—One of THE JOURNAL correspondents states that the profession should be warned of an impostor representing himself as a German physician of Disseldorf, who was compelled to come to America because he killed an army officer in a duel. He speaks of von Bergmann, Koehler and other surgeons as his friends, and, being in straitened circumstances, solicits funds. He is poorly dressed, speaks German very well and uses many technical medical terms. It is said that he picked up these terms while acting as orderly in Bellevue Hospital, New York.

Principal Causes of Death in Manila.—The report of the Board of Health for the Philippine Islands for June, 1904, shows that during that month in the city of Manila there were 14 deaths from typhoid, 16 from intermittent fever and malarial cachexia, 11 from pneumonia, 10 from cerebral congestion and hemorrhage, 9 from tetanus, 9 from organic heart disease, 14 from nephritis, 9 from tuberculosis of the larynx, 7 from chronic rheumatism, 5 from leprosy, 5 from angina pectoris, 4 from variola, 275 from convulsions, 250 of which occurred in children under 1 year of age, and 387 from various other causes. Forty-eight per cent. of the deaths in Manila during June occurred among children under one year of age, as compared with 53 per cent. during May.

Annual Report of the Surgeon General of the Navy.—In his annual report, Surgeon General Rixey, referring to the great difficulty of securing qualified medical men for the Navy, says that the interest of the entire naval personnel, officers and enlisted, is too seriously involved in the success of the effort now being made to secure and maintain the highest state of professional efficiency in the medical corps for it to be wise to place it at a disadvantage, in comparison with the medical staff of the Army, by offering inferior inducements to civilian medical men who might be inclined to enter the naval service. The bureau renews its recommendation that Congress be asked for legislation changing the name of the different grades of the medical corps now existing, as follows:

In place of surgeon general, surgeon admiral; and in the other grades, medical director to become surgeon captain; medical inspector, surgeon commander; surgeon, surgeon lieutenant commander; passed assistant surgeon, surgeon lieutenant, and assistant surgeon, surgeon lieutenant (junior grade).

The report also states that the Naval Medical School in Washington, D. C., is in a more thorough condition of preparedness for all its work than in the initial session of last year, and is now on a firm footing. The completion of improvements in the museum building to meet the requirements of larger classes increased the facilities for instruction, and supplies adequate accommodations.

CANADA.

Causes of Typhoid in Winnipeg.—The medical commissioners appointed by Winnipeg to report the cause of the prevalence of typhoid fever assign the epidemic almost wholly to insanitary conditions prevailing in the city and to the more-than-usually abundant house flies.

To Enlarge Hamilton Hospital.—A new wing is to be built to the Hamilton General Hospital at a cost of \$40,000, and to accommodate 65 patients. At the coming municipal elections the citizens will be asked to vote on a by-law for the purpose of raising \$50,000 for hospital purposes.

Government Detention Hospital at St. John, N. B.—Dr. P. H. Bryce, Ottawa, chief medical officer of the department of the interior, is in St. John, N. B., to select a site for a government detention hospital for which the federal government has voted \$30,000. The hospital is expected to be ready for patients next season.

FOREIGN.

A Medical Charity.—Dr. Blöde has given the city of Nuremberg an endowment of \$2,500, the income to be applied to supplying nourishing food to poor convalescents.

The German Red Cross Society in the East.—The German Red Cross Society has decided to erect a hospital at Irkutsk, Siberia, and to provide it with an auxiliary ambulance train. Negotiations are in progress regarding a similar hospital for the Japanese.

Von Bergmann Invited to Address the French Congress of Surgery.—Prof. E. von Bergmann of Berlin has accepted an invitation to deliver an address before the French Congress of Surgery this month. It is the first time that an invitation of this kind has been sent across the Rhine.

Koch Returns to Africa.—There has been a rumor that Koch intended to settle in Paris, but he is merely visiting there on his leisurely way to German Africa to study the cattle diseases transmitted by the tick. His research this time is purely scientific and not directly practical, his attention now being devoted to the study of the important problems of general biology. As foreign associate he was welcomed in the scientific organizations of western Europe, and in an interview reported in the *Presse Médicale*, stated that the combination of sanatorium and tuberculin treatment apparently induced an actual immunization in tuberculosis. The results of sanatorium treatment alone are not lasting. He remarked that he leaves the study of tuberculosis now entirely to others.

Visit of the French Physicians to London.—About 150 French physicians and surgeons formed the party which spent three interesting days in London two weeks ago. They were received and entertained with great cordiality, nearly 400 sitting down to the banquet, where witty Frenchmen spoke English and Englishmen French without restraint. The *Lancet's* leading editorial was in French, "Welcome et au revoir," and the institutes, hospitals and leading members of the British medical profession vied with each other in hospitality. A very large local committee had the matter in charge, and subscriptions poured in for the entertainment of the guests.

Sixth International Congress of Physiology.—The International Congress of Physiology recently concluded its sessions

at Brussels, to convene again in 1907 at Heidelberg, when Professor Kossel will preside. Professor Heger of Brussels was president of the congress and inaugurated a movement to erect a monument to Marey, the inventor of the sphygmograph, etc. Athanasie of Paris described experiments with what he called chromostylography and chronophotography, that is, the making of permanent records of the findings of the various registering apparatus used in physiologic research. The reports of the observations made at the international observatory on Mont Rosa, about 10,000 feet high, under charge of Professor Mosso of Turin, proved important for the study of the influence of altitude on the physiologic processes.

LONDON LETTER.

The Middlesex Hospital Cancer Research Laboratories.

The third report from the cancer research laboratories of the Middlesex Hospital has been issued. It is edited by Dr. Lazarus-Barlow and contains 12 separate papers. Mr. W. S. Handley writes on the centrifugal spread of mammary cancer in the pareties and its bearing on operation. He contends that the chief plane of extension is the deep fascia and that the skin nodules are secondary upgrowths from this; that this has not been sufficiently recognized by surgeons, so that the deep fascia is insufficiently removed. He also holds that the secondary foci in bones takes place in the same centrifugal manner, the disease extending by the medium of fascial attachments. Dr. Lazarus-Barlow contributes a paper on 4 cases of endothelioma of the tongue—a condition that has not been previously described. The patients were all males of the ages of 42, 44, 51 and 61. There is a difficulty in distinguishing the growths from epithelioma originating in the malpighian layer in which the cells remain of the undifferentiated type characteristic of this layer. Considerable aid in the differentiation was obtained by the study of the metastases. There is an interesting paper on the statistics of the Mayo Hospital, Lahore, India, by Captain Sutherland, I.M.S., and a comparison between these and the statistics of the Middlesex Hospital. Carcinoma of the penis is very common in the Mayo Hospital and occurs almost exclusively in Hindus; the freedom of Mahomedans is ascribed to circumcision. Carcinoma of the skin in the Mayo series is 17.6 per cent. of the whole; in the Middlesex, only 3.8. As to age periods, the greatest incidence occurred ten years earlier in the former series. Multiple primary growths are discussed by Dr. R. A. Young and 8 cases are described. In 5 the growths were of different histologic character and in 3 they were of the same type, but in two of the latter the independence of the growths was somewhat doubtful.

Formalin in Milk.

The question whether the minute quantities of formalin used to preserve milk exercise any injurious effect has given rise to a good deal of discussion and contradictory views have been expressed by experts. A case in which milk contained only .001 per cent. of formalin has been decided against a milk vendor. For the defense it was alleged that some preservative was necessary when milk had to be brought a long distance and that the quantity used in this case could not possibly injure health. Dr. Rideal, a public analyst and authority on hygiene, said that he was the first to make experiments in this country with formalin, in 1894, and had never known it to be injurious to health. He had given his son twenty times the quantity in question. The royal commission recommended the prohibition of the use of formalin because it was impossible to ascertain the quantity used in milk. On the other hand, Dr. Harris, health officer for Lewisham, where the action was tried, said that after taking daily a pint of milk containing one part of formalin in 100,000 for ten days he felt much discomfort and nausea, and considered that it must be deleterious to young and delicate children. Dr. Toogood, superintendent of the Lewisham Infirmary, said that formalin was an irritant poison and he had no doubt that one part in 100,000 retarded digestion if taken for any period. A fine of \$25 and \$12 costs was imposed.

The Bombay Plague Research Laboratory.

Valuable work has been done in the Bombay plague research laboratory which was founded by Mr. Haffkine in 1896, at the time of the outbreak of the disease in India. It soon became evident that the ordinary methods of disinfection, isolation, segregation, etc., were not applicable to the epidemic. The activity of the laboratory was then concentrated on the manu-

facture and distribution of a serum for preventive inoculation introduced by Haffkine. During the period in which the laboratory has been in existence the number of doses issued has amounted to 5,750,000, of which 250,000 has been sent to countries outside of India. It is claimed that the death rate of the inoculated is only one-sixth of that of the non-inoculated. The number of attacks is less than a third of that in the non-inoculated and the proportion of deaths to attacks is less than 25 per cent., or less than one-half of that in the non-inoculated. These figures refer to the natives, whose susceptibility to plague is high. Among the inoculated Europeans no fatal cases have been observed. On the other hand, the use of curative serums, such as Yersin's and Lustig's have not been attended with any notable benefit. A large amount of research work has been done in the laboratory in connection with various tropical diseases.

The Increase of Insanity.

The fifty-eighth report of the commissioners in lunacy shows that on Jan. 1, 1903, there were in England and Wales 113,964 persons certified as insane, and on Jan. 1, 1904, 117,199, an increase of 3,235. This increase is less than that of the previous year, which was 3,251, but it exceeds the annual average increase in the preceding ten years by 321. The proportion of insane to the general population at the beginning of the present year was 34.71 per 10,000 or one for every 288. In 1859 the proportion of certified insane to population was only 18.67 per 10,000, and since then the increase has been steady. This increase has been practically confined to the pauper class. Thus since 1859 the proportion of private patients has risen from 2.38 only to 2.83 per 10,000, while that of pauper lunatics has risen from 15.95 to 31.62. The assigned causes of insanity do not differ materially from those in the last report for the years 1897-1901. Hereditary influence was ascertained in 18.6 per cent. of the males and 24.4 per cent. of the females. Alcoholism takes a chief place among the physical causes, being noted in 22.8 per cent. of the males and 9.5 per cent. of the females. Venereal disease is assigned as a cause in 3.6 per cent. of the males and .8 per cent. of the females. As to the forms of insanity, the statistics of institutions, excluding those for idiots, show that for 1899-1902 5.5 per cent. of the admissions were for congenital insanity, 41.7 per cent. for mania, 29.5 per cent. for melancholia, 4.1 per cent. for delusional insanity, 6.4 per cent. for general paralysis and 12.8 per cent. for dementia. Since 1899 there has been an increase of melancholic types and a decrease of mania. In 1903 8,299 persons were discharged recovered. The percentage recovery rate on admissions exclusive of readmissions was 37.35, which is slightly below that of the average of the preceding ten years (38.08).

The Treatment of Idiots and Epileptics.

A royal commission has been appointed to consider the existing methods of dealing with idiots and epileptics, and with imbecile, feeble-minded or defective persons not certified under the lunacy laws, and in view of the hardship or danger resulting from or to such persons and the community from insufficient provision for their care, training and control, to report as to the amendments in the law or other measures which should be adopted in the matter, due regard being had to the expense involved in any such proposals and to the best means of securing economy therein.

PARIS LETTER.

The Crocker-Doyen Controversy.

During the last two weeks the attention not only of the medical profession, but also of the general public, has been called to what is known as the Crocker-Doyen affair, in which the reputation of one of the best-known French surgeons is at stake. The daily papers have devoted much space to a recital of the opinions of the various medical men as to Dr. Doyen's actions in the case. Dr. Doyen is about 45 years old and his father was a physician, who practiced at Rheims. After passing his internate in the Paris hospitals, a position which he obtained in 1881, he set up a *maison de santé* or private surgical hospital in his native town, and was soon known for his clever operating as *Doyen de Rheims*. At that time he attracted attention by his method for operating on fibroids, in which he aimed at great rapidity, and by his angiostribe, a species of huge pincers for obliterating arteries by pressure. Not finding Rheims a sufficient field, he erected a costly *maison de santé* in the rue Piccini, a street leading off the avenue du Bois de Boulogne, and where he operated on patients of every class. It was in this hospital that he operated on Radica

and Doodiea, who were to have been operated on by Kirmisson, professor of infantile surgery, but who were removed from Dr. Kirmisson's wards at Trouseau by means which were not to the liking of the latter. Dr. Doyen's interference in the Labori case is well known to American readers as well as his striving after notoriety by having himself cinematographed while operating. In 1902 he claimed to have found a serum for carbuncles, boils and other ills due to the same category of microbes, and presented to the Academy of Sciences his treatment for cancer by a special serum, claiming to have cured a number of patients. At the Congress of Surgery, held in 1903, he described the results he had obtained and it was then that Professor Pozzi asked him why he had not published the composition of his serum and details of its mode of preparation. Dr. Pozzi remarked that it would be an injustice to Dr. Doyen to suppose that he desires to retain the monopoly of it, as that would constitute the employment of a secret remedy, a speculation that would certainly be far from the intentions of his honorable colleague. Dr. Doyen's answer was that he had always placed this serum at the disposal of his colleagues and that he had followed the example of the Pasteur Institute. Dr. Pozzi replied that so long as Dr. Doyen did not publish the methods employed in preparing his serum, it could not be considered otherwise than as a secret remedy. There is a law in France which punishes anyone selling a secret remedy, the composition of which has not been registered, by a fine of from 10 to 1,000 francs (\$2 to \$190), and Dr. Doyen is liable to this.

In connection with the tremendous fee which Dr. Doyen demanded from Mr. Crocker, the circumstances attending which having been reported in the daily papers, various French physicians have been interviewed and their opinions vary considerably. Dr. Ledetee, surgeon of the Necker Hospital, remarked that one always comes to an understanding with a patient when one is conscientious. Dr. Pinar, the chief of French accoucheurs, said that he had never asked for a fee and never would. Dr. Legond, the well-known gynecologist, said that fees were never exacted in advance. Dr. Leguen considered that the serum was worthless and, referring to the practice of exacting a fee in advance, remarked that it was not entirely regular. Dr. Max Nordan, the well-known author of "Degeneration" and kindred works, cited two cases where a similar sum, i. e., 100,000 francs (\$19,000), was paid to a physician. In one case Dr. Pajot, a celebrated accoucheur, went to Rio de Janeiro to treat the oldest daughter of Dom Pedro II. and spent three weeks on the road, and stopped ten days in Rio. The second was when Kussmaul, the professor of internal medicine at Heidelberg, was called to Paris by Baron Hirsch, to see his oldest son, who was ill with typhoid fever. The best practitioners in Paris had pronounced the case hopeless. Dr. Kussmaul could only agree with his French colleagues, but Baron Hirsch begged him to stay and, when after twenty-four hours the child was dead, he handed him a check for 100,000 francs. Dr. Charles Walther, who is perhaps the best general surgeon in Paris, refused to be interviewed, following in this the example of Professor Debove, the dean of the faculty. Professor Berger, one of the professors of clinical surgery, the best known surgeon in Paris for bone affections, remarked that he did not possess a sufficient number of the facts to give an opinion. Dr. Doyen has also been interviewed and said that he was a victim of the ill-will of his colleagues, and that he would make a communication to the Congress of Surgery October 18.

Correspondence.

Distribution of Medical College Graduates.

ST. LOUIS, Oct. 18, 1904.

To the Editor:—In your Educational Number, Aug. 13, 1904, is printed a "Table of State Board Examination Results" for the year 1903. The table is incomplete, as indicated by asterisks, as to the returns from Illinois, Kansas, Montana and Pennsylvania, and yet the statistical genius that got up this table proceeds to calculate "percentages of failures" from these faulty data. The Medical Department of Washington University is made a victim of this inaccuracy and misleading conclusion.

We are quoted as having had 13 men up for examination, viz.: 4 in California, 1 in Indiana, 1 in Iowa, 1 in Michigan, 1 in New York, 1 in North Carolina, 3 in Oklahoma, and 1 in Washington. Three failures are recorded, viz.: 2 in Califor-

nia and 1 in Oklahoma. And so we are charged with a failure of 23 per cent.

I have before me the official record of Dr. James A. Egan, secretary of the Illinois State Board of Health, to-wit: "In 1903 twenty-seven of your graduates appeared before this board for examination, and all of these candidates passed successfully."

It appears, therefore, that out of 40 applicants 3 failed, or 7.5 per cent. And even this figure is not a true indication. The men who failed in California and Oklahoma are graduates of long ago before the organization of the Medical Department of Washington University, which took place in 1891. These men have evidently not kept pace with the modern advances in medicine.

ROBERT LUEDEKING, M. D.,
Dean, Medical Department, Washington University.

[It is pleasing to note that our table is already doing good work. Criticisms such as the above were not unexpected, and we are glad to correct any wrong impressions conveyed thereby. It is to be hoped that other medical colleges will have as earnest a desire as the Medical Department of Washington University to have as good a showing as possible. The table referred to was as complete as could be prepared from the data obtained and on the basis of such data is accurate. It was based on reports of examining boards for the calendar year 1903, not pretending to be only for 1903 graduates. As was carefully stated in our editorial, which accompanied the table (page 473), the percentages of the medical colleges of certain states would have been different had the examining boards of those states sent us the reports of their examinations as they were repeatedly requested to do. For instance, if the Missouri State Examining Board had sent us reports that could be used, the percentage of the Medical Department of Washington University, as well as those of the other medical colleges of Missouri, would undoubtedly have been different.—EDITOR.]

Diagnosis of Cholecystitis and Cholelithiasis.

CINCINNATI, Oct. 21, 1904.

To the Editor.—The excellent contribution of Dr. Parker Syms with the above title, in THE JOURNAL for October 15, serves me as a text to say something that I have frequently felt prompted to say on the significance of pain and tenderness as symptoms of cholelithiasis. The question is one of importance for the reason that, as I have had frequent occasion to observe in late and complicated cases that have been referred to me for operation, the delay on the part of the practitioner in making the diagnosis has been due to the absence of what he has been taught to look on as a "characteristic pain." Dr. Syms says of this pain that its characteristic features "are its acute onset, its colicky nature, and, as described by Lambert, the patient experiences a sense of something boring through the abdomen to the vertebra." That there is such a pain, where sudden cessation is likewise one of its characteristics, is not denied any more than, when present, it indicates obstruction, generally due to gallstones, in some part of the gall tract. But there are many cases of cholelithiasis that never have an attack of this character. I recall a case, a comparatively recent one, from Ross, Ohio, a woman of 68, who, during eighteen years, had had repeated attacks of jaundice, often associated with epigastric discomfort, but who had never had an attack of "gallstone colic." Yet at the time of operation—which I am glad to say was successful—I found a very large monolith—a conglomerate, however, made up of a hundred or more original concretions—completely occupying the gall bladder, which had become infected and was beginning to suppurate through into the colon. Another case came to me some years ago from Huntsville, Ala., giving a history of repeated attacks of jaundice covering a period of twelve years, during all of which time, but without reference to the attacks of jaundice, she had had discomfort, but never a colicky seizure, in the right upper quadrant of the abdomen. She was choleric and I found a stone lodged in the ampulla of Vater. These examples might be multiplied, but the two cases that I have given are sufficient to show that the absence

of "gallstone colic" is no evidence that gallstones or other forms of obstruction do not exist in cases giving other features of gallstone history.

Then a word as to tenderness and its location. I have long looked on the discovery of the "McBurney point" and its acceptance by the profession as an essential symptom of appendicitis as a serious misfortune. For I am convinced that, by the absence of this sign, many cases have been permitted to develop fatal complications before their true character has been detected. And I am equally sure that if we are to have a "Mayo Robson point" for gallstones we shall have a correspondingly large number of blunders in diagnosis. Thus, within the last fortnight I did a posterior gastro-enterostomy for surgical ulcer of the stomach and duodenum ("chronic dyspepsia") which had been diagnosed, among numerous other things, as a case of gallstones, the diagnosis having been based on tenderness at what I assume is meant by the "Mayo Robson point," i. e., a point about midway along a line from the umbilicus to the ninth costal cartilage. But as to this I may be in error. What, then, is the "Mayo Robson point?" The only reference that I find to it is in Mr. Mayo Robson's book on the "Diseases of the Gall Bladder and Bile Ducts," page 230, as follows:

Just as in appendicitis there is tenderness over McBurney's point, so in gallstones, with very few exceptions, marked tenderness will be found on pressing the finger deeply over the region of the gall bladder, or over some point in a line from the ninth costal cartilage to the umbilicus.

Now as the gall bladder may occupy almost any part or all of the area between the costal cartilages and the crest of the ilium, and as the line from the umbilicus to the ninth costal cartilage is quite seven inches in length, it will be seen that the so-called "Mayo Robson point" is coextensive with at least the right upper quadrant of the abdomen. Or, in other words, we may felicitate ourselves, as I have no doubt that Mr. Mayo Robson will felicitate himself, that we have no such thing as a "Mayo Robson point." I am sure that the quoted words and the valuable diagnostic sign that they describe were never intended by their author to be accepted in the absolute and dogmatic sense implied by Dr. Parker Syms' use of them.

The tendency of "sure signs" is to increase reliance on them and to obscure the diagnostic significance of that *ensemble* of symptoms that go to make up the clinical picture, and that, in the present instance, are so graphically depicted in Dr. Syms' masterly contribution.

CHARLES A. L. REED.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

THE MOST EXTENSIVE BOWEL RESECTION.

ST. LOUIS, Oct. 5, 1904.

To the Editor.—Please inform me what is the longest piece of bowel removed entire from a patient with complete recovery. Dr. W. J. Doyle, of the City Hospital, has removed a piece of intestine 6 feet 2 inches in length, containing sixteen perforations. The patient recovered.

G. H. C.

ANSWER.—The question is one not so much of the amount of small intestine that can be removed with recovery, but of the amount of intestine remaining. The length of the small intestine, according to a series of several hundred measurements made by Paul Dreike (*Deutsch. Zeitsch. f. Chir.*, 1895, vol. xl, p. 43), varied in the adult male from 340 cm. (11+ ft.) to 998 cm. (33+ ft.), the average being 623.6 cm. (20.8+ ft.). A number of cases are on record in which extensive resections of the intestine have been made, see Kinkula (*Arch. f. klin. Chir.*, 1900, ix, p. 887), Barker (*London Lancet*, 1901, April 27) and Fayr (*Arch. f. klin. Chir.*, 1902, lxviii, p. 181). In the latter article there are several cases recorded in which from 200 cm. (6 2/3+ ft.), the amount mentioned in the query) to 330 cm. (11+ ft.) were removed with complete recovery of the patient. The most remarkable case of all, however, is one reported by Nigrisali (XVI Cong. Ital. di Chir., 1902), recorded in Hildebrandt's *Jahresbericht*, 1902, in which 520 cm. (or a little over 17 ft.) were removed and the patient recovered. From this it is apparent that the amount of intestine which can be successfully removed depends entirely on the length of the intestine in the particular patient, for it is very evident that 520 cm., or even 330 cm., could not have been removed from a

patient with only 340 cm. of small intestine, while possibly even more than 520 cm. might be successfully removed from a patient with 598 cm. The particular part of the small intestine which is removed also has a bearing on the subject, for the studies of Albu (*Zeit. klin. Woch.*, 1901, No. 50, p. 16), of digestion and absorption in patients from whom a considerable portion of small intestine had been removed, shows that the lower part of the ileum can be dispensed with better than the upper part of the small intestine. A certain length of small intestine is essential in order that sufficient food may be digested and absorbed to maintain the nutrition of the individual. This is apparently in the neighborhood of 350 cm. Hence the importance of knowing the length of the small intestine which remains rather than the amount which is removed.

CONTRACT PRACTICE.

LOGANSPORT, IND., Oct. 21, 1904.

To the Editor:—Certain physicians of this town have contracted with certain lodges (fraternal insurance organizations) to treat the members and their families for so much a year, and the price is two dollars a year for a family. 1. Is this fair to the other physicians? 2. Is it ethical?

ANSWER.—It is not fair to the other physicians in the town. Physicians, with few exceptions, are ready and willing to give their services to the poor, but it is neither charitable nor necessary to make professional visits for less than the usual fee to people who are in receipt of an average income, as is the case with those who belong to lodges. We have several times referred to the dangers to the profession of contract practice, and it is unnecessary to repeat the warnings already given. The evil has not assumed the proportion in this country which it has in Great Britain and Europe, but it is fast becoming a problem which will require the united efforts of the profession to solve. A physician who undertakes "club practice" not only lowers his own dignity, but also degrades the profession. 2. It is not ethical. The Principles of Ethics of the American Medical Association, in Article VI, states:

"By the members of no profession are eleemosynary services more liberally dispensed than by the medical, but justice requires that some limits should be placed to their performance. . . . Poverty, as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by the rich, or by societies for mutual benefit, for life insurance, or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege."

See New York State news this week.

CALOMEL AS AN INTESTINAL ANTISEPTIC.

TOLEDO, OHIO, Oct. 20, 1904.

To the Editor:—There is a theory that calomel is a good, if not the best, intestinal antiseptic, and the theory, or fact, whichever it may be, underlies the administration of the medicine in the larger number of instances where it is prescribed. I will be obliged if you will give the basis for the belief and practice. Is the antiseptics due to chemical or to changed physiologic process?

J. L. TRACY.

ANSWER.—The antiseptic power of calomel on the intestinal tract is indisputable. The cause of this action is undoubtedly chemical, metallic mercury and all of its compounds possessing marked germicidal properties. When calomel is taken internally, on account of its sparing solubility it passes, to a great extent, unchanged, into the intestines and is there, in part, slowly dissolved either as such or somewhat altered in its chemical composition and is an active destroyer of bacteria.

X-RAY THERAPY IN TUBERCULAR JOINTS.

LINCOLN, IOWA, Oct. 17, 1904.

To the Editor:—I have a patient with tuberculosis of the wrist joint who absolutely refuses all operative measures. I have wondered if x-ray treatment would be beneficial, but can find no literature on the subject. Can you inform me where I can find reports on this method of treatment?

C. B. C.

ANSWER.—In Pusey and Caldwell's work, "The Reagent Rays in Therapeutics and Diagnosis," pages 423-425, several cases of tubercular joints treated with x-rays are reported. Dr. Murphy reported a case of tuberculosis of the knee joint treated in this way. In the *Journal of Advanced Therapeutics*, 1902, xxi, p. 250. A case of tubercular arthritis is reported in the *Therapeutic Gazette*, 1902, xxvi, p. 650.

FERRIER'S SNUFF.

ZANESVILLE, OHIO, Oct. 30, 1904.

To the Editor:—Please publish the formula for Ferrier's snuff.

F. S. B.

ANSWER.—

- R. Morphinae hydrochloratis. ʒ part
- Aceciae pulvis 60 parts
- Bismuthi oxychloratis ʒ80 parts

From one to three drams to be used as a snuff in 24 hours. This (British) preparation is used in acute coryza. Powdered cubes may be added to the formula.

GERMAN SURGICAL JOURNALS.

WACO, TEXAS, Oct. 10, 1904.

To the Editor:—I desire to subscribe for a surgical journal in German. Kindly give the name, address and subscription price of the best surgical journals in the German language.

K. H. AYNESWORTH.

ANSWER.—*Archiv für klin. Chirurgie*, Berlin; *Beiträge zur klin. Chirurgie*, Tübingen, and *Deutsche Zeitschrift für Chirurgie*, Leipzig, are three of the best German surgical journals. The price of the first two varies from \$2.25 to \$3.25 a part. The parts appear irregularly, about eight are received a year. The price of the *Zeitschrift* is \$4.80 a volume, which consists of six parts. These also appear irregularly, from two to three volumes a year. It is the cheapest of the three.

REQUIREMENTS FOR PRACTICE IN WASHINGTON.

HALEYVILLE, I. T., Oct. 19, 1904.

To the Editor:—What are the requirements for the practice of medicine in the state of Washington? Is any diploma accepted or is there any reciprocity with Illinois or Missouri? W. H. HOARNE.

ANSWER.—Persons desiring to practice medicine in the state of Washington are required to file evidence of graduation from a duly authorized medical college and to pass an examination. A grade of 75 per cent. is required, but those who have practiced ten years or over will be accepted on an average of 70. Washington does not reciprocate with any state.

Marriages.

F. E. KEFLEY, M. D., Mount Sterling, Ill., in Peoria, Ill., October 3.

OTTO W. KONZELMAN, M.D., to Miss Marie Pedersen, both of Chicago, October 5.

CLARENCE P. ERKENBRACK, M.D., to Miss Teresa Rose, both of Baltimore, October 19.

OTTO R. SPIEGEL, M.D., Terre Haute, Ind., to Miss Adah McPheeters of Bedford, Ind.

CARLETON S. MYERS, M.D., to Miss Blanche Irwin Stevens, both of Chicago, October 11.

GUSTAVE A. HEDEL, M.D., to Miss Harriet Hunt, both of Muscatine, Iowa, October 12.

JEREMIAH H. STEALY, M.D., Freeport, Ill., to Miss Zara H. Anderson, at Chicago, October 5.

SILAS GILBERT ALLEN, M.D., Clarkson, Neb., to Miss Louise M. Beran of Ord, Neb., October 12.

FRANZ H. BRANT, M. D., Chicago, to Miss Pauline Woltmann of Rock Island, Ill., October 10.

CHARLES W. MACGURE, M.D., Toledo, Ohio, to Mrs. Gertrude Matt of Venice, Ohio, October 5.

RODNEY S. SMITH, M.D., Saegerstown, Pa., to Miss Bessie Mook, at Conneautville, Pa., October 5.

JOHN H. CROWE, M.D., Virginia, Minn., to Miss Elizabeth Belle Tucker, of Salem, Ind., October 26.

HILARY T. WILLIS, M.D., Luray, Va., to Miss Emma Elizabeth Willis, at Lignum, Va., October 15.

JOHN HOWARD B-YANT, M.D., Galesburg, Ill., to Miss Lillian H. Warfield of Princeton, Ill., October 26.

WILLIAM WALTER PRETTIS, M.D., Platteville, Wis., to Miss Anna Maddock of St. Joseph, Ill., October 19.

E. J. BUTZKE, M.D., Jackson, Wis., to Miss Effajean McCormack of West Bend, Wis., September 29.

WILLIAM FRANCIS BUSHNELL, M.D., Freeport, Ill., to Miss Sadie Agatha Hummer of Iowa City, Iowa, October 6.

GEORGE H. STEWART, M.D., of Baltimore, to Miss Virginia Irene Blakemore of Virginia, at Baltimore, October 19.

GORDON F. HARKNESS, M.D., Davenport, Iowa, to Miss Mabel Gunsols of San Jose, Cal., at Iowa City, Iowa, October 19.

THEODORE N. PEASE, M.D., U. S. Navy, Washington, D. C., to Miss Mary Armistead Marshall, at Alexandria, Va., October 20.

P. HEBERT, M.D., Iron Mountain, Mich., to Miss Hannah Wemer of Hassle Bösarp, Sweden, in New York City, October 19.

Deaths.

Theodore F. Prewitt, M.D. St. Louis Medical College, 1856, for many years a member of the American Medical Association, formerly president of the American Surgical Association, of the Medical Association of the State of Missouri and of the

St. Louis Medical Society; member of the St. Louis Surgical Society; professor of principles of surgery in the Medical Department of Washington University and the Missouri Medical College, St. Louis, died at his home in St. Louis, October 17, after an illness of one year, aged 70.

Shadrack Cate Morrill, M.D. Homeopathic Hospital College, Cleveland, 1864, a member of the American Medical Association and of the New Hampshire Medical Society, who took additional courses at Harvard University Medical School and the College of Physicians and Surgeons of New York; one of the founders of the Margaret Pillsbury Hospital, Concord, N. H., and a life member of its staff, died at his home in Concord, October 9, after a long illness, aged 63.

Thomas J. Prichard, M.D. Medical College of Ohio, Cincinnati, 1883, a member of the American Medical Association; West Virginia Medical Association, Tri-State Medical Association and Cabell County Medical Society; formerly a member of the State Board of Medical Examiners; one of the most beloved and best known practitioners of southern West Virginia, died at his home in Huntington, October 5, from septicemia after an illness of three weeks, aged 44.

George Purviance, M.D., assistant surgeon-general United States Public Health and Marine-Hospital Service, Jefferson Medical College, Philadelphia, 1867, of Washington, D. C., while under treatment for an acute disorder in the Orthopedic Hospital, Philadelphia, threw himself from a fourth-story window of the hospital October 20, and was instantly killed.

Richard Sweet, M.D., assistant surgeon in the One Hundred Twenty-third United States Infantry in the Civil War, and also surgeon during the Franco-Prussian war, died at the Soldiers' Home, Marshalltown, Iowa, from the effects of carbolic acid taken with suicidal intent, October 11, aged 69.

W. W. Allen, M.D., a member of the American Medical Association and of the Medical Association of the State of Missouri, of Fort Pierre, S. D., who fractured his leg in a runaway accident several months ago, died from septicemia in a hospital in Pierre, S. D., October 15.

Joel Cloud Kendrick, M.D. University of Nashville (Tenn.) Medical Department, 1852, for many years health officer, and once mayor of Greenville, Ala., a Confederate officer, died at his home in Greenville October 9, from pneumonia, after an illness of one week, aged 72.

James Warren Lowell, M.D. Medical School of Maine, at Bowdoin College, Brunswick, 1866, died at his home in South Portland, Maine, October 8, after an illness of ten weeks which began with an attack of pneumonia, aged 62.

Hamilton E. Smith, M.D. University of Buffalo, 1859, assistant surgeon of the Twenty-Seventh Michigan Volunteer Infantry throughout the Civil War, died suddenly at his home in Detroit, October 8, from heart disease, aged 64.

Gideon F. Lower, M.D. University of Wooster Medical Department, Cleveland, 1890, of Canal Dover, Ohio, died at his former home in Port Washington, Ohio, October 12, from consumption, after an illness of a year, aged 54.

Herman Schafer, M.D. Long Island College Hospital, Brooklyn, N. Y., 1866, of San Diego, Cal., surgeon during the Civil War, died in Monrovia, Cal., from lung disease resulting from a wound received in the Civil War, aged 72.

August Frederic Muller, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1868, chief of staff of the Germantown (Pa.) Hospital, died at his home in Germantown October 20, from cancer, aged 64.

Clarendon L. Willey, M.D. University of Vermont, Burlington, 1903, formerly house physician of the Lynn Hospital, committed suicide October 12, by inhaling illuminating gas, while despondent from illness, aged 28.

John J. Tobin, M.D. New Orleans School of Medicine, 1861, staff surgeon with Hood's Brigade during the Civil War, died at his home in Austin, Texas, October 12, after an operation for intestinal obstruction, aged 66.

James T. McCulluch, M.D. Jefferson Medical College, Philadelphia, 1877, a member of the Armstrong County and Allegheny Valley medical associations, died at his home in Freeport, Pa., October 13, aged 53.

John Wellner, M.D. Jefferson Medical College, Philadelphia, 1903, of Titusville, Pa., an interne in Mercy Hospital, Pittsburgh, died in that institution October 9, from typhoid fever, after a short illness, aged 22.

William White, M.D. Medical Department of Hampden Sidney College, Richmond, Va., 1841, of Abingdon, Va., died October 13, in Johns Hopkins Hospital, Baltimore, where he recently underwent operation.

Nathan S. Hatfield, M.D. University of Wooster Medical Department, Cleveland, 1879, died at his home in Bowling Green, Ohio, October 6, after a long illness, from cancer of the intestines, aged 59.

Samuel A. Wilson, M.D. Medical Institution of Yale College, New Haven, Conn., 1832, who retired from practice in 1884, died suddenly from apoplexy at his home in Windsor, Conn., October 9, aged 76.

Andrew Wolfe Lyons, M.D. Columbus (Ohio) Medical College, 1876, who had been in bad health for the past two years, died suddenly at his home in Bridgeport, Conn., October 8, aged 52.

Oscar S. Erskine, M.D. Medical School of Maine, at Bowdoin College, Brunswick, 1887, died at his home in Winterport, Maine, October 8, from consumption, after an illness of two years.

Benjamin F. Reynolds, M.D. Medical College of Ohio, Cincinnati, 1864, president of the Nicholas County (Ky.) Board of Health, died at his home in Carlisle, October 10, aged 68.

William L. Severance, M. D. University of Vermont, Burlington, 1884, died at his home in Greenfield, Mass., from tuberculosis, October 1, after an illness of two years, aged 46.

Clarendon B. Harrison, M.D. Columbus (Ohio) Medical College, 1884, died at his home in Wellston, Ohio, October 5, from consumption, after an illness of a year, aged 52.

Richard C. Lee, M.D. University of Maryland School of Medicine, Baltimore, 1859, formerly coroner of Baltimore County, died at his home in Baltimore, October 20, aged 71.

Eugene H. Meade, M.D. University of Michigan, Ann Arbor, died at his home in Winsted, Conn., October 6, from spinal disease, after an invalidism of ten years, aged 51.

Joseph N. Henry, M.D. major and surgeon, U. S. V., who served acceptably in Cuba and the Philippines, died near Devon, Pa., after a long illness, October 3.

George B. Cole, M.D. Charity Hospital Medical College, Cleveland, 1867, died at his home in Medford, Ore., September 28, after a long illness, aged about 65.

William T. Owsley, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1889, died at his home in Glasgow, Ky., October 14, after a lingering illness.

Calvin L. Klopp, M.D. Pennsylvania, 1887, died from intermittent fever at his home in Reading, Pa., October 8, after an illness of two months, aged 41.

Stephen B. Stovall, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1848, died at his home in Vienna, Ga., October 10, aged 77.

John F. Mehrmann, M.D. University of Jena, Germany, 1847, died suddenly at his home in Oakland, Cal., October 4, from valvular heart disease, aged 76.

Ralph D'Ary, M.D. Ohio, 1878, died at his home in Wartburg, Tenn., October 7, from locomotor ataxia, after an illness of several years, aged 60.

Francis B. Greenough, M.D. Harvard University Medical School, Boston, 1867, died at his home in Brookline, Mass., October 16, aged 67.

J. J. Thornton, M.D., a pioneer settler of Gulfport, Miss., died at his home in that city, October 16, after many years of invalidism, aged 71.

Austin Lord, M.D. Medical Institution of Yale College, New Haven, Conn., 1844, died at his home in North Haven, Conn., October 11, aged 83.

J. W. Cecil, M.D. Rush Medical College, Chicago, 1889, of Hiawatha, Kan., died from heart disease in St. Joseph, Mo., October 3, aged 45.

George A. Blose, M.D. Jefferson Medical College, Philadelphia, 1883, died suddenly at his home in Tarentum, Pa., October 15, aged 49.

Carthon Archer, M.D. Medical College of Virginia, Richmond, 1848, died at his home in Henrico County, Virginia, September 30, aged 80.

Franklin D. Wright, M.D., of Atlanta, Ga., died at the home of his brother in Leguinn, Ga., October 17, from heart disease, aged 50.

Charles Darion Shepard, M.D. University of Buffalo, died at his home in Peckskill, N. Y., from Bright's disease, October 7, aged 52.

David H. Yockey, M.D. Indiana, 1897, died suddenly at his home in Richmond, Ind., October 6, from heart disease, aged 51.

Adelin Gasser, M.D. University of Erlangen, Germany, 1889, died at his home in Hancock, Mich., October 10, aged 45.

Edward C. Sample, M.D., 1853, a surgeon in the Civil War, died at his home in Florin, Pa., September 27, aged 75.

Joseph Brandt Enos, M.D. Ohio, 1874, died from heart disease at his home in Charleroi, Pa., October 12, aged 51.

Joseph J. Alleman, M.D. Michigan, 1875, died suddenly at his home in Union Springs, N. Y., September 27.

M. Howard Harpel, M.D. Pennsylvania, 1867, died at his home in Shamokin, Pa., October 11, aged 66.

George Wentz, M.D., died at Catonsville, Md., October 19, from cancer of the stomach, aged 68.

Joseph T. Harris, M.D., 1876, died at his home in Gridley, Cal., September 22, from apoplexy.

James W. Cummings, M.D., died at his home in West Haven, Conn., October 13, aged 69.

Book Notices.

DISEASES OF THE INTESTINES. By Dr. I. Boas, Specialist for Gastrointestinal Diseases in Berlin. Second Revised and Enlarged American Edition, Translated by Permission from the German Edition, with Special Notations and Additions. By Seymour Basch, M.D., New York City. With 48 Illustrations. Cloth. Pp. 600. Price, \$5.00. New York and London: D. Appleton & Co. 1904.

New chapters have been added on dysentery, syphilis and actinomycosis of the intestines. The brevity of the chapter on actinomycosis hardly suffices to adequately discuss this disease. There is a tendency in this book to group different processes under the same heading. Thus "Intestinal Ulcers" includes distinct etiologic entities. Scientific exactness would demand that separate diseases be given separate discussion; otherwise there is danger that they may lose their individuality. Hyperplastic tuberculosis of the intestine does not receive enough attention.

A TEXT-BOOK OF HUMAN PHYSIOLOGY. By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Hygiene in the Jefferson Medical College. With Colored Plates and 354 Illustrations. Cloth. Pp. 690. Price, \$4.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

The special object of this book is to help physicians and students of medicine to acquire the knowledge of physiology necessary to practice medicine. The author has taught physiology for twenty-five years and has been guided in the preparation of this work largely by his experience as a teacher. An examination of the book shows that the main facts of the older physiology are given clearly and succinctly, but we miss adequate references to and discussions of these newer facts of such fundamental importance to physiology that have come from the application to physiologic investigation of physical and chemical methods. The influence of inorganic salts and their ions, of osmotic pressure, of electrical charges, of catalysis in life phenomena is not given direct attention and yet these are factors of fundamental importance in physiology. The presence of lysins and other substances of great interest in normal blood does not appear to be mentioned. We miss from the index such important words as calcium, ferment, catalysis, osmotic pressure, lysin, etc. Evidently there has been omitted from this text-book of physiology much information that it seems essential that physicians of these times should have an opportunity to study if they are to be able to follow the development of scientific medicine, a development that is fraught with the greatest practical significance. Teachers of physiology should concern themselves especially with the matters of fundamental importance in their science, the matters that determine the direction in which physiology is developing because these matters are in the end of as great if not greater practical importance to the student of medicine as the well-established, familiar facts in regard to the more manifest workings of the circulatory, respiratory and other systems. Teachers of physiology must beware lest they in their efforts to be "practical" cease to

be scientific, and thus fail to instill in their students that scientific spirit and interest which physiology is sure to call forth when its study is properly conducted, namely, from the investigative rather than the dogmatic point of view. Physicians sink quickly into the slavery of routinism if not animated by a spirit of inquiry, of criticism, of independent judgment. And how are such qualities to grow in our medical students if they are to be denied the stimulus that comes from the study of the living, growing part of sciences of such fundamental import as physiology?

Miscellany.

Increase of Susceptibility by Depressing Circumstances.—An interesting series of researches is reported by von Stejskal in the *Zeitschrift f. Heilkunde*, XXV, No. 1. He administered potassium and deuto-albumoses to animals in small amounts, enough to cause mild but by no means fatal intoxication. He then administered a small amount of diphtheria toxin, neutralized with antitoxin so that it was unable to affect healthy animals; it rapidly killed the intoxicated animals, however, showing that the previous mild intoxication had so reduced the resisting powers that they were unable to cope with even a mild superimposed intoxication.

Tuberculosis Questions.—The *Revue Moderne de Méd. et de Chir.* sent out blank circulars asking for the opinion of medical authorities in Europe in regard to the present status of the question of tuberculosis. The replies show the trend of thought to be rather against sanatoria. The results they have to show scarcely repay the expense. Special dispensaries for tuberculosis seem to be accomplishing as much as the sanatoria in the way of educating the public, while they frequently allow the detection of the disease in its incipient stages. The *Gaz. Méd. Belge.*, commenting on the data obtained, urges that children should be taught in the primary grades the principles of the prophylaxis of tuberculosis. "What is the use of teaching them astronomy, botany, etc., when they are destined to die so soon of some tuberculous affection?" It also remarks: "Why should we wait until consumption is established before we learn to profit by fresh air and proper ventilation?"

Abuse of Nitroglycerin.—Dr. Lefevre, in the *Medical News*, makes the following remarks on the use of this drug in the treatment of typhoid fever: "Frequently in acute collapse, or when cardiac weakness has reached the point of causing the pulse to become dicrotic, nitroglycerin is given at frequent intervals with the idea of diminishing the work of the heart. In acute cardiac collapse Romberg has shown that there is already vasomotor paralysis, and that the failure is more vascular than cardiac, and nitroglycerin can not under these circumstances relieve the condition. In the later stages of the disease, when the pulse is dicrotic, the dicrotism is due to the relaxed condition of the arteries, and the giving of nitroglycerin does not relieve the heart, but on the other hand destroys the normal control of the circulatory system. Nitroglycerin should only be given when arterial tension is relatively too high for the cardiac power, and then only to carry the patient over the immediate danger. It is not a drug that should be given continuously for any length of time."

State Boards of Registration.

COMING EXAMINATIONS.

Board of Registration in Medicine of Massachusetts, State House, Boston, November 8-9. Secretary, Edwin B. Harvey, M.D., Boston.

Nebraska State Board of Health, November 9-10, State House, Lincoln. Secretary, George H. Brasch, M.D., Beatrice.

Connecticut State Board of Medical Examiners, November 5-9, City Hall, New Haven. Secretary, Charles A. Tuttle, M.D., New Haven.

Maine Board of Registration of Medicine, November 15, Augusta. Secretary, A. K. P. Meserve, M.D., Portland.

Credit in Examinations for Years of Practice.—At a meeting of the State Board of Health, held in Chicago, Oct. 22, 1904, the following resolution, offered by the secretary, Dr. J. A. Egan, was unanimously adopted:

Resolved, That the rules of the State Board of Health, adopted July 11, 1899, regarding the character of examinations, are hereby amended as follows: On and after Jan. 1, 1905, the Illinois State Board of Health will accept as an equivalent of a part of the examination required satisfactory evidence of five or more years of reputable practice of medicine and surgery since graduation, and will allow a credit of 5 per cent. on the required average of 75 per cent. for each period of five years of such practice on the part of a candidate for a certificate.

[Under the above resolution the rights of the old practitioner are properly conserved; he is given credit for his years of practice, and the longer the practice the greater the credit.—Ed.]

Vermont July Report.—Dr. S. W. Hammond, secretary of the Vermont State Board of Medical Censors, reports the written examination held at Burlington, July 12-13, 1904. The number of subjects examined in was 8; total questions asked, 80; percentage required to pass, 75. The total number examined was 41, of whom 39 passed and 2 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Univ. of Vermont Med. Dept., (1903) 78, 81: (1904) the grade of 75 was reached by three, 78 by one, 77 by seven, 78 by six, 79 by three, 80 by one, 81 by one, 82 by two, 83, 84, 85 and 87 by one each.			
Dartmouth Medical College.....(1904)			81
University of Edinburgh.....(1901)			85
College of P. and S., New York.....(1903)			79
University of Michigan.....(1903)			81
Johas Hopkins University.....(1904)			84
Woman's Med. Coll. of Pa.....(1904)			82
Baltimore Medical College.....(1903) 77, (1904) 81			84
Albany Medical College.....(1904)			83
FAILED.			
Baltimore Medical College.....(1902)			44

The general average for all representatives of the University of Vermont was 79.2. Another candidate who failed held a diploma from the Metropolitan Medical College of Chicago, the well-known diploma mill which was declared fraudulent some time ago.

North Dakota October Report.—Dr. H. M. Wheeler, secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, Oct. 4, 1904. The number of subjects examined in was 13 and the percentage required to pass, 75. The total number examined was 19, of whom 13 passed and 6 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Barnes Medical College, St. Louis.....(1903)			75
Coll. of P. and S., Minneapolis.....(1904)			77
Coll. of P. and S., Chicago.....(1904)			82
University of Minnesota (Homeo.).....(1904)			84
University of Minnesota.....(1904)			82
University of Michigan.....(1904)			82
Philadelphia Medical College.....(1904)			82
McGill University.....(1904)			85
Toronto.....(1904)			82
Northwestern University, Chicago.....(1897)			95
Rush Medical College, Chicago.....(1891)			75
Hamline University.....(1904)			86
Cornell University.....(1904)			83

Two graduates of the Ohio Medical College failed and one each from the College of Physicians and Surgeons, Chicago, Hamline University, Sioux City Medical College and the University of Washington.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, for the week ending Oct. 22, 1904:

Stephenson, W., surgeon, will proceed to Fort Snelling, not later than Oct. 30, 1904, to accompany the Twenty-first Infantry to San Francisco.

Craig, Chas. F., asst.-surgeon, granted ten days' leave of absence. Appel, D. M., deputy surgeon general, leave of absence extended to Nov. 30, 1904.

Williamson, L. L., asst.-surgeon, reports from sick in St. Luke's Hospital, St. Louis, to absent on fifteen days leave of absence. Meears, E. A., surgeon, arrived at San Francisco from Manila on the *Logan*.

Vedder, E. B., asst.-surgeon, ordered to proceed to San Francisco for transportation to Manila on the transport leaving that port on or about Dec. 1, 1904.

Ford, C. S., asst.-surgeon, granted seven days' leave of absence. Kierstead, H. S., asst.-surgeon, relieved from duty at Fort Myer, Va., and ordered to proceed to Fort Snelling, Minn., to accompany the Twenty-first Infantry to San Francisco. On completion of this duty to proceed to presidio of Monterey, Cal., for duty at that post.

Hull, Alva R., contract surgeon, ordered from his home at Oconomowoc, Wis., to duty at Fort D. A. Russell, Wyoming.

Book, S. J., contract dental surgeon, granted leave of absence for one month.

Shellenberger, James E., contract surgeon, left Jackson Barracks, La., October 18, on leave of absence for one month and fifteen days.

Navy Changes.

Changes in the medical corps of the U. S. Navy for the week ending Oct. 22, 1904:

Vickers, E. A., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant, junior grade, from Oct. 11, 1904.

Cole, H. W., asst.-surgeon, ordered to the Naval Museum of Hygiene and Medical School Washington, D. C., October 22.

Faulstich, A. M., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Sept. 28, 1904.

Holcomb, R. C., P. A. surgeon, detached from the *Mayflower* and ordered home to wait orders.

Public Health and Marine-Hospital Service.

Official list of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Oct. 19, 1904:

Cumming, H. S., P. A. surgeon, granted leave of absence for one month, or so much thereof as may be necessary, on account of sickness.

Rodman, J. C., A. A. surgeon, granted leave of absence for three days from October 17.

Saford, M. V., A. A. surgeon, granted leave of absence for three days from Oct. 11, 1904, under Paragraph 210 of the Regulations.

Walker, R. T., A. A. surgeon, granted leave of absence for twenty-two days from November 1.

Brook, G. H., pharmacist, on being relieved at St. Louis, by Pharmacist E. M. Bell, to proceed to San Francisco and report to the medical officer in command for duty and assignment to quarters.

Davis, H. E., pharmacist, granted leave of absence for fifteen days from October 14.

Holt, E. M., pharmacist, granted leave of absence for eighteen days from October 26.

Hall, L. P., pharmacist, granted leave of absence for thirty days from November 4.

Bell, J. M., pharmacist, to proceed to St. Louis and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist G. H. Brook.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., Oct. 14, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Asst.-Surgeon-General W. J. Pettus, chairman; Asst.-Surgeon-General H. D. Goddings, recorder.

Board convened to meet at Stapleton, N. Y., Oct. 26, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon C. H. Lavinder, chairman; Asst.-Surgeon T. L. Berry, recorder.

Board convened to meet at Baltimore, Md., Oct. 26, 1904, for the physical examination of officers of the Revenue-Cutter Service. Detail for the board: Asst.-surgeon C. W. Wille, chairman; A. A. Surgeon G. H. Steuart, recorder.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Oct. 22, 1904:

SMALLPOX—UNITED STATES.

Illinois: Chicago, Oct. 1-15, 6 cases.
Massachusetts: North Adams, Oct. 1-15, 1 case.
Michigan: At 42 places, Oct. 1-8, present.
Minnesota: St. Paul, Oct. 3-10, 7 cases.
Missouri: St. Louis, Oct. 10-17, 7 cases, 3 deaths.
New York: New York City, Oct. 1-15, 1 case.
Pennsylvania: Philadelphia, Oct. 1-15, 1 case.

SMALLPOX—FOREIGN.

Africa: Cape Town, Aug. 27-Sept. 3, 1 case.
Austria-Hungary: Prague, Sept. 25-Oct. 2, 2 cases.
Brazil: Bahia, Sept. 3-24, 45 cases, 4 deaths; Rio de Janeiro, Aug. 28-Sept. 18, 297 cases, 434 deaths.
China: Shanghai, Sept. 10-17, 3 deaths.
France: Paris, Sept. 25-Oct. 1, 7 cases, 1 death.
Great Britain: Leeds, Sept. 25-Oct. 8, 5 cases; Sept. 25-Oct. 1, Manchester, 6 cases; Newcastle-on-Tyne, 3 cases; Nottingham, 3 cases.
India: Bombay, Sept. 13-20, 2 deaths.
Mexico: City of Mexico, Sept. 25-Oct. 1, 4 cases, 1 death.
Russia: Sept. 17-24, Moscow, 7 cases, 2 deaths; St. Petersburg, 3 cases, 3 deaths; Warsaw, Aug. 20-Sept. 10, 55 deaths.
Spain: Barcelona, Sept. 1-20, 6 deaths.
Turkey: Beirut, Sept. 25-Oct. 1, present; Constantinople, Sept. 26-Oct. 2, 19 deaths.
Venezuela: La Guaira, Oct. 1, present.

YELLOW FEVER.

Mexico: Coatzacoalcos, Sept. 25-Oct. 8, 16 cases, 5 deaths.
CHOLERA.
India: Bombay, Sept. 13-20, 13 deaths; Calcutta, Sept. 10-17, 3 deaths.
Persia: Resht, Sept. 17, epidemic.

PLAGUE.

Africa: Cape Colony, Sept. 3-10, 2 cases, 1 death.
Australia: Brisbane, Aug. 13-27, 5 cases, 2 deaths.
Brazil: Bahia, Sept. 3-24, 12 deaths; Rio de Janeiro, Aug. 28-Sept. 18, 53 cases, 14 deaths.
India: Bombay, Sept. 13-20, 51 deaths; Calcutta, Sept. 10-17, 2 deaths; Karachi, Sept. 11-18, 4 cases, 5 deaths; Madras, Sept. 10-16, 1 death.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Hawaiian Territorial Medical Society, Honolulu, November 5.
Oklahoma State Medical Association, Oklahoma City, November 9.
American Academy of Medicine, Chicago, November 7-8.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, held in Cincinnati, Oct. 11-13, 1904.
(Continued from page 1251.)

The president's address, "The Choice and Use of Medical Literature," by Dr. Hugh T. Patrick, Chicago, and the address on surgery, "Surgical Tuberculosis in the Abdominal Cavity," by Dr. William J. Mayo, Rochester, Minn., will appear in full in THE JOURNAL.

Officers.

The following officers were elected for the ensuing year: President, Dr. Bransford Lewis, St. Louis; vice-presidents, Drs. Frank P. Norbury, Jacksonville, Ill., and J. Henry Carstens, Detroit; secretary, Dr. Henry Enos Tuley, Louisville, (re-elected); assistant secretary, Dr. John F. Barnhill, Indianapolis; treasurer, Dr. S. C. Stanton, Chicago.

Indianapolis was selected as the place for holding the next annual meeting, Oct. 10-12, 1905.

The *Cincinnati Lancet-Clinic* was selected as the official organ of the association.

A Plea for Wider Knowledge Concerning Diseases Which Affect the Joints.

DR. C. TRAVIS DRENNAN, Hot Springs, Ark., delivered the address in medicine and urged the necessity of greater care in every instance in which a joint is involved, no matter how insignificant such condition may appear. The usual cases of acute articular rheumatism, gout and tubercular disease can easily be recognized under ordinary conditions, but not so the early manifestations of arthritis deformans, so-called sub-acute articular rheumatism, and certain forms of gonorrhoeal arthritis. When the etiology of gout is written it will be shown to manifest itself primarily somewhere along the digestive tract. Perfect digestion will be followed by perfect assimilation and elimination. He believes that there is a nervous element in arthritis deformans.

Hospital Construction in American Cities and Towns.

DR. A. J. OCHSNER, Chicago, pointed out that the enormous number of new hospitals recently established have almost all been built on the principles which governed hospital construction thirty years ago, when the theories of contagion and infection were wrong. Recent knowledge about differences in purity of air at different levels, about the perfected elevator, and how to make high buildings fireproof at a reasonable cost, and other knowledge of the greatest importance, should change entirely the plans of hospital construction. Millions of dollars will soon be spent in the construction of hospitals and the subject should be thoroughly studied.

Radical Cure of Hernia.

DR. HAL C. WYMAN, Detroit, stated that the problem of hernia has been so fully worked out in the inguinal and umbilical regions that there is nothing to do now but to find the hernial opening and stitch it up so that the bowel will stay in the abdomen. In hernia the intra-abdominal space is usually not large enough and the abdominal walls insufficient to retain the abdominal contents. Surgical intervention should, therefore, reduce the volume of the abdominal contents and increase the size and strength of the abdominal walls. Masses of omentum and part of the intestines must sometimes be removed and flaps must sometimes be used to supplement the muscles and fascias. Suturing must be complete, absolute and without tension. Scrotal skin and fascia may be sutured into the large hernial openings with gratifying results by making an entirely new place for impingement of the intestines. Many patients with inguinal hernia may be permitted to get up when they feel able, with great advantage in educating the abdominal muscles to perform their offices.

The Typical Anatomic Operation for Oblique Inguinal Hernia.

DR. ALEXANDER HUGH FERGUSON, Chicago, described his method and said that approximately 2,200 cases have been permanently cured by it.

DISCUSSION.

DR. WILLIAM J. MAYO, Rochester, Minn., said that of 609 operations by the Ferguson method only three relapses have occurred, and he is uncertain as to whether these were really due to the Ferguson or Bassini operation.

DR. H. O. WALKER, Detroit, considers the Ferguson method rational and the results good. He has operated by this method over a hundred times and has had no recurrence.

DR. VAN BUREN KNOTT, Sioux City, has been employing the Ferguson operation for some time, with the happiest results. He has had no recurrences.

DR. EMIL RIES, Chicago, does not hesitate to let his patients get out of bed on the first or second day after operation, and has had no evil results therefrom. He has used the method of Kocher in a number of cases of inguinal hernia, the main point being inversion of the sac, and has had no recurrences.

DR. JOSEPH RILUS EASTMAN, Indianapolis, doubted the wisdom of allowing patients to get out of bed two or three days after operation on account of the great strain from pressure on the aponeurosis of the external oblique. He prefers to keep his patients in bed two or three weeks.

DR. JOHN YOUNG BROWN, St. Louis, prefers the Ferguson operation in inguinal hernia. Its results are not better than those obtained by the Bassini, but the Ferguson is simpler and inflicts less trauma. He has had no recurrences, but he thinks that in a small percentage of cases recurrence will take place.

DR. THOMAS H. MANLEY, New York, recommended the method advocated by Lucas-Championnière. The results following this method are satisfactory.

DR. A. J. OCHSNER, Chicago, said that the Ferguson operation contains the successful elements of a herniotomy. The operation should be done without traumatizing the tissues severely.

Two Successful Splenectomies.

DR. J. HENRY CARSTENS, Detroit, stated that splenectomy is indicated in selected cases of enlarged spleen, but not in all instances. He reported two splenectomies, one for cancer and one for splenic anemia. The latter case was reported in THE JOURNAL, Oct. 1, 1904, page 980.

Perineal Prostatectomy.

DR. JOSEPH RILUS EASTMAN, Indianapolis, said that if all prostatectomies are made as soon as the symptom of residual urine makes its appearance the mortality would be practically nil. Too often the reason for the Bottini method, perineal cauterization, or other palliative procedure is that a case has been permitted to drag along with the catheter until advanced age, general sclerosis or kidney complications forbid prostatectomy. The conservative operation of Hugh Young should be chosen, if applicable. Clinically the perineal operation has been proven to be the safest. In a large majority of cases prostatectomy may be completed through a perineal incision. If, however, it is discovered that the perineal distance is so great or the median intravesical growth so large as to make the suprapubic operation necessary, such an opening, except in exceptional cases, may be made at the same sitting. The perineal is the least bloody route, since it admits of a complete exposure of the prostate, thereby making it easier to shell out the gland in the essential line of cleavage. After perineal prostatectomy, the bladder is provided with low, level drainage instead of the uphill or siphon drainage of the suprapubic operation. The danger of wounding the ejaculatory duct in any conservative operation is lessened if the perineal operation be chosen.

Pathologic Changes Resulting from Prostatic Enlargement.

DR. CHARLES E. BARNETT, Fort Wayne, Ind., said that perverted function of the testicle and inflammation seem the most logical causes of prostatic enlargement. The former produces hyperplasia by a lack of orchoprostatic equilibrium.

Inflammation starts true adenomyoma, either by stimulating the embryologic matrix, or on account of the infected acini, or both, and there is a pathologic evolution tumor metamorphosis from a fibromyoadenoma to an adenomyofibroma. The pelvic fascia does not accommodate itself to the displacements that occur. The distorted neck of the bladder starts pathology which, in its progression, finally reaches the kidneys, and if not stopped by operative procedure on the prostate, will destroy them. The cases reported show the fallacy of operating on patients at that stage of pathology.

DISCUSSION.

DR. G. FRANK LYDSTON, Chicago, thinks the profession at large has accepted perineal prostatectomy as the operation of election. Many patients must be treated palliatively until one is positive that the tumor is not only increasing in size, but is causing urinary obstruction. A careful operation will not injure the ejaculatory ducts. In numerous cases the sexual function is not impaired.

DR. E. M. GILLIAM recommended keeping the patient after operation in the Fowler position.

DR. H. J. SCHERCK said that in old men whose bladders contain residual urine irrespective of the condition and size of the prostate, the condition seems to be more of an atonic state of the bladder walls than the effect of the enlarged prostate.

DR. BRANSFORD LEWIS, St. Louis, pointed out that there is no particular operation which fulfills all the indications in cases of hypertrophied prostate. He mentioned a man, 71 years of age, who, he believes, could not have withstood a prostatectomy at any time. Dr. Lewis did a suprapubic lithotomy, removed the stone, drained, and also performed a Bottini operation. The patient was relieved of a fistula that had existed, and completely recovered.

DR. F. F. LAWRENCE, Columbus, Ohio, said that if surgeons could convince the general profession that hypertrophy of the prostate is a surgical disease, the mortality now attending prostatectomy would immediately decrease, as it has done from operations on cases of appendicitis, ovariectomy and other surgical affections.

DR. H. O. WALKER, Detroit, prefers, wherever practicable, to do perineal prostatectomy.

Therapeutic Value of Radium.

DR. MYRON METZENBAUM, Cleveland, Ohio, discussed the physiologic action of radium of low activities on ulcerated areas and on the unbroken skin for thirty-five minutes; also the pathologic condition from placing radium of high activity on the unbroken skin for long periods of time. The therapeutic results from radium of low activity are as good as those from radium of high activity and great expense.

Two Cases of Pancreatic Cyst.

DR. VAN BUREN KNOTT, Sioux City, Iowa, discussed the method of treatment, made a comparison between incision and drainage and excision, and reported two cases, neither of which had the sallow, dry skin said to be characteristic of cysts of the pancreas.

Tenotomy of the Tendo-Achilles.

DR. J. P. WEBSTER, Chicago, drew the following conclusions: "1. After tenotomy of the tendo-Achilles (when the foot is kept at rest) the process of repair takes place and satisfactory functional use of the foot is the result. 2. It is much easier to maintain the foot in the exaggerated flexed position after the tenotomy of the tendo-Achilles than with any form of splint, anterior or posterior, metallic or plaster. 3. There is much less pain, as the foot and ankle joints are placed at absolute rest. 4. When the patient commences to walk, none of the resistance of the contracted heel cord is present, so that there is but a slight limp. 5. In oblique and comminuted fractures of the tibia there is much less danger of overriding of the fragments of bone after a tenotomy. This greatly simplifies the care of the leg and helps to prevent deformity."

The Mamma: Its Physiologic Purposes.

DR. THOMAS H. MAXLEY, New York, drew the following con-

clusions: "1. The mamma is a highly organized and structurally a most complex organ. 2. Its functions are manifold. It is an essential and integral part of the generative system. Intermittent in function, like the testes, total ablation, like double castration, makes its impress on the sensorium. 3. Very frequently degenerative or pathologic changes begin in a single isolated lobe, about twenty of which are in each breast. In all non-malignant affections radical measures should be limited so far as possible to the affected area or lobe. 4. It is only in malignant disease of the progressive type and life is imperiled, that total sacrifice of the breast is justifiable. 5. Inasmuch as the functions and purposes of the axillary lymph ganglia are yet imperfectly understood, and their removal quite invariably enhances the risks of operation, involves a wide mutilation of the chest walls, and always leaves more or less impediment in shoulder action, or even at times a painful tumefied limb, it is only as an extreme and exceptional measure that their complete extirpation should be practiced."

(To be continued.)

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

Thirteenth Annual Meeting, held in the Hall of Congresses, St. Louis, Oct. 10-15, 1904.

(Concluded from page 1248.)

Accidents to Divers.

LIEUTENANT COLONEL LUIGI ARBAMONDI, Royal Italian Navy, discussed in a very interesting manner the accidents incident to submarine investigations which have been carried on under the direction of the navy department of Italy. On every ship of the Italian navy a diver is carried with complete submarine equipment.

The Sanitary Sergeant.

BRIGADIER GENERAL OTIS H. MARION, Surgeon General, U. S. A., suggested that an extra sergeant be detailed in each military company to be known as the "sanitary sergeant," or as the "acting sanitary sergeant," who should receive special instruction in, and be put in charge of, the sanitation of the company and its surroundings. His duties should consist of care of the personal hygiene of the enlisted men of his company, the hygiene of the quarters, clothing, equipment and food, and the conduct of the sick or injured men of the company. He proposed that in each regiment a medical officer should give systematic instruction to the sanitary sergeants of the several companies in order fully to qualify them for their work. As cleanliness furnishes an atmosphere of self-respect, the enlisted men should gain some intelligent knowledge of hygiene from the sanitary sergeant.

Naval Medical School.

MEDICAL DIRECTOR ROBERT A. MARMION, U. S. N., urged the importance of broader education for the naval medical officer than could be imparted from professional and other standpoints at present. The naval medical officer should not only be a general practitioner, but should be a specialist in all specialties. He must be the custodian of the health of the community where he happens to be detailed, and on ship-board, unaided, he must meet and combat all contagious diseases and epidemics. The essayist gave a résumé of the attempts at such instruction which had been made in the past: a history of the Naval Medical School and its scope, and explained the various features of the school and its value in increasing the efficiency of the medical officer in the Navy in new fields.

Care of Wounded in Naval Warfare.

SURGEON CHARLES FRANCIS STOKES, U. S. N., reviewed the types of wounds requiring treatment in naval warfare, most of which are infected, and consequently require immediate treatment before the patient is transported from the ship in

action to the hospital ship. He described a first-aid packet which he had designed, of suitable size, for shell wounds, and also exhibited and explained the Stokes splint stretcher and the proper method of using it.

Camp Sanitation.

MAJOR HERBERT A. ARNOLD, Surgeon, N. G. Pa., detailed in methods employed by him in camp sanitation, which included the selection of the camp site, the water supply, the inspection and care of the rations, the care of the sick, the disposal of garbage by an improvised crematory, the policing of the camp, tent sanitation, personal cleanliness, frequent medical inspection, and prompt change of camp site when contagion, infection or soil pollution becomes manifest.

Standardizing the Recruit.

SURGEON HENRY D. BEYER, U. S. N., discussed the significance of physical examination in the selection of recruits and its bearing on the efficiency of the service. On account of the intimate correlation shown to exist between the physique of a boy and his mental qualifications, the author suggested a method of percental standardization whereby the records of measurements might be kept in such a form that they would show at once in graphic form the physical grade of the recruit as compared with other recruits.

Practical Hearing Tests.

MAJOR WILLIAM S. BRYANT, Surgeon U. S. V., contended that inadequacy, inexactness, unreliability and injustice attended the ordinary method of hearing tests in physical examination and that the need was for a voice-sound of known intensity. He suggested for this purpose the phonograph fitted with a sound-proof box, a graduated stopcock and a three-way valve, which would produce a voice-sound of constant volume and pitch, and would allow exact determination of the ability of the applicant to understand the human voice and would also determine absolutely the efficiency of each ear independent of mental bias.

Pneumonia in Chicago.

SURGEON CHARLES E. BANKS, U. S. P. H. & M. H. Service, Chicago, gave the statistical relations of pneumonia and tuberculosis, past and present, with comparisons of the increasing prevalence of pneumonia and the gradual decrease of tuberculosis. He mentioned the growth of pneumonia in the large cities of late years with especial reference to the type noticed in Chicago last winter. He gave a clinical description of a typical case, noted the unsatisfactory results from all forms of treatment, the slow convalescence, the great mortality and the undoubted contagious character of the disease. In conclusion, he urged the need of combined effort to develop a successful curative agency.

SURGEON CHARLES F. STOKES, U. S. N., in discussion, stated that many cases of pneumonia were derived from direct infection from drinking cups, and suggested that all drinking cups be submerged in a solution of formalin.

Altitude and Expansion.

SURGEON PAUL M. CARRINGTON, U. S. P. H. & M. H. Service, Fort Stanton, N. M., first defined altitude, then gave the significance of expansion and the reasons why expansion should guide in the determination of proper altitude in patients suffering from tuberculosis and gave statistics based on his experience at Fort Stanton supporting this contention. These two factors, he said, were of undoubted value in determining the question of what climate to advise for consumptives.

Radical Treatment of Varicocele.

A paper prepared by Lieut. Col. Agostino Aguirre, of the Mexican Army, in which he detailed his methods of treatment of varicocele, was read by Captain Stanton, of Illinois.

Gunshot Wounds of the Spheno-Maxillary Fossa.

PASSED-ASSISTANT SURGEON LOUIS S. PILCHER, U. S. N., described the difficulties in locating bullets lodged in the

deeper recesses of the framework of the skull, and bore testimony to the value of the x-ray as an aid in such localizations. He spoke of the technical difficulties in reaching and removing these deeply-lodged bullets even after accurate localization had been effected. He then described a recent case of gunshot wound of the face, the operation and after-treatment.

Gunshot Wounds of the Ureter.

ASSISTANT SURGEON-GENERAL GEORGE TULLY VAUGHAN, U. S. P. H. & M. H. Service, Washington, noted the extreme rarity of gunshot wounds of the ureter as compared with other wounds of this structure. He reported two similar cases which required uretero-vesical anastomosis, one of which was due to a gunshot wound of the ureter and the other to injury received in operation for malignant disease of the rectum.

International Congress of Military Surgeons.

SURGEON GENERAL NICHOLAS SENN, III, N. G., who had just returned from a trip around the world, presented an important paper on the needs and advantages of a permanent international congress of military surgeons. He considered first the advantage to the sick and wounded of a uniform method of medical assistance; second, the necessity under modern conditions of co-operation in aid to the disabled of the medical departments of both sides in active hostilities; third, the greater efficiency of service secured by mutual acquaintance among military medical officers of various nations; fourth, the peculiar usefulness of discussion and contact in professional convention, and, fifth, the desirability of securing this result by the institution of a periodically recurring International Congress of Military Surgeons. Colonel Senn believed that the military surgeon should be as well equipped as the surgeon in a civil hospital, and that since the standing army must be maintained to render justice, the soldier must still be cared for; that the surgeon is a human representative of modern warfare and it is his duty to save human life; that no restriction should be placed on his close association with military surgeons of other nations; that military sanitation, therapeutics and transportation are of interest to all military surgeons. In conclusion, the speaker suggested that an International Congress of Military Surgeons be held about every three years to promote discussion and contact in professional convention to secure greater efficiency among military medical officers, and to secure co-operation of medical departments of the belligerent forces during active hostilities.

A committee was appointed to consider this matter and report at the next meeting of the association.

Conferring of Decorations.

On October 13, the association through its secretary, Major James Evelyn Pilcher, U. S. V., conferred the badge of the association on the following foreign delegates:

Col. Eugene Flis, Director General, Canadian Army Medical Forces; R. W. Conplinger, Inspector General, Royal Navy; Col. Henry, of the Indian Medical Service; Don Juan Redondo y Goelno, Spanish Navy; Col. Marschal, of the French Army; Col. H. W. Murray, Royal Army Medical Corps; Don Joaquin Yela of Guatemala; Don Leonelito Romlerz Marieno, of Nicaragua; Don David Mattio, Peru; Col. Pietro Imbrigo, Italian Army, and Lieut. Col. Luigi Abbonardi of the Italian Navy.

Prizes.

The first prize for the Enno Sander Prize Essay (an abstract of which appeared in THE JOURNAL, October 22, page 1247) was awarded to Lieut.-Col. William Hall-Chine, Army Medical Staff (retired), and the second prize to Lieut.-Col. H. Hathaway, Royal Volunteer Medical Corps, India.

Major Louis L. Seaman, U. S. V., New York, offered a prize of \$500 for the best paper on "The Prevention of Disease in the Army."

Election of Officers and Place of Meeting.

The nominating committee reported the following list of officers, which was unanimously accepted by the association: President, Surgeon General Walter Wyman, U. S. P. H. & M. H. S.; first vice-president, Major Albert H. Briggs, Surgeon N. G., N. Y., Buffalo, N. Y.; second vice-president, Brigadier

General Robert M. O'Reilly, Surgeon General, U. S. Army; third vice-president, Surgeon General Presley M. Rixey, U. S. N., and treasurer, Major Herbert A. Arnold, Surgeon, N. G. Pa., Ardmore, Pa.

After discussion of the advantages of Portland, Ore., and other localities, to which the Association had been invited for the 1905 meeting, Detroit was selected, the exact time of meeting to be determined by the Executive Committee.

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-first Annual Meeting, held in New York City, Oct. 17 to 20, 1904.

The President, Dr. William H. Thornton, Buffalo, in the chair.

Treasurer's Report.

The total expenditure during the last year was \$11,717.20, and the balance on hand, \$4,073.16, which showed the financial condition of the association to be better than it has been for a number of years.

Report on Amalgamation.

The committee on conference, by Dr. E. Eliot Harris, chairman, outlined the history of the attempt at amalgamation of the New York State Medical Association and the Medical Society of the State of New York. They had started out with the idea of mandatory legislation, and an impartial lawyer had informed them that this was out of the question, but that a permissive act might be obtained. Several conferences followed at which the question of union was discussed. The state association stood mainly for clean medical literature, clean advertising and reliable data regarding physicians; these principles the association had worked and fought for, and would continue to struggle for, though they were willing to waive matters of sentiment. The plan for union was defeated because the by-laws of the state association contain no provision for the manner of giving notice of meetings so that it became necessary to accept the common law rule, according to which, when a meeting of any organization is to be held for the passage of resolutions affecting privileges or property rights the notice of such meetings must be served on each member personally and not through the mail. As no such notices were served for the meeting at which resolutions were adopted for a plan of union of the two societies they were illegal and not binding on any of the members. A modification of the by-laws is necessary before such a meeting could be held, and this would require time. After a great deal of heated argument it was moved, seconded and passed that the whole matter be laid on the table for another year. Those who have opposed the union think that they have made it impossible, while others believe that union is only a question of time.

DR. BERNHARD COHEN, Buffalo, spoke of the unfortunate delay in effecting a union of the New York State Medical Association and the Medical Society of the State of New York as not due to either body and as a disappointment to the association, and it was resolved that it was the unqualified desire of medical men that good-fellowship should prevail, and the association pledged itself to endeavor to secure a union of the two bodies.

Officers Elected.

President, Dr. J. Riddle Goffe, N. Y.; vice-president, Dr. Allen Arthur Jones, Buffalo; treasurer, Dr. F. A. Baldwin, New York City; secretary, Dr. Charles I. Redfield, Middletown.

Medical Fellowship.

DR. WILLIAM HARVEY THORNTON, Buffalo, delivered the president's address and after speaking of the benefits of co-operation and organization said that out of 1,800 members of the state association, 1,000 are members of the American Medical Association. The demand for unity by the profession in the state of New York is great, and he asked that continued efforts be made to bring the association nearer the ideal which they are striving to attain.

How and When to Use Antitoxin in Diphtheria.

DR. CHARLES GILMER KERLEY, New York, after referring to 66 cases that he had treated in private practice, emphasized the fact that this serum should be given in persistent laryngeal stenosis, and especially where there is any obstruction to inspiration and expiration. Patients who are seen on the second day of the disease should receive 3,000 units regardless of the age; after the third day the initial dose should be 5,000 units, to be repeated in twelve hours if improvement is not positive. The dosage must be determined by the severity of the infection when first seen.

DISCUSSION.

DR. EVERARD D. FERGUSON, Troy, said that before the introduction of antitoxin he had had 75 intubation cases without a single recovery; since then he had successfully treated 5 cases of primary laryngeal diphtheria.

DR. FRANCIS J. QUINLAN, New York, said that before the introduction of antitoxin he had done as many as 116 intubations in one year, but the timely use of antitoxin in the laryngeal and tracheal forms of the disease now seldom require the performance of this operation.

DR. LOUIS CURTIS AGER, Brooklyn, believes 3,000 units should be the minimum initial dose.

DR. BERNHARD COHEN, Buffalo, has given as high as 28,000 units in two days because of the decided cardiac weakness.

DR. LOUIS FRSCHER, New York, believes that the initial dose should be not less than from 5,000 to 10,000 units. In laryngeal cases 10,000 units should be the initial dose.

(To be continued.)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting, held at Pittsburg, Sept. 26 to 29, 1904.

(Concluded from page 1250.)

The Influence of Milk Infection on the Course of Acute Infectious Diseases in Adults.

DR. DAVID L. EDSALL, Philadelphia, reported a series of cases of typhoid fever occurring in one hospital ward and under entirely similar conditions, excepting for a difference in the care of the milk, in the two periods contrasted. When the service began a very large proportion of the cases had severe diarrhea and many had mild diarrhea, while abdominal symptoms were common. The milk was examined bacteriologically and showed excessive numbers of bacteria. The milk was pasteurized after this and in the following three and a half months of the service diarrhea was almost absent and abdominal symptoms were extremely slight. The milk supply was subsequently changed and is now under careful regulation, and it seems in all ways satisfactory. The great importance of determining definitely in both private and hospital practice that the milk used comes from an approved source and is properly cared for was emphasized, as well as the fact that such conditions are undoubtedly common in individual cases, and a bad milk probably exercises not uncommonly a very evil influence on the prognosis of acute infectious diseases. Milk infection of this kind is peculiar from a clinical standpoint in that it is observed in patients already ill. The milk infection is apt to be overlooked, because the symptoms may be attributed to the primary disease.

DISCUSSION.

DR. ADOLPH KOENIG, Pittsburg, said he believed that physicians should be guided largely in their efforts to cure disease by paying attention to the natural instincts of their patients. He believed that it was an established physiologic fact that there is no digestion of food possible when there is a temperature of 102 degrees F., although not in a position to verify it. He has withheld food, absolutely everything but a little whisky, for sixteen days with the most happy results. As soon as the patient manifests desire for food, he believes that milk is the best diet, and the best results are to be obtained by adding barley water.

DR. STENGEI, Philadelphia, considered the doctrine of over-feeding most pernicious and one in which he had seen the most disastrous consequences. While he could not withhold food, as Dr. Koenig suggested, during the period of anorexia, still he is convinced that in the first period of the disease nine out of ten are overfed.

Knee Ankylosis.

DR. DEFOREST WILLARD, Philadelphia, stated that this was a condition, the result of a disease and not a disease itself, and might result from many different pathologic conditions. He remarked that the discovery of the cause was all-important, as the treatment to be pursued after the joint has become fixed must depend, first, on the cause, and second, on present joint conditions as discovered by careful clinical examinations aided by x-rays. He outlined the appropriate treatment for ankylosis, following gonorrhoeal infection, septic infection, tubercular disease, or with suppuration, and cited as the accidents most liable to result from forcible straightening, fracture, posterior dislocation and aneurism.

A New Line for Defining the Relationship of the Femur to the Pelvis.

DR. STEWART L. MCCURDY, Pittsburg, stated that trans-pelvic lines crossing the pubic spines will cross the trochanteric eminences in children and above the same point in adults, and that when the trochanter is found above this line, displacement from some cause is always present. Disregarding the pubic spines, two lines may cross the pelvis, one through the anterior superior spines and a second through the trochanteric eminences. If these lines are not parallel, then the displacement exists on the side on which the lines converge or are closer. He demonstrated on a skeleton the inaccuracy of the usual method of estimating shortening of an extremity unless the femurs are placed at the same angles with the pelvis on the two sides.

Modern Methods for Combating Deformity in Spinal Curves.

DR. DAVID SILVER, Pittsburg, stated that the complicated nature of the spine rendered treatment of deformity difficult. Traction by suspension as a means for correcting the deformity and placing the spine in proper position for fixation is deficient: 1. It does not separate the diseased vertebral bodies and so does not abolish the traumatism from weight bearing and functional uses. 2. The force is largely expended on the secondary curves, the kyphosis being but slightly modified. 3. A large part of the good effect is lost unless traction is made continuously by means of a head support. Similar objections apply to recumbency on a flat surface. Hyperextension he considered the best method, and the best procedure for obtaining correction and for the routine application of the jacket was said to be a modification of the Metzger-Goldthwait frame.

Symposium on Rectal Diseases.

A paper on "The Treatment of Internal Hemorrhoids by Excision" was read by Dr. Ernest Laplace, Philadelphia, who described in detail a new method of operating. Dr. E. Montgomery, Philadelphia, said that the Downes angiotribe should be used only in the hands of an experienced operator, otherwise there is danger of injuring the surrounding tissues. Dr. Levi J. Hammond, Philadelphia, said that most of the discomfort following operations is due to imperfect dilatation of the sphincter.

A paper on "Anal Fissure" was read by Dr. William H. Beach, Pittsburg, who dwelt particularly on the danger of tearing the sphincter in overdilatation, and stated that equally good results could be obtained by simply cutting a few of the fibers.

A paper on "The Treatment of Internal Hemorrhoids by Injection" was read by Dr. Lewis H. Adler, Jr., Philadelphia.

Surgical Treatment of Retrodisplacement of the Uterus.

DR. HENRY D. BEYEA, Philadelphia, reported the results of 465 cases in which he had employed ventrosuspension, with but one death and no complications, although over forty labors occurred subsequent thereto.

The Disturbances of Menstruation and Their Significance.

DR. E. E. MONTGOMERY, Philadelphia, considered the disturbed conditions under amenorrhoea, which may be either congenital, constitutional or mechanical; dysmenorrhoea, which, owing to the present mode of dress is rapidly increasing; menorrhagia and metrorrhagia, and vicarious menstruation, a discharge periodically from some other surface than the uterine mucosa.

DISCUSSION.

DR. J. M. FISHER, Philadelphia, remarked on the interdependence of all the organs of the body and the necessity for the gynecologist being a thorough obstetrician, citing a case in which the patient did not know she was pregnant until she felt the fetal movements, menstruation having occurred at regular intervals up to that time.

Some of the Unsettled Questions of Extra-Uterine Pregnancy.

DR. MORDECAI PRICE, Philadelphia, thought that the presence of the amniotic sac was absolutely necessary for the child to go to term, and also remarked on the occurrence of hemorrhage during normal pregnancy simulating this condition, reporting two cases illustrative of the latter proposition.

DISCUSSION.

DR. J. M. FISHER, Philadelphia, said that the point as to the presence of the amniotic sac was well taken, and urged the better education of the general practitioner in regard to this condition.

DR. E. E. MONTGOMERY, Philadelphia, spoke of the cases in which grave hemorrhage occurred and yet no hemorrhage could be demonstrated into the sac.

DR. PRICE referred to a case which he had diagnosed as extrauterine pregnancy, which on operation proved to be a dermoid cyst, and another which proved to be appendicitis.

Overlapping of the Aponeuroses in the Closure of Abdominal Wounds.

DR. CHARLES P. NOBLE, Philadelphia, stated that he first used this procedure in 1894 for umbilical hernia and since 1897 had employed it in all incisions, in over 150 cases, and by overlapping the neuroses in this way one can secure firmer union than by any other method. He then described in detail the operation.

Paraffin as a Surgical Medium.

DR. M. DELMAR RITCHIE, Pittsburg, went in detail into the development of the use of this remedy, the indications for its use, technic, etc. He recommended the use of cold, solid paraffin, of a melting point of 110 degrees, injected by means of a lever injector. He also stated that the production of an embolus was impossible when cold, sterile paraffin was injected into the surgically cleansed tissue through the rounded needle point, and that there was no known danger to life in the correction of any deformity, however marked.

DISCUSSION.

DR. STEWART L. MCCURDY, Pittsburg, said that the employment of cold paraffin would be a great advance over the old method of employing the heated article, which had been followed in almost every instance by some complication such as ulceration or hyperemia.

DR. DILLINGER referred to a case of total blindness caused by the paraffin getting into the central artery of the retina, which he felt was probably due to semi-solid or hot paraffin being used, and that much of this objection would doubtless be removed by the method suggested by Dr. Ritchie.

DR. S. B. JACKSON, Pittsburg, stated that he had seen a case of embolism of the retinal artery following the employment of this remedy and believed it better to leave the work to those who had had considerable experience in it.

Cause and Cure of Catarrhal Deafness.

DR. LOUIS J. LAUTENBACH, Philadelphia, stated that catarrhal deafness is present in about 25 per cent. of all adults, and includes 75 per cent. of all cases of deafness, which is practically always caused by nose disease, and which is usually curable and easily controlled in the early stages and should be treated before the ear becomes affected, and, whether in the early or late

stages of the ear disease, the nose should be conjointly treated therewith.

DISCUSSION.

DR. HOWARD F. PYFFER, Norristown, said that there were many cases in which the disease had its inception in the ear.

DR. LAUTENBACH said that the origin of practically all cases of true catarrhal deafness could be traced to the nose, but that there were many cases caused by general diseases, which were too often confounded with catarrhal deafness in their diagnosis.

Convergent Strabismus.

DR. WENDELL REBER, Philadelphia, reported 36 private patients and 130 hospital cases, classified according to sex, age of onset, determining influence, degree of deviation, amblyopia, increase in vision, variety of squint and refraction. The treatment and the results obtained were carefully outlined. He believed heredity played an important rôle, and urged the early treatment of all cases occurring before puberty with properly adjusted glasses.

DISCUSSION.

DR. HOWARD F. PYFFER, Norristown, said that there was no doubt as to the improvement of this condition by properly adjusted glasses, and emphasized the necessity of constantly urging the parents to keep up the treatment.

DR. REBER stated that he did not believe operation should be done until after puberty, and that the amount of vision present in the respective eyes should determine the operation to be performed.

Carbolic Acid and Ammonia Burns of the Eye.

DR. EDWARD STIEREN, Pittsburg, commented on the meagerness of the ophthalmic literature on the action of ammonia on the tissues of the eye, and stated that eyes so affected are almost invariably rendered blind by the dense opacity of the cornea. Four cases of ammonia and three cases of carbolic acid burns of the eye were reported, the essayist remarking the great similarity of the ocular reaction for the first few days, while the ultimate outcome was very different, those burned by ammonia recovering very poor, if any, vision, while the carbolic acid burned cornea cleared up and in time recovered their former transparency.

DISCUSSION.

DR. WENDELL REBER, Philadelphia, mentioned a case coming under his observation at the Polyclinic Hospital, due to splashing of ammonia in the eye, and stated that when only the superficial tissues were affected the results were pretty good, but that occasionally there would be a case of deep penetration and infection of the whole eye, with resulting loss of sight.

DR. MICHAEL V. BALL, Warren, reported a case of limberburn of the eye, resulting in sloughing of the conjunctiva, followed by opacity of the cornea.

DR. STIEREN referred to the value of dinion as a lymphatic and circulatory remedy, and stated that he could see no reason why it would not be efficacious in lime burns.

Mastoiditis.

DR. FREMONT W. FRANKHAUSER, Reading, considered the condition with reference to the etiology, pathologic changes, symptoms, diagnosis, prognosis and treatment. He urged careful examination in all suspected cases, with operation, being sure to make the opening large enough, believing that if the operation was not complicated there was very little danger, and that it was better to sacrifice some parts to early operation than to allow the grave conditions to continue and thus run the chance of losing a valuable life.

DISCUSSION.

DR. BEVINGER, Pittsburg, reported a case of mastoiditis occurring in a man, following the use of a salt-water douche for acute rhinitis, with typhoid symptoms and delirium, pressure over the mastoid causing pain, with "prune juice" expectoration, and on opening the mastoid pure pneumococcus pus was found. The patient slowly recovered.

DR. HOWARD F. PYFFER, Norristown, said that in the acute cases conservative treatment might produce results, but that

in cases of any considerable duration the pus should be removed, and rest in bed, heat and atropin applied.

DR. LEVI J. HAMMOND, Philadelphia, divided the cases into acute and chronic, and recommended early operation in the former.

DR. FRANKHAUSER said that the most conservative plan of treatment was to open the mastoid and thus prevent destruction of the middle ear.

The Retarded Development of Speech in Young Children.

DR. G. HUNSON MAKUEN, Philadelphia, mentioned as some of the causes thereof, structural irregularities in the peripheral organs, obstructed nasal respiration, and parietic conditions of the nerves supplying the tongue, palate and lips, dwelling particularly on disturbed hearing as a causative factor, and the effects of faulty hearing and speech on mental development. Partial deafness in young children, or deafness for only a few sounds, is sufficient to interfere with the normal development of speech, and the child failing to understand gradually stops listening, the brain finally losing its power to comprehend the meaning of spoken language. He suggested, in addition to the usual and well-known methods for improving the peripheral auditory apparatus, a course of training for the development of the central perceptive faculties, and reported a case illustrating the various points in the paper, of a child who had been treated by this method.

The Removal of Cataract Without Iridectomy.

DR. JOSEPH E. WILLETS, Pittsburg, after reviewing the various steps in the formation of cataract, and considering the various operations which are and have been practiced for its removal, stated that the operation consisted essentially of three steps: 1, The making of a section whose dimensions vary according to the size and consistence of the cataract; 2, opening of the anterior capsule to allow the lens to escape from it; 3, the expulsion of the lens by pressure exerted on the eye. In conclusion, he stated that he felt simple extraction to be the ideal operation, as, if as good results could be obtained thereby, he felt it unscientific to subject the eye to unnecessary surgical procedure.

DISCUSSION.

DR. WENDELL REBER, Philadelphia, stated that he had in his early practice done some simple extractions of cataract, and when the healing was uneventful a very beautiful result was secured, but that the risk of complications was too great to warrant it being practiced as a routine procedure, a preliminary iridectomy being advised.

DR. WILLIAM H. DUDLEY, Easton, said that, while simple extraction might be the operation of choice for one who was doing much of this work, for the average man a preliminary iridectomy was the best procedure.

DR. WILLETS said that, while it was probably easier to do an operation on the eye having had a preliminary iridectomy, yet that it was just as hard to do the preliminary iridectomy as the simple extraction, in addition to subjecting the patient to two risks, which he felt to be unnecessary.

The Extract of Suprarenal Gland in Surgical Shock.

DR. ALEX. R. CRAIG, Columbia, reported two cases in which the drug was used. This was the first paper read Thursday afternoon at the general session. The first case was a compound fracture of the elbow caused by a gunshot wound six hours before his admission to the hospital, at which time he was pulseless, cold, cold sweat, pupils dilated and labored breathing. The injection of three pints of normal salt solution, in the first and third of which was one dram 1/100 degree solution of suprarenal extract, was followed by a very favorable reaction. The second case was a compound fracture of the skull in the right parietal region, caused by being thrown from a freight train, in which case similar results were obtained.

DISCUSSION.

DR. ALBERT E. ROUSSEL, Philadelphia, cited a case of typhoid fever with hemorrhage, in which this remedy had produced very good results, and expressed belief in its value in cases of di-

lated heart where digitalis has been used for a long time and is beginning to wane in its effect.

DR. JOHN B. ROBERTS said that it might be questioned whether it was the normal salt solution or the suprarenal extract that produced the result.

DR. CRAIG stated that he had never seen normal salt solution act in the prompt and efficient way this remedy did.

Boils.

DR. GEORGE W. GUTHRIE, Wilkesbarre, mentioned as the predisposing causes, coarse, unclean skins, large follicles, slight traumatism of the surface, anything that lowers the vitality, overwork, poor food, exhausting diseases, fever, albuminuria and diabetes, they being produced by infection of the skin follicles by pyogenic bacteria, and governed by the same developmental laws as control more serious infections. The remedial measures recommended were treatment tending to build up the general system, proper hygiene, rest, careful attention to the skin, and quinin. He believed abortive measures were of doubtful efficacy.

DISCUSSION.

DR. WILLIAM L. ESTES, South Bethlehem, said that boils on the upper lip and about the ale of the nose seemed to be more serious than elsewhere, and reported such a case resulting in embolism and death.

Treatment of Infected Wounds with a Phenol Product.

DR. C. B. LONGENECKER, Philadelphia, said that the mixture referred to was composed of two parts of camphor and one part of phenol, which, although known to the profession for a long time, had been but little used, its greatest value being in the treatment of infected wounds, and that its efficacy might be supplemented by the addition of ichthyol, tincture of iodine, etc. As a result of twelve years' experience in its use, he stated that if correctly applied it produces the best results in most cases, in many relieving the associated pain, without in any way producing a bad result.

A Case of Cesarean Section.

DR. G. W. WAGONER, Johnstown, reported a case in which cesarean section was done after failure to effect version in an impacted transverse presentation. The patient was a Slavish woman, aged 34, who when admitted to the hospital, after being several hours in labor and unsuccessful attempts had been made to deliver her, presented the following condition: All parts normal; os fully dilated, child presenting transversely, with the right shoulder impacted in the superior straight and the right arm prolapsed; pains frequent and excessively strong. After repeated unsuccessful attempts at version under complete anesthesia, rupture of the uterus seeming imminent, cesarean section was performed, following which the patient progressed favorably and was out of bed on the twenty-sixth day.

The Advantages of Performing Capital Operations in Certain Cases Without Anesthesia.

DR. J. J. BUCHANAN, Pittsburg, cited the following indication for this method: 1, Profound septic infection; 2, severe collapse from loss of blood and shock; 3, fecal vomiting, with liability to drowning during the operation, or aspiration pneumonia subsequently; 4, collapse or compression of the lung, with liability to respiratory failure; 5, obstruction of esophagus; 6, advanced kidney disease, with liability to anuria. He enumerated in detail the operations suitable for this procedure, and emphasized the slight pain and great tolerance and co-operation of the patients, stating that in an experience of ten years his results had been uniformly satisfactory.

DISCUSSION.

DR. H. E. WETHERILL, Philadelphia, referred to the impossibility of always employing anesthesia in military operations, and reported two cases, one of the extraction of a bullet from the lung and the other for removal of the superior maxillary bones, without anesthesia.

DRS. JOHN B. ROBERTS and JOSEPH W. HEARN, Philadelphia, emphasized the value of the suggestions contained in this pa-

per, and DR. EDMUND W. HOLMES, Philadelphia, while recognizing the value of such procedure in selected cases, believed the pain to be greater than the author supposed.

DR. BUCHANAN stated that, while it hurt the patient some, he did not believe it was nearly so much as some thought.

Professional Responsibility in Accident Cases Involving Litigation.

DR. JOHN B. ROBERTS, Philadelphia, stated that the duties of the medical attendant of the patient and the examining physician for the defendant are identical, to obtain a prompt return to health and a just settlement of damages. Careful and frequent examinations should be made, and he believed better results would be obtained by early settlement, too many examinations, conferences, etc., being productive of traumatic neurosis.

DISCUSSION.

DR. ERASMUS SWING, Coatesville, referred to the tendency to bring suits against corporations, whether the injury warranted it or not.

DR. LEVI J. HAMMOND, Philadelphia, suggested that possibly this would be lessened if all physicians would refuse to have anything to do with the case on a contingent basis.

DR. SPENCER M. FREE, DuBois, remarked on the necessity of care on the part of the consultants, as to the statements they make regarding the former treatment of the case.

DR. R. W. STEWART, Pittsburg, deprecated the practice of giving an expert opinion from an x-ray picture submitted.

Other Papers.

Among the other papers read at the meeting were the following:

"One Hundred Consecutive Abdominal Sections in Hospital Practice Without Mortality," by Dr. F. F. Simpson, Pittsburg. "Congenital Elongation of the Left Lobe of the Liver Presenting Symptoms of Tumor of the Spleen," Incision, Ventrofixation, Followed by Relief of Symptoms," by Dr. Levi J. Hammond, Philadelphia. "Twelve Years of Emergency Surgery," by Dr. E. E. Wible, Newhall. "A Study of Progress in the Treatment of Skin Diseases," by Dr. J. R. McCurdy, Pittsburg. "The Treatment of Skin and Glandular Diseases by the X-ray," by Dr. Russell H. Boggs, Pittsburg. "The Roentgen Ray and Radium Therapy," by Dr. Mirran K. Kassabian, Philadelphia. "The Treatment of Malignant Discharges of the Breast," by Dr. Charles Lester Leonard, Philadelphia. "The Inhibitory Action of X-ray on Malignant Growths," by Dr. George C. Johnson, Pittsburg. "Tubercular Adenitis Treated by the X-ray," by Dr. George E. Pfahler, Philadelphia. "The Post-operative Treatment of Malignant Disease," by Dr. R. W. Stewart, Pittsburg. "The Care of Fractures from the Standpoint of the General Practitioner," by Dr. William S. Newcomer, Philadelphia, recommending the employment of the x-ray, which he felt was particularly valuable in determining the existence of a fracture by chipping off a small portion of the bone near a joint. "Clinical Studies in Shock and Blood Pressure in Traumatic Surgery," by Dr. Jonathan M. Walnwright, Scranton. "Cranicectomy in Microcephaly," by Dr. W. D. Teazarden, Washington. "Acute Gastric Dilatation Following Surgical Operation and Accidents," by Dr. Theodore B. Appel, Lancaster. "The Cause of Death in Cases of Intestinal Perforation Occurring in Typhoid Fever which Had Been Operated On," by Dr. J. Hartley Anderson, Pittsburg. "Pernicious Vomiting Cured by Fixation of the Kidney," by Dr. George Erory Shoemaker, Philadelphia, reporting a case occurring in a woman 25 years of age in whom vomiting had been present for seven years previous to the operation, and who was completely relieved thereby. "The Diagnosis and Treatment of Tumors of the Ovarium and Cerebro-Pontil Angle," by Drs. Charles E. Mills and Charles H. Frazier, Philadelphia, describing in detail the symptoms and means of diagnosis and urging the necessity for early operation.

The secretary reported an attendance of 711 at this meeting, as compared with 355 at York last year; 337 at Allentown in 1902, and 602 at Philadelphia in 1901.

Travel Notes.

XIV.

THE ADELAIDE HOSPITALS.

NICHOLAS SENN, M.D.
CHICAGO.

S. S. CHINA, Aug. 24, 1904.

Adelaide is the capital of the state of Southern Australia. A railroad seven miles long connects it with the harbor, Port Adelaide. It is the intellectual as well as the business center of the state. The city is located in the midst of an extensive

fertile plain, with a range of tree-clad hills in the distance and the ocean in the opposite direction. Its streets are wide, well laid out, well paved and clean, but the electric lighting is conducted on an economic scale. Present population, 60,000. The hobtail horse trams remind one of the size of the city, while the substantial sandstone buildings in its main streets would do credit to any of our large cities. Australian cities have, fortunately, no need of sky scrapers which disfigure our large cities; buildings more than three stories high are the exception, and time-saving, muscle-weakening and lung-crippling elevators have as yet but a limited sphere of questionable usefulness. Adelaide has a young, prosperous university, splendid botanic and zoologic gardens, public library, art gallery, museum and a number of attractive parks. It is an ideal university city where students are given all conceivable opportunities to enrich their minds with object lessons in all the arts and sciences, and where they are free from the many temptations which lurk in such abundance in all of the large cities. Medical students are given here very thorough didactic teaching, and the clinical material is large enough for practical instruction in medicine, surgery and the different specialties. The hospitals of Adelaide receive patients from all parts of the state and furnish the medical department of the university with an abundance of material, which is utilized by the teachers to greatest advantage for bedside and amphitheater instruction. It is somewhat remarkable that none of the general hospitals of Australia makes any provision for maternity cases, but all medical schools have a large out-door obstetric department, where the students receive practical instruction at the bedside of the poor in this most important branch of the healing art. One of the rigid requirements for graduation in all of the medical schools is to the effect that the candidate must present evidence that he has attended a specified number of confinement cases.

THE ADELAIDE HOSPITAL.

The Adelaide Hospital is the largest and only public general hospital in the city and its medical affairs are controlled by the clinical staff of the university. It was founded fifty years ago and can accommodate 240 patients. The main building, of sandstone with brick corners, is two stories high. It is situated some distance back from the street in the rear of an open square which has been converted into a beautiful little park, with well laid out gravel drives and walks and shaded with a variety of trees and ornamented with shrubbery and flowers. The remaining two including sides of the park are occupied by one-story buildings, most of them of recent construction. The operating theater now in use is antique and the surgeons are anxiously awaiting the opening of the new one which is nearing completion and which has been well planned and will represent the most modern improvements in this, the most important part of any hospital. The wards in the old building are somewhat gloomy and not sufficiently lighted. The electric light has not as yet been introduced, and the scanty gas jets at night can be no improvement on the defective daylight. Heat is supplied by open coal fires. In one of the surgical wards the grates occupy the base of a beautifully frescoed square column, which contributes much to the cheerfulness of the otherwise somber room. As in all Australian hospitals, a profusion of flowers imparts to the sick rooms a homelike and cheerful appearance. Owing to a somewhat miserly government aid it is interesting to know the sources from which the additional funds are obtained to carry on the work of this deserving charity. For the purpose of stimulating the spirit of charity among the people the contributors are given certain privileges, a practice which it would be well for some of our hospitals to imitate. On this subject I will quote from the last annual report of the hospital:

"1. Every contributor of £2 annually shall have the privilege of recommending one indoor patient in the year; of £5 annually, three indoor patients in the year; of £10 annually, the privilege of having always one patient in the hospital.

"2. Contributors of £2 annually shall also have the privilege of recommending six out-door patients for relief from the dispensary; contributors of £5, twelve patients; contributors

of £10, fifteen patients. It is to be distinctly understood that these recommendations are only to be issued by the contributors to persons who can not pay for medical treatment elsewhere. . . .

"3. Life contributors to have the same privilege in proportion; their donations being estimated as annual contributions of one-tenth." The restriction placed on the issuing of recommendations on these terms is repeated once more in paragraph 5, regulating the admission of patients: "It is to be distinctly understood that these recommendations are only to be given to persons who, on account of their poverty, are proper subjects for hospital treatment." In paragraph 6 provision is made to exclude charity patients who are able to pay for medical service: "Applicants for admission to the hospital shall, unless possessed of means sufficient to pay for medical advice, make a declaration, on a form printed for that purpose, to the effect that they are unable to pay for medical advice, and stating whether they are entitled to medical attendance from any benefit society or lodge."

That these declarations are not always in accord with facts became evident to me in visiting the different hospitals. Many patients find their way into the hospitals who are abundantly able to pay the physicians a fair remuneration for their services. The abuse of charity is practiced here as well as elsewhere on a large scale. The people are fully aware of the fact that they can secure the very best medical and surgical talent in hospitals connected with medical schools, and are willing to declare and sign almost anything to avail themselves of the gratuitous services of the attending staff. The Adelaide Hospital cares for many such impostors. Adelaide and the surrounding agricultural and pastoral country are in a prosperous condition, and many who seek the shelter of this hospital rob it and the medical profession annually of a large amount of money which they have well earned and to which they are justly entitled. Such abuse of charity is difficult to remedy, more especially in the case of hospitals connected with medical schools.

Drs. E. C. Stirling and Archibald Watson are the consulting physicians and surgeons. Four physicians constitute the medical and three surgeons the surgical staff. The present surgical staff consists of Leonard W. Bickle, M.R.C.S. Eng., L.R.C.P. London, F.R.C.S. Edin.; William Anstey Giles, M.B., Ch.M. Edin.; Benjamin Poulton, M.D. Melb., M.R.C.S. Eng. Two gynecologists, two ophthalmologists, one surgeon for the ear and throat, a bacteriologist, a dentist and two pathologists complete the list of medical officers with the exception of the resident medical superintendent, Mr. F. J. Chaffee, six assistants and five internes. The internes are selected from the graduating class of the university on their college standing. One of these internes is a woman, who assists Mr. Giles in his surgical work. The women internes in this hospital have made an excellent record. The internes, as in all Australian hospitals, receive a small salary and serve for one year. The training school for female nurses connected with the hospital has fifty pupils, several sisters and a matron. The nurses remain in training for three years and receive annually from \$100 to \$200, according to the length of time of their service. The new laboratory is capacious, well lighted and is in charge of a graduate nurse, who does all the mechanical work and prepares the culture mediums. Patients suffering from tuberculosis of the lungs do not remain in the hospital for any length of time, as they are sent from here to a sanatorium in the mountains seventy miles from Adelaide, built specially for this purpose and managed by the same administration. Other infective diseases are not admitted to the hospital. Turpentine and biniodid of mercury solution are favorite antiseptics with many Australian surgeons in hand disinfection. Catgut and kangaroo tendon have been largely displaced by fine silk. On the whole, chloroform is used more frequently than ether as an anesthetic. Cyanid gauze as an inner dressing for wounds remains popular. I had the pleasure of seeing considerable of the surgical work of two of the clinical professors of surgery in the university, Dr. Poulton and Mr. Giles. The former I found operating on a case of prostatic hypertrophy in a

man 65 years of age, who had suffered from the obstruction for several years. The usual long suprapubic vertical incision was made, the peritoneal reflection pushed upward, and the bladder incised on the point of a sound previously introduced into the bladder and held in position by an assistant. Repeated efforts to enucleate the gland after incision of the mucosa failed. It was one of those cases in which the enlargement was not due to the growth of adenomata, but to a hypertrophy of the gland itself, hence the impossibility of removing it by intravesical enucleation. It is in such cases that the most experienced surgeon will fail in removing the obstruction by the suprapubic route. Suprapubic drainage of the bladder was established by the use of rubber tubing fixed in the lower angle of the wound with sutures and the balance of the wound carefully closed. The next operation was performed by one of his assistants. The patient was a man 72 years old, the subject of a tumor nearly the size of a fetal head occupying the right parotid and submaxillary regions. There could be no question as to the malignant nature of the tumor, as it had reached its present dimensions since last Christmas. As the labial branch of the facial nerve had lost its functions it was suspected that the tumor had its starting point in the parotid gland. The operation was a very difficult one, but was executed with care and precision. The operator from time to time availed himself of anatomic information furnished by Professor Watson, who stood by and watched every step with his eagle eyes. The lymphatic glands were not involved and the operation demonstrated that the tumor had its origin in the submaxillary salivary gland and was undoubtedly a sarcoma. One of the most interesting cases in Dr. Poulton's wards was a man in middle life who had recently been operated on for an obscure swelling in the region of the gall bladder and extending to the right lumbar region. Positive diagnosis could not be made, although it was suspected that it was connected either with the gall bladder or right kidney. It was first noticed a year ago. Urethral catheterization in the male, as a diagnostic aid, has so far not been practiced by any of the Australian surgeons so far as I was able to ascertain. The French separator, on the other hand, is frequently made use of. In this case a vertical incision was made from the eighth costal cartilage downward. On cutting through the abdominal wall the retro-peritoneal location of what now could be recognized as a cyst was ascertained without any difficulty, the ascending colon being displaced inward. Marsupialization was resorted to. This term is often employed by Australian surgeons to indicate the radical operation for echinococcus cysts and the treatment of other cysts by incision and drainage. This word was coined here and owes its origin to the many species of marsupial animals which inhabit Australia, animals which give birth to their offspring in the embryonic state and mature them in a pouch on the ventral side of the body, where the young have easy access to the milk-supplying breasts. After opening and stitching the sac to the abdominal incision, the dermoid character of the cyst was demonstrated by the escape of a large quantity of hair and sebaceous material. The patient was doing well, relieved of all subjective symptoms, and only a small quantity of a mucoid fluid was discharged daily through the drain which remained in the cyst. Such cases in this particular location are extremely rare, and it is to be hoped that a full report of the case will soon find its way into the current medical literature. The safety of the operation was enhanced in this case by previous firm adhesions between the two layers of the peritoneum, so that the marsupialization was practically extra-peritoneal. It has been observed in this, as well as in other hospitals of Australia, that the aborigines are more frequently affected with hydatids than the whites, as they are more exposed to infection, living with numerous dogs, and often obtaining their water supply from stagnant pools. Dr. Altmann of Bright has operated on many natives afflicted with this disease. All surgeons consider the natives good subjects for narcosis and capital operations. They are, however, very prone to homesickness and shorten their stay even in the best hospitals as much as their condition will permit. The surgical wards of the hospital contain 28 beds, and the new pavilions are perfect in

construction and appliances. The upper part of the walls are artistically frescoed, the pictures pleasing and well selected for the purpose for which they have been intended.

The next day, July 10, I visited the hospital again, this time with Mr. Giles, dean of the medical faculty and professor of clinical surgery, who had in his wards many very instructive cases. One case was of special interest to me, and had misled the surgeon, and would have misled anyone else, in making a correct ante-operation diagnosis. The history of the case pointed to appendicitis. The operation revealed a retrocecal subperitoneal suppurating hydatid of the right iliac fossa. The operation yielded the expected relief, suppuration has almost ceased, and the patient will soon be discharged, restored to perfect health. Within a very few weeks Mr. Giles had operated on three cases of undescended testicle, complicated by hernia. In all the results were excellent. Mr. Giles has the reputation of being one of the most conservative and successful surgeons of Southern Australia, and his clinical teaching is highly appreciated by his attentive classes. Appendicitis appears to be unusually prevalent in Southern Australia, as I was shown many cases recently operated on in the wards of both Dr. Poulton and Mr. Giles, and I have no reason to believe that either of these surgeons would resort to the use of the knife unless the indications were clear.

The great prevalence of hydatid in Adelaide and surrounding country is well shown by the records of this hospital. Last year 34 cases were operated on, of which number 3 died. Pneumonia appears to have been very virulent, as of 69 cases, 43 were cured, 4 relieved, and 22 died. Of 30 appendicitis operations, 26 were cured and 4 died; 2 deaths in 19 cases of ectopic pregnancy; 29 cases of pyosalpinx, with 21 cures, 1 relieved, 4 unrelieved, and 3 deaths; 16 cases of myofibromata, 12 cured, 2 unrelieved, and 2 died; 5 gastroenterostomies, with 2 deaths; 41 radical operations for inguinal and femoral hernia, without mortality; 10 cases of strangulated hernia, with 4 deaths; 5 cases of lithotrity, with 1 death; 4 cases of prostatectomy, with 3 cured and 1 relieved; 27 hysterectomies, 21 cured, 1 relieved and 5 died; 20 excisions of varicose veins, without mortality.

ADELAIDE CHILDREN'S HOSPITAL.

The foundation stone for this excellent institution for the care of sick children was laid June 20, 1878, for what is now known as the Way Buildings, and fourteen months later the first patient was admitted. The Way Building and a number of one-story pavilions since erected enclose an open square where the little patients can enjoy the sunshine and outdoor air and find ample room among the shade trees for their childish amusements. The hospital is located on a high ridge, from where a beautiful view can be obtained of the city and the distant mountain ranges. It has accommodations for 80 patients. All the buildings are of stone, and the wards are well lighted and cheerful. The diphtheria ward is never empty. One of the trained nurses administers the antitoxin under the direction of the attending physicians. The same nurse has also charge of the laboratory. The visiting medical officers are: W. M. Campbell, L.R.C.P., Edin.; Alfred E. Wing, M.D., Brux.; Alfred London, M.D., London; Harry Swift, B.A., M.D., Camb.; A. M. Morgan, M.B., B.S., Ad.; R. Brumrit, M.R.C.S. Two consulting medical officers, two consulting pathologists, and one oculist, two dentists, one aurist, seven anesthetists, one pathologist, one bacteriologist, one radiographer, one sanitary advisor, one registrar and one interne complete the long list of medical men who serve this institution. One matron and a staff of six sisters supervise the nursing and have charge of the training school, which has at present an attendance of 50 pupil nurses. The hospital is kept scrupulously clean, and the little patients receive the benefits of nursing of the highest order and the very best medical and surgical service. Electric lighting, complete equipments and appliances for diagnosis and all kinds of surgical work add much to the efficiency of the institution. Medical students are admitted to the clinics, and several members of the attending staff are clinical professors of the university. The wealth of flowers with which this hospital is kept supplied throughout the entire year is best seen in the picture illustrat-

ing the interior of one of the wards. The citizens of Adelaide take great interest in this hospital, and their liberal contributions enables the administration to carry out its humane intentions in the most satisfactory manner. I visited the hospital in company with Dr. Lendon, professor of obstetrics and diseases of children, who is familiar with all the details of its construction and management, and is one of the most influential members of its medical staff. During the last year 704 new patients were admitted. One hundred and two operations were performed on in-door patients and 364 on out-patients. Chloroform alone was used as an anesthetic 50 times; ether, 58; gas, 4; chloroform, followed by ether, 353; gas, followed by ether, 1. Appendicitis operation, only 1, and this patient died. Tuberculosis of the hip joint figures conspicuously in the list of surgical cases. Of 25 cases, only 2 were subjected to operative treatment, showing conclusively the conservatism which is observed in this hospital in the treatment of joint tuberculosis. Of 78 cases of diphtheria, the disease proved fatal in 3. Fifty cases of typhoid fever were treated without a death, certainly a remarkable record, and 27 cases of pneumonia, with only 4 deaths.

GALLSTONE IN ELEPHANTS.

During the last year three Indian elephants have died in the zoologic gardens of Australia, one in Melbourne, one in Queensland, and the last one in Adelaide. When I visited the museum



Fig. 1.—View on the grounds, Adelaide Children's Hospital.

of the university with Professor Watson the taxidermists were engaged in mounting the last victim. This elephant was of enormous size. He had been an inmate of the Adelaide zoologic garden for a long time, and was 30 years old. He was sick only a short time, and the postmortem, conducted by Professor Watson, revealed as the immediate cause of death an enormous abscess in the center of the liver, and in this abscess was found a gallstone that weighed 25 pounds. As the elephant has no gall bladder, this stone must have formed in one of the hepatic ducts. This rare and valuable specimen disappeared in a somewhat mysterious way before it could be taken to the museum, and it was ascertained later that it was purchased from the pilferous possessor by a Chinaman, who paid \$10 for it and considered it a great bargain, as he expected to realize a fortune from it by converting it into a cure-all medicine for his sick compatriots. The Melbourne elephant on postmortem was found to have died from the same disease, but the calculus was much larger, weighing more than 100 pounds. It is not definitely known, but it is surmised that the Queensland elephant met with a similar fate. It seems that all large animals from tropic regions, when brought into confinement, are subject to inflammatory affections of the bile ducts and subsequent gallstone formation. As elephants even in Australia command a price of \$2,000, what inducement there would have been to perform on these giant patients a life-saving hepatotomy!

POSTMORTEM ON A ZEBRA.

One evening, in visiting the zoologic garden in Adelaide in company with Professor Watson and the superintendent of the garden, a fine-looking, sleek, well nourished zebra came up close to the fence and seemed to enjoy my patting her forehead and well-rounded neck. The animal appeared to be in perfect health. It had been in the garden for twelve years and was old when it was brought there. The next morning I was informed by Professor Watson that the animal had died during the night. In the afternoon I attended the postmortem, which was made under the direction of Professor Watson. The abdomen was enormously distended, which seemed to indicate that the sudden death was due either to intestinal perforation or acute intestinal obstruction. On opening the abdomen the giant cecum, ascending and descending colon were found distended to their maximum limits. Large isolated sections of the liver were the seat of great dilatation of the bile ducts, many of them sacculated, and on slitting them open were seen to contain a thick, turbid mucus, the inflammatory accumulation of a chronic cholangitis. Numerous ascaris lumbricoides of prodigious size were found in the stomach, well filled with the remains of the last evening meal. The upper part of the lumen of the small intestines was almost entirely occluded by wriggling masses of the same parasite, and they were also numerous throughout the large intestine. The transverse colon was of normal size, cecum, ascending and descending colon impacted with dry fecal matter alive with worms. It is evident that the immediate cause of death was the result of mechanical obstruction, complicated, perhaps, by toxemia arising from the rapid decomposition of the impacted material. These parasites were undoubtedly likewise, at least indirectly, responsible for the chronic inflammation of the bile ducts, as this affection was not diffuse, but limited to circumscribed parts of the liver.

PRIVATE HOSPITALS IN AUSTRALIA.

As the general hospitals of Australia have made no provision for private patients, the surgeons are under the necessity to fill this gap by private hospitals in order to accommodate the patients who are able and willing to pay them for their services. All surgeons with a large private practice either own or patronize a private hospital. Many of these little hospitals are operated by trained nurses. Several nurses combine, rent a private residence in a desirable locality, convert it into a hospital and throw its doors wide open to medical men who wish to patronize them. I was informed that the nurses who risk their time and money in such enterprises usually make them a success financially. Surgeons with means, however, prefer, as a rule, to build, own and manage their own hospital.

TERRACE HOSPITAL.

One of the neatest and most attractive private hospitals I ever saw is the property of Professor MacCormick of Sydney. As its name implies, it is in a terraced tract of land, three acres in extent, which is bisected by a deep ravine, shaded by magnificent trees. The hospital, occupying the highest point of the romantic little park, is a two-story cottage brick building, with a grayish-white, rough coat of cement and a red tile roof. The finishing of the interior, the arrangement of rooms and wards, the heating, the ventilation, the operating room equipments and appliances are as complete as money and skill could make them. The building alone cost \$80,000. It can accommodate 40 beds. Ten graduate, salaried female nurses take care of the patients. The charge for board and nursing ranges between \$15 and \$35 a week. The large practice of Professor MacCormick fills the rooms and wards throughout the year, and the hospital is prospering financially. One of the redeeming features of these private undertakings is the fact that they do not undertake to educate female nurses for the purpose of cutting down the running expenses, as is done only too frequently by similar institutions in our country.

CLARETON HOSPITAL.

This is a new four-story brick building, erected and owned by Professor Bird of Melbourne. It is situated in one of the finest streets, almost opposite the House of Parliament, and faces a

picturesque park. The exterior of the building is pleasing in design and its interior is the last proof that the plans were well made to meet the requirements of a modern hospital. The cheery operating room is flooded with sunlight during the day and lighted by electric lamps at night, and the conveniences and appliances for asepsis are absolutely perfect. The upper part of the building contains the living rooms of the family, to which access is obtained by an elevator. The eight graduate nurses employed to take care of the 20 patients, the present capacity of the hospital, are well paid, and the two matrons receive \$500 each per year.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Drugs in Cardiac Affections.

Dr. S. Solis-Cohen, in the *Penn. Med. Jour.* for July, 1904, discusses some of the drugs which he has found useful in cardiac collapse. **Suprarenalin:** This drug may be given on the tongue or injected in any convenient solution under the skin. The effect is quick and likewise transient. Suprarenalin may be administered in doses of from 1/20 to 1/10 of a grain. **2. Camphor:** This drug may be injected hypodermically in a 10 per cent. solution in sterilized olive oil or in 10 per cent. solution of ether. The dose should be about 20 or 30 minims. The effect is prompt and lasts for some hours. **3. Musk:** Much of the musk sold in the shops is therapeutically inert. Real musk is expensive, but is therapeutically potent. The physician should provide himself with a small quantity of the good tincture in order to be prepared for emergencies. Five or ten drops of tincture of musk given hypodermically exerts a powerful influence in overcoming the tendency to cardiac collapse, and the action of musk is more sustained even than that of camphor. In cases in which a cardiac collapse is suspected to be impending, it is useful to administer five or ten drops of musk by the mouth two or three times a day, in anticipation, and often in successful prevention, of such an accident.

Acute Myocardial Insufficiency.

Forchheimer, in *Archives of Pediatrics*, discusses the occurrence of acute myocardial insufficiency in some infections in children and gives the following brief outline of his own method, used with good results in two cases: "Hypodermic injection of adrenalin: This drug has an elective effect on the blood vessels supplied by the splanchnic nerve. Its effects are very transitory; therefore, the injections have to be made every two hours. Saline transfusions are used in the beginning in order to keep up the heart's contractions. Ice bags are put on the abdomen, stimulating the splanchnic reflex. In one child, I was able to bring the pulse down from 140 to 60 by the use of these alone. After the most violent symptoms have passed over, then caffeine soda salicylate is given every two to four hours alternately with the adrenalin, which is gradually dropped." For uncomplicated myocardial insufficiency, the author recommends as the first principle of treatment absolute rest. "The digitalis group of drugs may be used; their efficacy depends largely on the amount of myocardium affected." (Jacobi, in discussing Forchheimer's paper, disagrees with him in regard to the use of digitalis. Jacobi dislikes to give it in the beginning of an acute myocarditis, believing that digitalis puts too much labor on the heart.) Stimulants will be required in most of the cases, alcohol, camphor, or ether, according to the severity of the case. The convalescence must be es-

pecially guarded, and for the purpose of strengthening the myocardium mechanical means are invaluable, such as Swedish movements, massage, vibratory methods. The diet is the same as in all myocardial affections. Laxatives that act violently should be avoided. Strychnia may be used for its general tonic effect; except in toxic doses, it has no effect on the heart nor vasomotors. Nitroglycerin or the nitrites should never be used unless there be anginous attacks. Jacobi, in further discussion, recommends the following treatment of myocarditis: "In chronic myocarditis I have found that strychnia makes the patient worse, and opium is better. In acute myocarditis, I rely on cold applications to the heart, the ice bag for a short time, not for a long time in young children. I also place much confidence in codein and in the iodids. I do not like the nitrites when the arteries are poorly filled. Absolute rest is enforced. In myocarditis with danger from overstrain, I should rather rely on some opiate, ioidid or nitrite. There is no better thing than rest in bed for some weeks and months. Place the patient in bed in a cool room, open the windows, and then absolute rest."

Irritability of the Bladder After Confinement.

Fothergill, in *Southern Med. and Surg.*, recommends the following formula:

R. Salol
Tr. hyoseyami, aa. ʒiii 8
Infus. buchu, q. s. ad. ʒvi 180

M. Sig.: Teaspoonful three times a day.

The following is also recommended for irritable bladder:

R. Tr. hyoseyami ʒi 30
Potass. citratis ʒss 15
Ext. buchu, fl. ʒss 15
Ext. tritici fl. ʒi 30
Aque dest., q. s. ad. ʒiv 120

M. Sig.: Teaspoonful in wineglass of water three times a day.

Diphtheria.

McMahon, in the *Canadian Practitioner and Review*, discusses the treatment of diphtheria in relation to the necessity of early diagnosis. He gives the following points in which the physician is usually remiss, and consequently effective treatment is delayed:

1. His attention is not specially directed to the throat, and he fails to look at it, and diagnoses something else. By the time he recognizes his error the case is hopeless. The golden rule is, "Always examine the throat of a sick child, no matter what the symptoms are." The physician who fails to diagnose diphtheria because he did not look at the throat ought to be prosecuted for malpractice.
2. He examines the throat and thinks he has a case of tonsillitis or coryza or croup to deal with, or that, even if it is diphtheria, it is so mild that the old-fashioned remedies are sufficient for its cure.
3. He fails to follow up a suspicious case, and finds too late that the patient is in a desperate condition.
4. He treats one among many children and fails to protect others exposed to contagion by a preventive injection.
5. He uses antitoxin, but is half-hearted and does not use enough.
6. In a case of laryngeal diphtheria he uses antitoxin—perhaps in large doses—but fails to make early resort to accessory remedies, such as calomel, fumigation and intubation.
7. He makes an early diagnosis, but puts off the injection of antitoxin until to-morrow or the day after.

The author's own conclusions are: 1. In every case in which there is a suspicion of diphtheria, give antitoxin at once and freely. 2. Get a report in every doubtful case, but do not wait for the report; inject at once. 3. If the bacteriologic examination shows the presence of diphtheria bacillus, give an injection to all children to prevent spread of the infection. (Other methods of preventing the spread of the infection must also be used.)

The objections to the use of prophylactic injection of antitoxin are, first, that it may be given in cases where it is not necessary; the answer to this is that there is no harm done.

Second objection, that of expense, is answered by the fact that it is actually cheaper to give a prophylactic dose of antitoxin than to care for a patient suffering from diphtheria.

ADMINISTRATION OF ANTITOXIN.

"One who recognizes the uncertainties and difficulties of diagnosis, and is prompt, bold and fearless in his treatment, will have a very low death rate, indeed."

"I believe that antitoxin is an absolutely certain specific remedy when given in sufficiently large doses early in the disease."

The author recommends for an ordinary case of pharyngeal diphtheria, without nasal or laryngeal involvement, a dose of 1,000 units, if given early. The very malignant cases, with laryngeal involvement, demand heroic treatment. The author quotes from a paper published by Louis Cairns in the *Lancet*, Dec. 20, 1902, on the intravenous injections of antitoxin: "There are a certain number of malignant cases which show no improvement after the subcutaneous injection of even large doses (20,000 to 30,000 units) of antitoxin." He suggests two causes for its failure:

1. A selective influence on the part of the glands in filtering out the active constituents of antitoxin.
2. There is definite chemical relation between toxin and antitoxin, and neutralization of the toxin goes on more quickly in contracted solutions than in diluted ones.

He recommends an initial dose of from 20,000 to 30,000 units injected in the median basilic vein, and the indications he gives for its employment in this way are:

1. Special malignancy of the disease.
2. Involvement of the lungs, especially if this complicates laryngeal involvement.
3. A moribund condition when first seen.
4. Marked toxic symptoms.

The author gives the following as the method pursued by him during the last ten years in the treatment of laryngeal diphtheria, with excellent results:

1. Inject antitoxin in full doses.
2. Fume calomel under a tent (30 grains an hour) until stenosis is relieved.
3. Intubate early, if symptoms demand it.

Medicolegal.

LEGISLATION OF THE YEAR IN MARYLAND.

Physicians to Be Appointed to Issue Burial Permits.—Chapter 384 of the Laws of Maryland of 1904 provides that the local boards of health and the county commissioners of the several counties where they exercise such powers shall appoint, in 1904, and on January 1 in each year thereafter, as sub-registers to issue burial permits, physicians residing in, attending on, or appointed to any college, academy, boarding school, hospital, retreat, asylum, sanitarium, or other like place in their respective counties. Such sub-registers shall be entitled to receive and to charge the sum of fifty cents for each permit so issued. They shall report to the local boards of health or to the county commissioners full lists of all information contained in such permits.

Against Use of Wood Alcohol in Flavoring Extracts.—Chapter 378 of the Laws of Maryland of 1904 provides, under penalty, that no person, firm or corporation engaged in making, compounding and selling extracts, essences or other fluids commonly used for flavoring articles of food or drink, shall use or permit to be used by employes in the manufacture of such extracts, etc., any methyl or wood alcohol; nor shall any person, etc., sell or offer for sale any such extract, etc., containing any methyl or wood alcohol.

Creates a Tuberculosis Commission.—Chapter 476 of the Laws of Maryland of 1904 provides for the appointment by the governor of five persons, three of whom shall be physicians, who shall constitute what is to be known as the Tuberculosis Commission, whose duty it shall be to investigate the pre-

valence, distribution and causes of human tuberculosis in Maryland, to determine its relation to the public health and welfare, and to devise means for restricting said disease, and to investigate and report on the proper construction, cost, equipment, maintenance and location of a sanatorium for the treatment of tuberculosis. They shall report the results of their investigations not later than January, 1906. All hospitals, dispensaries and other institutions having medical officers and supported in whole or in part by public funds of the state, or of any city or county in the state, shall cause to be made on blanks furnished by the tuberculosis commission records of such facts as may be available for the purposes of the commission concerning every case of tuberculosis coming under the care of such institution.

Anti-Tuberculosis Requirements.—Chapter 412 of the Laws of Maryland of 1904 provides that the state board of health shall keep a register of all persons in the state who are known to be afflicted with tuberculosis. The board shall have exclusive control of the register, and shall not permit inspection thereof nor disclose any of its personal particulars except to officials authorized under the laws of Maryland to receive such information. The superintendent or other person in charge or control of any hospital, dispensary, school, reformatory or other institution deriving the whole or any part of its support from the public funds of the state, or of any city, town or county thereof, having in charge or under care or custody any person or persons suffering with pulmonary or laryngeal tuberculosis, shall, within forty-eight hours after the recognition of such disease, make or cause to be made in the manner and form prescribed by the state board of health, record of the name, age, sex, color, occupation, social condition and residence of the person or persons so affected, together with such other information as may seem necessary or important. And all such records shall be delivered, under seal, to the state board of health, on Monday of the week immediately following that in which the records were made. Whenever any physician knows that any person under his professional care is afflicted with pulmonary or laryngeal tuberculosis, he shall transmit to the secretary of the state board of health, within seven days, and on blanks provided by the state board of health for that purpose, the name, age, sex, color, occupation, social condition and residence of such person. The apartment occupied by any consumptive shall be deemed infected, and when vacated by the death or removal of said consumptive shall be disinfected by the board of health of the city, town or county in which such apartments are situated. And it shall be the duty of the householder, physician or other person having knowledge of the facts, to notify the local board of health within forty-eight hours after the death or removal of a person affected with pulmonary or laryngeal tuberculosis. Any person who lets for hire or causes or permits any one to occupy apartments previously occupied by a consumptive, before such apartments shall have been disinfected by a board of health, shall be guilty of a misdemeanor.

To Protect from Communicable Diseases, Especially Tuberculosis.—Chapter 399 of the Laws of Maryland of 1904 provides that any person affected with any disease whose virus or infecting agent is contained in the sputum, saliva or other bodily secretion or excretion, who shall so dispose of his sputum, saliva, etc., as to cause offense or danger to any person occupying the same room, house or part of a house, shall, on complaint of said person or persons, be deemed guilty of a nuisance. And any persons subjected to such a nuisance may make complaint in person or writing to the local health officer of any city, town or county in Maryland where the nuisance exists. And it shall be the duty of the health officer receiving such complaint to investigate, and if it appears that the nuisance is such as to cause offense or danger, etc., he shall serve a notice on the person so complained of, reciting the alleged cause of offense, and requiring him to dispose of his sputum, excretion, etc., in such a manner as to remove all reasonable cause of offense or danger. And any person failing to comply with such orders shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined ten dollars;

provided, that the foregoing requirements shall apply only to pulmonary and laryngeal tuberculosis, pneumonia, influenza and such other diseases as the state board of health may from time to time determine to be communicable by means of sputum, saliva or other bodily secretion or excretion. It shall be the duty of the physician attending any case of pulmonary or laryngeal tuberculosis to provide for the safety of all individuals occupying the same house or apartment, and if no physician be attending such patient this duty shall devolve on the local health board, and all duties hereinafter made incumbent on the physician shall be performed by the local board of health in all cases of pulmonary or laryngeal tuberculosis not attended by a physician or when the physician is unwilling or unable to perform the duties specified. It shall be the duty of the local board of health to transmit to the physician reporting any case of pulmonary or laryngeal tuberculosis, a printed report, after the manner and form to be prepared and authorized by the state board of health, naming such procedures and precautions as in the opinion of the state board of health are necessary or desirable to be taken on the premises of the tuberculosis case. On receipt of the blank report the physician shall fill, sign and date the same and return it to the local board of health without delay: provided, that if the attending physician is unwilling or unable to undertake the procedures and precautions specified he shall so state on this report, and the duties herein prescribed shall then devolve on the local board of health. On receipt of this report the local board of health shall carefully examine the same, and if satisfied that the attending physician shall have taken all necessary and desirable precautions to insure the safety of all persons living in the house or apartments occupied by the consumptive, and to insure the safety of the people of the state of Maryland, the board shall issue an order on the state board of health in favor of the attending physician for \$1.50. If the precautions taken by the attending physician are, in the opinion of the board, not such as will remove all reasonable danger, etc., the board shall return to the attending physician the report blank with a letter specifying the additional precautions which they shall require him to take; and the physician shall immediately take the additional precautions specified and shall record and return the same on the original report blank to the board. It shall further be the duty of the local board of health to transmit to the physician reporting any case of pulmonary or laryngeal tuberculosis a printed requisition. On this requisition blank shall be named the materials kept on hand by the board for the prevention of the spread of the disease, and it shall be the duty of the state board of health to purchase such supplies as it may deem necessary, and to supply them to any local board of health on due requisition of the latter. Any physician may return a duly signed requisition to the local board of health for such of the specified materials and in such amount as he may deem necessary in preventing the spread of the disease, and all local boards of health shall honor, as far as possible, a requisition signed by the attending physician in such case. It shall be the duty of every local board of health to transmit to every physician reporting any case of pulmonary or laryngeal tuberculosis, or to the person reported as suffering from this disease, provided the latter has no attending physician, a circular of information prepared and printed by the state board of health, which shall inform the consumptive of the best methods of cure of his disease and of the precautions necessary to avoid transmitting the disease to others. Any physician or person practicing as a physician who shall fail to execute the duties prescribed by this act, or who shall knowingly report as affected with pulmonary or laryngeal tuberculosis any person who is not so affected, or who shall willfully make any false statement concerning the name, age, color, sex, address or occupation of any person reported as affected with pulmonary or laryngeal tuberculosis, or who shall certify falsely as to any of the precautions taken to prevent the spread of infection, shall be deemed guilty of fraud, and on conviction thereof shall be subject to a fine of \$100, or to imprisonment not exceeding six months, or both fine and imprisonment, in the discretion of the court.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

October 15.

- 1 Relations of Laryngology, Rhinology and Otolaryngology with Other Arts and Sciences. Felix Semon.
- 2 *The Iodin Treatment of Suppuration. Winfield S. Pugh, Jr.
- 3 *The Molecular Concentration of the Blood and of the Urine, in Pregnancy, in the Puerperium and in Eclampsia. Ralph Waldo Lobenstein.
- 4 Research and Medicine. Robert G. Moody.

2. **Iodin in Suppuration.**—Pugh has made use of the iodine treatment advocated by Beek in scalp wounds, ulcers of the leg, inguinal adenitis, vaginitis, particularly the variety due to the gonococcus, and in the early stages of purpural sepsis, with excellent results. In the treatment of surgical tuberculosis, such as old tuberculous sinuses following tuberculous glands of the neck, and tuberculous joint affections, he finds iodine one of the very few remedies of value. Applied to venereal sores, such as chancre and chaneroid, it is useful. Particularly does it check the seriginous sores, and its use may be recommended for pus in the prineum following urinary extravasation. He strongly advises its trial in all cases of suppuration.

3. **Molecular Concentration of the Blood.**—Recourse to cryoscopy is taken by Lobenstein in order to ascertain whether or not the kidneys are primarily responsible for eclampsia. He finds that there is a marked diminution in the molecular concentration of the blood in pregnancy, the average Δ being $-.51$. There is likewise a diminution in the concentration of the blood in the puerperium, the average Δ being $-.53$, but a rise over that of pregnancy. In eclampsia the molecular concentration of the blood is not increased, the average Δ being $-.55$, the Δ of normal blood being $-.55$ to $-.57$. The urine shows no marked change in its freezing point, either in pregnancy, the puerperium, or in eclampsia. From his cryoscopic findings Lobenstein concludes that there is no evidence of renal inactivity nor of renal retention in eclampsia; that is, retention of the urinary products ordinarily supposed to be the cause of the disease, the products in question being crystalloid in shape. If there is renal retention it must be retention of either colloidal substances, which may come from either fetus or mother, or of crystalline substances too small in amount to affect the molecular concentration of the blood. Clinical facts and experimental research apparently show that eclampsia is an intoxication in which both mother and fetus have a share, the pathologic findings in both being due to the formation of multiple thrombi with subsequent necroses. What these substances are that give rise to the intoxication, and what part the symynton plays in their formation, Lobenstein is not prepared to say.

New York Medical Journal.

October 15.

- 5 *A Discussion on Several New Points Concerning the Theory and Practice of Immunity. A. Wassermann.
- 6 Aids to the Recognition of Disease. Judson Daland.
- 7 *Diffuse Dilatation of the Esophagus Due to Cardiospasm. James Tyson, Edward Martin and Joseph S. Evans, Jr.
- 8 When to Operate for Appendicitis. S. C. Stremmel.
- 9 Vulvovaginitis in Little Girls. A Clinical Study of 190 Cases. (Continued.) Sara Welt-Kakels.
- 10 *The Surgical Treatment of Bunions and Hallux Valgus. W. L. Keller.

5. This article has appeared elsewhere. See THE JOURNAL, xlii, title 108, p. 699.

7. **Dilatation of the Esophagus.**—The authors report two cases of cardiospasm with diffuse dilatation of the esophagus in both of which pathologic conditions existed in the abdomen which might have been the cause of the reflex irritation. One patient had a floating kidney, and in the other the cessation of the menstrual function occurred simultaneously with the onset of the dysphagia. In making a diagnosis in such cases as these the authors state that the history of the patient is of paramount importance. The condition usually occurs in neu-

rotics from 20 to 40 years of age. The onset of the dysphasia is sudden and accompanied by a sensation of burning and stoppage posterior to the sternum. As the disease progresses the difficulty increases. At times no food can be swallowed; at other times certain articles of food pass into the stomach without any voluntary exertion. The symptoms may disappear entirely. Pain is a variable symptom and is dependent on the degree of secondary esophagitis. Regurgitation of food immediately or very shortly after eating is characteristic. In advanced cases with marked dilatation food may be retained for many hours without causing discomfort. Any food remaining in the esophagus will be regurgitated whenever the patient assumes the horizontal position, especially during sleep. The absence of true vomiting and the inability to raise flatus have been noted as symptoms of cardiospasm. The majority of patients are able to swallow food with exertion or by employing definite mechanical assistance. With a few, all that is necessary is to go through some gymnastic effort. A clinical examination establishes the diagnosis. The treatment of the condition depends on the character of the case. Lavage, systematic tubal feeding, rectal feeding, over-stretching of the cardia and gastro-tomy are some of the methods of treatment that suggest themselves. The rational treatment is repeated over-stretching of the cardia in order to destroy its tonicity. The prognosis as to complete restoration is bad, but the condition is not necessarily hopeless.

10. Bunions and Hallux Valgus.—When the painful symptoms of either of these conditions are present to such an extent as to occasion nearly continuous suffering, and to constitute a constant impediment to locomotion, Keller says that the demand for operative interference is imperative. He makes use of an operation which eliminates all interference with the tripod of the foot or its normal level. It is described as follows:

A longitudinal incision two inches in length is made along the inner side of the foot, exposing the first metatarsophalangeal articulation. The skin and tissues over the head of the metatarsal bone are retracted; the joint is then opened and opposing articular ends are separated; the articular covering over the lateral enlargement and adjoining part of bone are pushed back; and the osteosty with about one-eighth of an inch of the bone is removed by a rongeur forceps or, preferably, with a small saw. The tendon of the flexor longus hallucis is freed by blunt dissection from the under surface of the base of the first phalanx, sufficiently to pass a Gigli saw around the bone; the periosteum is pushed back, disarticulation accomplished, and the articular head of the first phalanx is removed. Particular care should be taken throughout the operation to protect the periosteum from needless destruction, and an effort should be made to preserve enough of it to cover the exposed surface of the bone. A small gauze drain is inserted between the head of the metatarsal bone and the sawed end of the phalanx (this drain is removed after forty-eight hours). The wound is carefully sutured; the toe being maintained at normal extension by a narrow internal lateral splint. Passive motion is begun on the fifth day.

Medical Record, New York.

October 15.

- 11 *Prolapse of the Ovary. An Operation for Its Cure, with Report of Twelve Cases. Charles C. Barrows.
- 12 *Unusual Forms and Favorite Localizations of the Rheumatic Process. J. Schreiber.
- 13 *The Specific Treatment of Typhoid Fever. James M. Hackett.
- 14 Why Individuals and Similar Corporations Lose Their Damages Suits. John Punton.
- 15 *Acute Tetanus Cured by Intraneural Injections of Antitoxin. W. Scott Schley.

11. Prolapse of the Ovary.—The operation proposed by Barrows may be briefly described as follows: The abdomen is opened under the usual aseptic precautions, the patient being then preferably placed in the Trendelenburg position. An incision two inches in length ordinarily is sufficient. The intestines are held back from the field of operation by three aseptic bolsters, one being placed in the median line and one in each lateral fossa. The author finds these bolsters superior to gauze pads or rolls of gauze. All adhesions about the tubes and ovaries are broken up and any cysts that may exist in the ovaries are punctured, the wall being removed if the cysts have a definite cyst wall. If necessary, considerable portions of the ovary which have been destroyed by chronic cystic degeneration may be removed, the incision in the ovary being closed by interrupted sutures of fine catgut or silk. The round ligaments are then caught up and shortened, after the manner suggested by Wiley, two fine silk sutures being sufficient to

accomplish this result. If the uterus is markedly anteverted and the round ligaments not relaxed, this part of the procedure may be omitted. The infundibulopelvic ligament is caught up by forceps and a reef of one or two inches taken in it and secured by two or three sutures of fine silk. In the double peritoneal fold which stretches between the round ligament and the top of the broad ligament a small linear incision is made, half an inch long and the ovary, which lies beneath it, is brought through the opening and permitted to lie on the shelf thus provided for it. This procedure does not interfere with the relations of the fallopian tube to the ovary or of the blood supply to and from the ovary. In order to secure the ovary in its new situation, a suture is taken at either extremity of the gland, thus limiting the incision and securing the organ permanently in its new position. This procedure permits the ovary to rest comfortably on this top shelf of the pelvis, secure from any possible impact of the uterus, one of the causes of the intense suffering in prolapse of the ovary, and does not interfere with its functional activity. In the hands of the author the operation has proved an exceedingly satisfactory one, as is shown in the twelve cases cited.

12. The Rheumatic Process. Schreiber urges that the term muscular rheumatism should be dropped and the unqualified term "rheumatism" substituted for it. Rheumatism should be understood as meaning all the affections produced by rapid changes of temperature in the structures attached to the limbs, the periosteum, and in fibrous membranes. Those disposed to rheumatism do not need to dread uniform cold, even if intense, but rather warmth, especially that caused by muscular effort, suddenly followed by rest and cooling off. The most rapid and reliable remedy for recently acquired rheumatism is muscular exercise. Schreiber insists that the patient should boldly perform the movements that cause pain. Of course, articular rheumatism should be carefully excluded. Chronic rheumatism can be cured only by mechanico-therapeutics, in which active and passive movements play the chief rôle. He urges that the clergy, school teachers and foresters should add this simple doctrine concerning muscular rheumatism to their stock of hygienic lore in order that they may be able to instruct the people in regions without physicians and so preserve many from serious illness.

13. Specific Treatment of Typhoid Fever.—Hackett has evolved a treatment which he ventures to call specific. It consists of the administration of mercury in the form of blue mass and calomel. One or two grains of blue mass are given every three hours until the constitutional symptoms of mercurial saturation, such as soreness of the gums, are noted. An initial dose of 5 or 10 grains of calomel is also given, followed in a couple of hours by a seidlitz powder or 2 drams of Rochelle salts, unless hemorrhage or grave diarrhea are present. If constipation is the rule during the progress of the disease, 5 grains of calomel may be given once every day. Whether the bowels are constipated or loose, an alkaline cathartic is to be given every morning during the course of the fever, unless hemorrhage or some other complication contradicts its use. Opium should be given in one form or another, in sufficient amount to ensure good rest both day and night. In regard to the diet, Hackett prescribes milk and water in equal parts, a tumblerful every two hours, given ice cold. If this can not be borne by the stomach some light farinaceous gruel or peptonized milk may be substituted. He urges his patients to drink water as freely as possible during the course of the disease. Watermelons are allowed because he believes that they fill a long felt want in the diet treatment of typhoid. The treatment by mercury obviates the necessity of the cold bath.

15. Antitoxin in Tetanus.—Schley cites a case in evidence of the superior efficacy of the intraneural and intraspinal injection of antitoxin in the treatment of tetanus. He exposed the anterior crural and sciatic nerves for a distance of one and one-half inches and raised them on a flat probe. Injections were made with a fine hypodermic needle well up and down the nerve trunk, the needle being inserted several times in order to slightly wound the nerve filaments; 3 c.c. of antitoxin being

injected into each trunk. In order to facilitate reinjection of the nerves and to allow as much absorption of antitoxin as possible, the wounds were left open and lightly packed with sterile gauze strips saturated with antitoxin. Rubber tissue prevented absorption of the serum into the dressing. A lumbar puncture was made between the second and third lumbar vertebrae and after allowing a small amount of fluid to escape, 3 c.c. of antitoxin were injected. At the same time an attempt was made to scratch the nerves of the cauda equina. Ten c.c. of serum were injected subcutaneously. The patient received nearly 180 c.c. of antitoxin and was discharged cured on the twentieth day after admission to the hospital. Schley also noted that the effect of the chloroform given for the injections and for the relief of the more severe spasms seemed decidedly beneficial, and absence of spasm would be noted for some time after it had been given.

Medical News, New York.
October 15.

- 16 *The Early Physical Signs of Pulmonary Tuberculosis. Lawra-son Brown.
- 17 Are the Insane Responsible for Criminal Acts? John Punton.
- 18 *The Mechanism of Exophthalmos. W. G. MacCallum and W. R. Cornell.
- 19 *Some Notes on a Case of Erythromelalgia; with Treatment. I. W. Voorhees.
- 20 A Factor in the Causation of Emaciation in Tuberculosis of the Lungs. Harold M. Hays.
- 21 *The Silver Salts in Gonorrhea. William L. Baum.
- 22 *Urgent Adenectomy During the Progress of a Pneumonia. H. Jarecki.
16. Early Signs of Tuberculosis.—Brown emphasizes the fact that absence of physical signs in the chest is no better proof that a patient has not pulmonary tuberculosis than absence of tubercle bacilli in the sputum. Auscultation is by far the most important method of physical exploration in incipient pulmonary tuberculosis. Inspection, including mensuration, and percussion, are of nearly equal importance. Palpation is of less value. Auscultation should be practiced, however, before the patient is made to breathe deeply, as otherwise fine crepitation may be overlooked. In many incipient cases little or no deformity of the chest exists. In most of these the chest is well developed, though possibly a trifle long, with a slight prominence of the clavicle on the affected side. Careful inspection showed a restriction of movement in 10 out of 18 cases; percussion of the bases revealed it in 13; radioscapy in 13. The vocal fremitus was normal in two-thirds of the cases examined (201), and was three times more apt to be increased on the affected than on the unaffected side. Some degree of dullness may occur without change in the auscultatory signs. Kroenig's method of percussion is of value in the examination of incipient cases. Radioscapy has a distinct advantage in determining the movement of the base of the lung in deep-seated lesions; percussion, possibly, in "pleuritic" cases. In 28 of the 201 cases percussion was negative, while auscultation revealed some pathologic sign. Prolonged expiration was present in 32 per cent.; wavy breathing at the site of the lesion in 11 per cent.; weakened breathing in 10 per cent.; puerile breathing in 12 per cent.; harsh breathing, with loss of vesicular murmur, in 8 per cent. Some deficiency in the vesicular murmur was present in 41 per cent. The vocal resonance was normal in 62 per cent.; increased at the site of the lesion in 38 per cent. Rales occurred in 70 per cent. in the following order of frequency: Fine, medium moist, rhonchi, mixed. Pleuritic friction occurred in 1 per cent. Tubercle bacilli were found in the sputum in 35 per cent. Fifty-eight per cent. of the cases did not apply for admission into the sanitarium within the first six months of illness. In the 201 cases the site of the primary lesion was most frequently above the clavicle, then in the suprascapular area and subclavicular fossa. Sixty-one per cent. occurred on the right side.
18. Mechanism of Exophthalmos.—MacCallum and Cornell conclude that obstruction to the outflow of blood from the veins of the orbit produces at once exophthalmos, which is relieved by the establishment of a collateral circulation. This process, however, is completed so slowly that in the meantime the orbital tissues as well as the tissue of the face become very edematous, thus adding to the exophthalmos. Entirely inde-

pendent of any circulatory changes is the exophthalmos produced directly by the stimulation of the cervical sympathetic nerve. This protrusion is due to the peristaltic contraction of the orbital muscle.

19. Erythromelalgia.—Voorhees' case is of interest because of the acute onset, the severe pain, the gradual progress and the long periods of intermission. The treatment was a total failure. Even morphin failed to control the pain. Local applications of antiplogistin were intolerable, causing much additional pain. Iodid of potassium afforded temporary relief. Fluid extract of ergot, in 30 minim doses, three times a day, gradually increased to a dram dose, lessened the pain within ten days, and the patient began to improve steadily. Six months after the beginning of treatment the patient had an apoplectic seizure, from which she died within twenty-two hours.

21. Silver Salts in Gonorrhoea.—Baum details the results of experiments carried on by him with a view to establishing the therapeutic worth of silver preparations. The cases selected for treatment were all first attacks. All the patients were instructed to first urinate, then to fill up the urethra with the injection so as to produce tension and to hold in the injected fluid for from three to five minutes; the injection to be repeated five times a day. The following solutions were employed for these experiments: Allbargin, gelatose silver, 1 to 1 per cent solution; argyrol, 2 to 10 per cent; argonin, casein of silver, 2 to 5 per cent.; argentamin, 1 to 3 per cent. solution; kargin, silver protalbin, $\frac{1}{4}$ to $\frac{1}{2}$ per cent.; protargol, protid of silver, $\frac{1}{4}$ to 5 per cent. Picrotol, $\frac{1}{4}$ to $1\frac{1}{2}$ per cent.; water; saline solution; permanganate solution, 1 to 4,000 to 1 to 500; boric acid solution, 1 per cent. In all the cases the discharge decreased quite rapidly. The cases in which the silver salts were employed suffered less in subjective symptoms and made the best recoveries. Those treated with argyrol were probably the most satisfactory. Baum believes that the organic silver salts owe their beneficial effects to the bactericidal effect produced on gonococci imbedded in the upper epithelial layer, which is being exfoliated, and in preventing reinfection, rather than to their penetrating power, which is very slight. The prolonged pressure of any fluid on the urethral mucosa causes temporary compression of the capillaries; the removal of this pressure is followed by dilatation of these capillaries, resulting in an increased leucocytosis through the walls of the vessels. The point of least resistance is the lumen of the urethra. This induces more rapid exfoliation of mucous membrane cells and literally carries out the infectious agent.

22. Adenectomy During Pneumonia.—Jarecki reports a case on which an adenoid operation was performed with marked benefit to the patient. So far as he knows this is the first case of the kind reported.

Boston Medical and Surgical Journal.

October 17.

- 23 The Extraction of Foreign Bodies from the Bronchi. A. Cooldidge, Jr.
- 24 Case of Malignant Endocarditis. J. F. A. Adams.
- 25 "Variant" Infections; with Report of Cases. Thomas H. Evans.
- 26 *Gastric Ulcer in Children. (Concluded.) Elbridge G. Cutler.
- 27 *Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (Concluded.) Percy Musgrave.
26. Gastric Ulcer in Children.—Speaking of the treatment, Cutler advises that the patient should be kept quiet in bed for at least three weeks, and perhaps longer, according to the symptoms. When there is tenderness hot fomentations or poultices are advised during its continuance. Infants at the breast may be nursed a short time every hour if the milk agrees, but only a small amount of milk should be allowed at each nursing. With bottle-fed children, cow's milk, modified according to modern methods and diluted with barley or Vichy water, may be allowed with proper precautions; it may have to be peptonized. With older children, milk must be the chief article of diet, but soups, broths, meat extracts, raw or cooked meat juice, meat jellies, and white of egg may be alternated with it. As improvement advances the diet may be cautiously increased. Nutrient enemata may have to be given at times. For pain,

opium in some form is the safest and should be given by mouth in doses sufficient to meet the indication. Bismuth is advisable as in the adult. Small or single hemorrhages take care of themselves; when profuse or repeated, surgical consultation is obligatory, meanwhile suprarenal gland extract or saline infusions may be tried. A bland form of iron should be begun as soon as permissible, and later arsenic or cod liver oil should be added. The diet must be regulated for several months after apparent cure.

27. **Examination of Pleural Fluids.**—Musgrave concludes that routine and systematic examination of pleural fluids will aid greatly in diagnosis and in determining the etiology of pleurisy. Cytodiagnosis is the only method which can be employed easily; animal inoculation, inocopy and culture methods can only be used in the laboratory. Although cytodiagnosis is not absolutely accurate in every case, it is sufficiently accurate, especially when taken in conjunction with the history and bedside examination, and the physical and chemical properties of the fluid itself, to justify its use as a routine procedure. Routine examination of pleural fluids will also establish a basis on which accurate prognostic statistics can subsequently be based.

Cincinnati Lancet-Clinic.

October 15.

- 28 Dystocia from Emphysematous Infiltration of Fetus. Forty-five Minutes from Expulsion of Head to Birth of Fetus. Gilman R. Daniels.
29 *Loss of Consciousness and Automatism in Inebriety. T. U. Crothers.
30 The Choice and Use of Medical Literature. Hugh T. Patrick.
29.—See abstract on page 1251, October 22.

Annals of Surgery, Philadelphia.

October.

- 31 *Aseptic Surgical Technic. Albert J. Ochsner.
32 Ibid. George H. Mours.
33 *Some Studies in Asepsis. Charles Harrington.
34 *An Adenoma of Sebaceous Glands of the Abdominal Wall. William C. Clarke.
35 *The Treatment of Hematemesis by Gastroenterostomy. F. Gregory Connell.
36 *Post-operative Intestinal Obstruction. Charles H. Peck.
37 Mesosigmoiditis and Its Relation to Recurrent Volvulus of the Sigmoid Flexure. Emil Ries.
38 Meckel's Diverticulum, with Report of Strangulated Inguinal Hernia of Same. Frank E. Bunts.
39 Surgery of the Deep Urethra: Primary Urethral Anastomosis After Lacerated Wound of the Perineal Urethra; Urethral Fistula. Sequel to Prostatectomy. G. Frank Lydston.
40 *The Union of Ununited Fractures of the Neck of the Femur by Open Operation. Leonard Freeman.
41 *The Treatment of Fracture of the Patella. J. Alexander Hutchison.
31.—See abstract in THE JOURNAL of July 2, p. 67.

33. **Studies in Asepsis.**—Harrington has made what appear to be very thorough studies of the question of asepsis as carried out in the operating clinic. He calls attention to the fact that in some instances, as in the sterilization of ligatures and gauze, the methods employed, such as fractional sterilization, are unnecessary. On the other hand, no precautions are taken against the entering into the wound of salivary spray emitted by the surgeon while talking to the onlookers. For the sterilization of the hands, Harrington finds that a mixture consisting of commercial alcohol (94 per cent.), 640 c.c.; hydrochloric acid, 60 c.c.; corrosive sublimate, .8 gram, and water, 300 c.c., will sterilize the unwashed hands in two minutes. He has repeatedly soaked his hands, without any preliminary scrubbing, for two minutes, and then had plantings made from the material removed from about each nail and from scrapings from the skin of each finger and from the palm. Occasionally a growth followed, but, as a rule, every tube of bouillon remained clean and sterile. A young man, whose duties included the daily cleaning of cages in the animal room and whose hands were not the subject of much thought or care, soaked his hands after ordinary washing, on ten different occasions for from two to five minutes; and each time each nail and finger was tested. In 7 of the experiments there was entire absence of growths; in one, a growth was obtained from one fore finger, in one from one middle finger, and in one from one thumb. That is, of 100 plantings only 3 showed growths. The mixture causes no irritation beyond the same degree of biting that one notices on contact with peroxid of hydrogen.

34. **Adenoma of Sebaceous Glands.**—A case of this kind is reported by Clarke, who also presents a very complete résumé of the literature of the true adenomata of sebaceous glands, showing that these tumors, without associated lesions of the skin, do exist, and that they undergo fatty metamorphosis with formation of cysts. Tumors of this kind, however, are rare, especially the larger ones. On the other hand, a hyperplastic condition of the gland, secondary to or associated with hypertrophy of the skin, is not uncommon. True adenomata of the sebaceous glands may become calcified or carcinomatous. The stroma of the tumor may undergo hyalin degeneration. Giant cells may occur in them. The epithelial cells may undergo mucous degeneration and form cysts similar to those derived from the cell undergoing fat metamorphosis. In the case reported, occurring in a young girl, aged 11, dermoid cyst and simple inclusion cyst, or a cyst derived from a supereruptory mammary gland, or from a sweat gland, were positively excluded. Apparently, the growth was a true adenoma starting from the infundibula of the sebaceous glands and retaining the type of the secreting portion. It had all the characteristics of a steatadenoma or an adenoma of the sebaceous gland.

35.—See abstract in THE JOURNAL, xlij, p. 130.

36. **Post-Operative Intestinal Obstruction.**—Peck is of the opinion that postoperative intestinal obstruction is a condition, the frequency of which is hardly appreciated, and the gravity of which can not be over-estimated. He says, further, that the possibility of postoperative obstruction should be borne in mind in all abdominal operations, especially in conditions likely to result in extensive adhesions, such as appendicitis with peritonitis, and pyosalpingitis with pelvic peritonitis. All raw surfaces should be covered as much as possible with normal peritoneum, or, where this is not practicable, perhaps, with Cargile membrane, or carefully arranged omentum. Small incisions and the least possible manipulation and evisceration should be the rule. The cleansing of the peritoneum should be done rapidly and with the least possible trauma and handling of normal peritoneum. Flushing with hot saline solution is advisable where there is much foreign material to be removed. The smallest possible drains should be used, if any. Cigarette drains are preferable to gauze, as they are less irritating to the surrounding peritoneum; cases of pyosalpingitis or pelvic peritonitis rarely require drainage, and, when necessary, drainage through the cul-de-sac can usually be employed. Diet should be regulated and the bowels should be watched with the greatest care during the first few weeks of convalescence: the attacks of gaseous indigestion with colicky pain should be regarded with suspicion and treated promptly and vigorously. Determined efforts should be made to relieve early attacks of obstruction by enemata, position, gastric lavage, etc., and if successful, the patient should be kept on a scanty fluid diet for some time and watched most carefully for a possible recurrence of symptoms. If palliative measures are unsuccessful after a few hours' trial, operation should be promptly resorted to. In cases occurring later than four to six weeks, palliative measures are less likely to be effective and early operation is usually imperative. All patients who have been operated on for intra-abdominal inflammatory troubles, Peck warns of the possibility of the occurrence of obstruction, at the same time impressing them with the importance of avoiding indiscretions in diet and attacks of indigestion, and of seeking advice promptly if such attacks should occur. The operative procedure must be adapted to each individual case; the Wright-Kammerer incision for cases following appendicitis with complete healing is often useful; the median incision, as a rule, for other conditions. Resection and end-to-end anastomosis should be preferred to enterotomy in the majority of cases where gangrene or sloughing of the gut wall demands one or the other.

40. **Open Operation in Ununited Fractures of Femur.**—The value of the open operation for the union of the fracture fragments of the femoral neck is attested to by Freeman, who adds one case to the 13 hitherto published. The choice of cases for operation, he says, is of great importance. Advanced age is a contraindication, although, if the patient is not too

old and his general condition is exceptionally good, operative intervention might deserve serious consideration. The greatest field for the open operation lies among the young and middle-aged, where it is not only permissible, but strongly indicated. Chronic and acute derangements of various organs, particularly the kidneys and lungs, must be given due weight before recommending operation. A moderate limp, without pain or undue loss of function would hardly be sufficient ground for operation, especially as some degree of shortening would be almost sure to remain; if disability and suffering are pronounced, however, operation would be strongly indicated in favorable cases. Access to the joint is adequate; no muscles or other structures of importance need be divided or endangered. To affect this, the anterior incision, as devised by Jacobson, is the preferable one. The cut begins a short distance below and external to the anterior superior spinous process of the ileum and extends directly downward for three or four inches according to the thickness of the soft parts. It should lie just outside the sartorius muscle, which can be retracted inward while the fascia lata is drawn outward. Should the surgeon, during the course of the operation, conclude to remove the head of the bone instead of reuniting the fragments, he can do so through this incision quite as readily as through any other. All interposed connective tissue is removed with scissors, and the surfaces of the fragments are chipped away with a chisel or scraped off with a curette, care being taken to remove as little bone as possible in order to avoid shortening of the neck and, as a consequence, shortening of the entire limb, which is apt to be considerable in spite of all precautions. Troublesome oozing is checked by the use of pressure sponges wrung out of very hot water. Detached splinters of bone should be removed. The fragments are coaptated and made immobile by means of nails, screws, or bone or ivory pegs, the screws being preferable. They should remain, if possible, for several weeks until consolidation is well advanced, unless infection occurs, when they should be taken out at once. Temporary drainage of the wound is indicated. On the whole, the results have been encouraging. There always remains, however, some shortening arising from the absorption of bone, from loss by freshening the fragments and from imperfect adjustment; but is usually not great enough to become a large factor in the final result.

41. **Fracture of Patella.**—Hutchison records his experience in the treatment of fracture of the patella in 7 cases. One of these was treated by the non-operative plan by strapping, application of the posterior splint, elevation of the leg and massage; the other 6 were treated by the direct open method with wiring of the fragments. Of the 6 cases operated on all walk without lameness and are able to go up and down stairs without any noticeable difficulty. The one case that showed lameness, namely, that not operated on, was unable to step down from a chair, although the result of the treatment was what is commonly called a good one.

Journal of Medical Research, Boston.
October.

- 42 *A Clinical Study of the Hemolytic Action of Human Blood Serum. John M. Polk.
43 *Experiments with Tuberculin Made from Human and Bovine Tubercle Bacilli. S. P. Wolbach and Harold C. Ernst.
44 The Further Differentiation of Flagella and Somatic Agglutinins. Henry G. Reyer and Arthur L. Rengh.
45 The Experimental Production of Liver Necrosis by the Intra-venous Injection of Hemagglutinins. Richard M. Pearce.
46 The Precipitin Reaction of Human and Cow's Lacto and Casein Serum. Samuel Amberg.
47 *A Study of the Efficacy of Variola. William T. Howard, Jr., and Roger T. Perkins.
48 Pathologic Effects of Periodic Losses of Blood. Theobald Smith.
49 Metachromatism of Mast Cell Granules and Mucin. G. H. A. Cross and Alice G. Owen.
50 The Influence of Various Fats on the Formation and Excretion of Acetone. Elliott T. Joslin.

42. **The Hemolytic Action of Human Blood Serum.**—The contributions of various observers in this line of study are reviewed by Polk, and attention is directed to the lack of uniformity in the methods employed and in the results obtained. Polk obtained the serum in all cases by the same means and at about the same time of the day, and it was of like age when added to the test fluid. From 8 to 15 pathologic sera were ex-

amined at one time, and a control from a normal individual was always made whose serum in quantities of 50 millimeters had been shown to give a degree of hemolysis never varying below 5 or above 7.5 for a year. One solution of an .85 per cent. sodium chloride solution was used throughout all the experiments. Two rabbits were selected of the same weight and color, whose erythrocytes and hemoglobin were equal and whose blood, in 5 per cent. suspension in .85 per cent. sodium chloride solution, yielded hemoglobin to a degree equal to 5 on the scale when 50 millimeters of serum from the normal human control were added to 1 cm. of the suspension. Each time the rabbits were bled not more than 2 cm. of blood were removed and defibrinated. On each occasion the red cells and hemoglobin were determined, and a normal human serum control was made and found to correspond in all respects at each bleeding, save on the occasion of infection occurring in one rabbit. The serum was added to the test suspension between 2:30 and 3 o'clock, placed in an oven at 3, removed at 5 o'clock and placed on ice. The observations were made about 10 o'clock the following morning. In all cases 50 mm. of serum were added to 1 cm. of cell suspension; a complete solution of all the cells equaled 30. The most definite results of Polk's study are the low hemolytic action of the serum in severe anemia, the increase of the property in most infectious diseases and the striking increase in diabetes. In diabetes the hemolysis appeared to vary with the glycosuria, but with the other diseases there seemed to be little definite relation between hemolytic activity of the serum and the other features of the cases. Polk expresses the belief that the determination of the hemolytic property of the blood serum may find a considerable field of application in routine clinical work, and may be found to throw some new light on the nature of many morbid processes.

43. **Human and Bovine Tuberculin.**—Wolbach and Ernst have repeated the original experiments of Koch with tuberculin on tuberculous guinea-pigs, using for this purpose freshly isolated cultures and freshly prepared tuberculin of their own make. At the same time tests for differences in the specificity were made with tuberculins from both human and bovine tubercle bacilli. The cultures used by the authors were obtained directly from man and cattle, the human culture on human blood serum, the bovine culture on bovine blood serum. The human culture came from a tuberculous testis, the bovine culture from an isolated nodule in the lung of a cow with general tuberculosis. The virulence of the cultures was determined according to the method of Theobald Smith, and the strength of the tuberculin was determined according to the method of Doentz. Some of the guinea-pigs were inoculated with bovine culture and some with the human culture. One set of animals was treated with one tuberculin, while another similar set was being treated with the other tuberculin. The conclusions arrived at are: 1. That there is no difference in specificity between tuberculin made from human and bovine tubercle bacilli. 2. That the tuberculin treatment, on the whole, acts favorably on tuberculous guinea-pigs. 3. That there are no essential differences in the disease processes caused by the human and bovine tubercle bacilli.

47. **Etiology of Variola.**—The work of Councilman and his co-workers is confirmed by Howard and Perkins, who studied the material derived from 49 autopsies on cases of variola and from skin excised from 8 cases in various stages of the disease. They also confirm all of the cycle as made out by Calkins, except the invasion of nuclei by gemmules, there going through a stage leading to the formation of male gametocytes. They recognize a primary and a secondary cytoplasmic and a primary and a secondary intranuclear stage. The end forms of these stages are: (a) the gemmule; (b) large solid nucleated forms—the zygote—like body of Calkins; (c) small ring-like spores in both the intranuclear stages. The paper closes with the statement that: "The relation of these parasites to the skin lesions is of such a definite and intimate character as to lead to the conclusion that they are the cause of the disease."

Illinois Medical Journal, Springfield.

Canadian Journal of Medicine and Surgery, Toronto.

- 51 Some Practical Points in the Diagnosis and Treatment of Placenta Previa. Henry F. Lewis.
- 52 *Indications for Intervention in Gastric Ulcer. A. T. Stewart.
- 53 The Lorenz Operation as Seen in the American Statistics. Frederick Mueller.
- 54 Etiology and Pathology of Carcinoma, with Especial Reference to Epithelial Metaplasma. Gustav Fütterer.
- 55 Cancer of the Uterus. E. Mammen.
- 56 The Geographical Distribution and the Medical Treatment of Cancer. W. C. Bovars.
- 57 The Ultimate Results of Operation for Carcinoma of the Breast. B. W. Graham.
- 58 The Pathology of Eclampsia. Frank W. Lynch.
- 59 *The Operative Treatment of Eclampsia. Charles S. Bacon.
- 60 Appendicitis with Periapendicular Abscess and Infection of a Long-standing Omental Hernia in the Right Inguinal Region. Bayard Holmes.
- 61 *Home Sanatoria. Erben A. Gray.

- 74 *The Surgical Treatment of Complete Descent of the Uterus. E. C. Dudley.

74. Treatment of Complete Descent of the Uterus.—All operations based on the principles of the one devised by Stoltz for the treatment of this condition are condemned as unfit by Dudley. He says that an efficient operation on the vaginal walls should have for its object the restoration of the normal direction of the vagina so that the upper extremity, together with the cervix uteri, shall be in its normal location within an inch of the second and third sacral vertebrae, just where the uterosacral ligaments would hold it if their normal tonicity and integrity could be restored, and so that the lower extremity of the vagina shall be brought forward against the pubes. This will restore the normal obliquity of the vagina and will hold the cervix uteri so far back toward the sacrum that the corpus must be directed forward in its normal anterior position of mobile equilibrium. With these conditions, the uterus being at an acute angle with the vagina, and having little space posteriorly, can not retrovert and turn the necessary corner which would permit it to prolapse in the direction of the vaginal outlet. Operations designed to decrease the weight of the uterus are of questionable value. Alexander's operation and abdominal hysterorrhaphy belong to the surgical treatment of retroversion and retroflexion. Hysterorrhaphy may be indicated in cases of extreme relaxation of the uterine supports and greatly increased weight of the uterus, but the results will not be permanent in complete descent of the uterus unless it is supplemented by adequate surgery to the vagina. In order to accomplish the things mentioned by him, Dudley advises excision of the cystocele, together with perineorrhaphy and posterior colporrhaphy. Complete prolapse, being hernia, should be treated according to the established principles of herniotomy by reducing it and then excising the sac in such a way as to expose strong fascial edges which should be firmly united by sutures. The operation he urges is performed as follows: Split the vaginal plate of the vesico-vaginal septum by means of scissors from the cervix to the neck of the bladder; strip off the vaginal from the vesical layer and cut away the redundant part of the vaginal plate. Extend the incisions and remove the mucous and submucous structures to either side of the uterus, being sure to reach the fascial structures which are in direct connection with the lower margins of the broad ligaments, or, what is better, to reach the ligaments themselves. Introduce silkworm-gut or chronic catgut sutures so that when tied they will draw the loose vaginal tissues and the broad ligament structures on either side of the cervix in front of it so as to force the cervix back into the hollow of the sacrum. Additional interrupted sutures are introduced to unite the vaginal wound from side to side. This suturing is continued to a point near the urethra, when most of the redundant vaginal wall will have been taken up. The lower portion of the cystocele and, perhaps, some urethrocele can be taken up by uniting the remaining part of the wound in a transverse direction. Elytrorrhaphy is usually unnecessary and therefore contraindicated in descent of the first degree. The special province of the operation is in complete prolapse or procidentia when associated with cystocele. The operation further is contraindicated by tumors and adhesions which render replacement and retention impossible, and in disease of the uterus or its appendages which demand their removal. When such contraindications do not exist elytrorrhaphy and perineorrhaphy in a majority of cases are quite as effective, and therefore to be preferred to the more dangerous and mutilating operations of hysterectomy.

Medical Age, Detroit.

October 10.

- 75 Glands of the Cystic Duct (Glands of Theile). Byron Robinson.
- 76 Anesthesia. (Clinical Lecture.) Daniel N. Elsendrath.

Medical Standard, Chicago.

October.

- 77 Suggestions for Catheterization of the Ureters; Difficulties Encountered. Gustav J. Bergener.
- 78 Anurotomy and Its Treatment. Heinrich Stern.
- 79 A Surgical Clinic. B. Brindley Eads.
- 80 Work of the Milk Commission. Mary R. Plummer.
- 81 Treatment and Prognosis of Chronic Bright's Disease. Charles S. Winn.

52. Gastric Ulcer.—Stewart advises that all cases of suspected gastric ulcer should first be submitted to thorough medical treatment along the lines of rest and suitable diet with the object of having the hemoglobin approximate the normal. Should the ulceration prove intractable or relapses occur, gastroenterostomy should be performed to secure the physiologic rest necessary to the repair of the ulcer. Repeated small hemorrhages, pyloric contraction with great dilatation of the stomach and serious impairment of health, with persistent anemia, call for surgical intervention. Perforation demands immediate operation.

59.—This article appeared in THE JOURNAL, xlii, p. 1332.

61.—This article appeared elsewhere. See THE JOURNAL of September 10, title 57, p. 760.

The Laryngoscope, St. Louis.

October.

- 62 The Etiology and Diagnosis of Acute Non-suppurative Otitis Media. William C. Bane.
- 63 The Treatment of Acute Non-suppurative Otitis Media. Edwin Pynchon.
- 64 *The Diagnosis and Differentiation of Chronic Non-suppurative Otitis Media. William L. Ballenger.
- 65 The Treatment of Chronic Non-suppurative Otitis. M. A. Goldstein.
- 66 Study of the Fatal Results of Operations on the Nose and Throat. Francis R. Packard.
- 67 Report of a Case of Mastoiditis Complicated by Nephritis and Erysipelas. Joseph A. White.
- 68 Cerebral Abscess. Gottlieb Kiaer.
- 69 Papilloma of the Larynx; Report of a Case of 40 Years' Standing. William L. Culbert.
- 70 What the Laryngologist May Do for the Correction of Some of the More Common Forms of Defects of Speech. G. Hudson Makuen.
- 71 Broncholithiasis, with Report of a Case. D. Braden Kyle.
- 72 Adeno-carcinoma Occupying All of the Sinauses, Nose and Orbit with a Presentation of a Pathologic Specimen. Wm. H. Dudley.
- 73 The Colloidum Dressing for Intranasal Surgery. Charles W. Richardson.

64. Chronic Non-Suppurative Otitis Media.—The differential diagnosis of the chronic form of non-suppurative otitis media will be comparatively easy in most cases, says Ballenger, if we bear in mind that there should be but three clinical subdivisions of middle ear diseases; the moist or secreting type, the adhesive or sclerotic, and the spongy or rarefying osteitis of the bony capsule of the labyrinth. The latter is essentially a disease of the sound conduction apparatus and should, therefore, for purposes of clinical study, be classified with the middle ear diseases. In uncomplicated cases there are no objective signs of middle ear disease. The drumhead is normal in appearance and the eustachian tube is open. The functional tests of hearing give in a general way the same results as are obtained in other diseases of the conduction apparatus. When, therefore, the objective signs of middle ear and eustachian disease are absent, and the functional examination with the forks and whistles show the conduction apparatus to be affected, it is a fair presumption that the case is one of spongy or rarefying osteitis. When there is no apparent middle ear disease and the functional tests of hearing lead to the opposite conclusion, the case is one of spongy. The moist or secreting type of otitis media may readily be diagnosed by the presence of the serous or sero-mucous fluid as seen through the lusterless drumhead, or as shown by auscultation and paracentesis. Adhesive otitis media may be diagnosed by the presence of the fibrous bands seen through the thin, lusterless ground-glass drumhead, together with the calcareous deposits, irregular retraction of the drumhead and the slight or transient improvement of hearing after inflation.

Mercer's Archives, New York.

October.

- 82 Consumption—Some Things Worth Thinking About. W. C. Abbott.
- 83 An Index of Diseases, Alphabetically Arranged, with Their Modern Treatment. G. Björkman.

Medical Herald, St. Joseph, Mo.

October.

- 84 The Clinical Importance of the Reflexes. H. Douglas Slinger.
- 85 Surgical Treatment of Mastoid Abscess. J. H. James.
- 86 The Rapid Treatment of Suppurating Babo by Incision and Immediate Suture. F. Kraussl.

Journal of Nervous and Mental Disease, New York.

October.

- 87 *Case of Uncomplicated Hysteria in the Male Lasting Thirty Years, with Postmortem Examination. S. Weir Mitchell and William G. Spiller.
- 88 Reduplicative Paranoia. (Continued.) Isador H. Coriat.
- 89 Case of Tuberculosis Meningitis with Secondary Infection. S. Kneass and Joseph Sailer.

87.—See abstract in THE JOURNAL, xlii, p. 1442.

Pacific Medical Journal.

October.

- 90 The Essence of Reason. B. M. Jackson.
- 91 Sunday Journalism. T. D. Crothers.
- 92 Food Sterilization. J. Deane.

Medical Fortnightly, St. Louis.

October 10.

- 93 Bitemporal Hemianopsia. Flavell B. Tiffany.

Southern Practitioner, Nashville.

October.

- 94 Stomach Surgery at the Mayo Clinic. William D. Haggard.
- 95 Hip-joint Amputation—With Report of Cases. Paul F. Ewe.
- 96 Postpartum Hemorrhage. J. T. Altman.
- 97 Septicæmia. A. C. Nuttall.

The Post-Graduate, New York.

October.

- 98 Seminal Vesiculectomy—The Author's Operation. Eugene Fuller.
- 99 Differential Diagnosis Between Diffuse Circumscribed External Otitis, or Furuncle, and Acute Mastoiditis. James F. McKernon.
- 100 Colorimetric Estimation of Indol in Feces and Urine by Means of Ehrlich's Dimethylamido-benzaldehyd Reaction. Max Einhorn.
- 101 A Combined Operative, Ureter and Observation Cystoscope. Follen Cabot.
- 102 Treatment of Stricture of the Male Urethra. Henry G. Spooner.

Memphis Medical Monthly.

October.

- 103 Hepatic Cirrhosis. J. L. McGehee.
- 104 Pathologic Report of a Case of Cirrhosis of the Liver with Remarks on the Pathology of Some Cirrhotoses. J. B. McElroy.
- 105 Refraction: Normal and Abnormal. S. L. Edwards.
- 106 Treatment of Paraphimosis. Lawrence H. Peidegrast.
- 107 Hookworm Disease. Ankylostomiasis Duodenalis, Uncinariasis, or Egyptian Anemia. Ralph N. Greene.
- 108 Heladonna in Bed-vetting. W. S. Robinson.
- 109 Molluscum Fibrosum. Ralph N. Greene.
- 110 Superior Pelvi-rectal Abscess as a Cause of Extensive and Obstinate Fistula. John T. Allen.

Kentucky Medical Journal, Louisville.

October.

- 111 Cystic Tumor of Longitudinal Fissure of Liver, Involving Right and Left Lobes, with Dislocation—Report of a Case Operated on. B. C. Bowen.
- 112 Pregnancy and Parturition in Uterus, with Inoperable Cancer of Cervix. J. A. Shirley.
- 113 Conservative Pelvic Surgery, with a Report of Three Cases. A. H. Barkley.
- 114 Fractures of the Neck of the Femur. J. L. Barker.
- 115 Mercurial Poisoning, with Report of Case, with Results of Operation for Correction of Deformity Caused by Poisoning. John E. Knebeloe.
- 116 The Urinary (Single) Basis of Life. A Typical Gas. Jacob Glahn.
- 117 Electrical Rays. H. H. Roberts.
- 118 An Unusual Case of Pleuritic Effusion. J. M. Peck.
- 119 Typhoid Fever. M. H. Jenkins.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

October 8.

- 1 The Function of the Cecum and Appendix. William Macewen.
- 2 The Future Relation of King's College to Its Medical School and Hospital. Thomas Rizzard.
- 3 The Methods of Acquiring Knowledge: Its Helps and Hindrances. Philip H. Fry-Smith.
- 4 Discussion on the Treatment of Chronic Renal Disease. W. Hale White, Carl von Noorden and others.
- 5 Discussion on the Present State of Serum-therapeutics. E. W. Goodall.
- 6 *On a Disseminated Form of Croupous Pneumonia in Childhood or Primary Bronchopneumonia. Samuel West.
- 7 Functional Albuminuria. Henry George Armstrong.
- 8 *Human and Bovine Tuberculosis. Nathan Raw

- 9 The Clinical Features of Splenic Anæmia. W. Mitchell

- Stevens.
- 10 Graphic Tracings of the Ferradic and Other Interrupted Currents. H. Lewis Jones.
- 11 Bradycardia. G. A. Gibson.
- 12 Ateliosis and Progeria: Prolongous Youth and Premature Old Age. Hastings Gilford.
- 13 *The Maternal Heart in Pregnancy and the Management of Pregnancy Complicated by Heart Disease. J. Mackenzie and others.

6. Disseminated Croupous Pneumonia.—West calls attention to the fact that acute pneumococcal inflammation in children often occurs in a disseminated form. He finds, too, that many cases of bronchopneumonia in children occur without an antecedent bronchitis, beginning and ending just like the acute pneumonia of the adult. However, during life the physical signs show, and in fatal cases the postmortem examination demonstrates, not massive consolidation, but disseminated patches. Bacteriologic evidence shows that primary and secondary bronchopneumonia have a different bacteriology, and that the former is of pneumococcal origin, and almost as common in the child as in the adult. In other words, lobar pneumonia and primary bronchopneumonia are the same disease.

8. Human and Bovine Tuberculosis.—Raw has had under observation during the last few years over 3,000 cases of phthisis pulmonalis. He has been impressed with the fact that the tuberculous process is nearly always confined strictly to the lungs. Out of these cases he has seen the glands and joints affected in only 14 instances, and in the late stages, he says, the intestine and peritoneum may be involved. It is rare to see phthisis pulmonalis as a primary affection under the age of 12. On the other hand, strumous or tuberculous joints, enlarged glands, spinal disease and abdominal tuberculosis, with tabes mesenterica, are essentially diseases of infancy and childhood, and are only rarely seen in adult life. Furthermore, it is rare to see these young patients develop true phthisis pulmonalis. In fact, clinically they appear to be antagonistic to each other, attacking the body at quite different periods of life and exhibiting generally opposite symptoms. If one compares the appearances seen in cattle dying with tuberculosis with those of children dying of tabes mesenterica and abdominal tubercle, the almost exact counterpart is seen. Raw inclines to the belief that primary intestinal tuberculosis, tabes mesenterica and other tuberculous affections of the serous membranes in children are probably bovine tuberculosis conveyed by milk, and are not true human tuberculosis, although the bacillus of Koch is found in them all. Of nearly 300 cases of tabes mesenterica observed by him during the last twelve years not one has occurred in a child which has been fed strictly on the breast, the whole of them, without exception, having been reared on cow's milk for some considerable period. He concludes further that scrofulous glands in the neck are produced by the absorption of tubercle bacilli in the milk through the tonsils and pharynx, and, as a rule, the affection is a purely local one. This view is supported by feeding experiments on animals. Tuberculous meningitis in children Raw also considers as a bovine tuberculosis. He believes that when tuberculosis is stamped out from cattle surgical tuberculosis in children will to a great extent disappear with it. Further, that the human body is affected by two varieties of tubercle, one producing phthisis pulmonalis and generally attacking adults, the other bovine tuberculosis attacking children during the milk-drinking period, and producing bovine tuberculosis in children. Human and bovine tuberculosis are separate and distinct varieties of disease, but the human body is susceptible to both, and especially to bovine tuberculosis in the early periods of life. The two diseases are rarely seen together in the human organism. Raw is engaged at present in collecting the blood of animals killed for tuberculosis and securing the serum, which, after careful preparation, he proposes to use in the treatment of phthisis.

13. The Heart in Pregnancy.—Mackenzie finds the following changes, which, though in one sense abnormal, might in another sense be considered as incident to the pregnant state: (a) Limitation of the field of cardiac response, (b) Changes in rate and rhythm of the heart, (c) Dilatation of the right side of the heart, (d) Tendency to edema of the lungs. (e)

Tendency to overfilling of the veins of the legs. (f) The occurrence of marked pulsation in the veins of the neck. Systolic murmurs at the base and apex, of slight intensity, are extremely common both during pregnancy and the puerperium, and, apart from other evidence of heart failure, are of little importance, being due to slight and, as a rule, temporary dilatation of the heart. In regard to the question of pregnancy occurring in women with valvular disease Mackenzie draws the following conclusions: 1. When there is distinct evidence of failure of compensation, or when the patient is liable to frequent attacks of failure of compensation, pregnancy should be forbidden. 2. With fair compensation, if there should be paralysis of the auricle, as evidenced by the presence of a diastolic murmur, and the absence of a presystolic murmur, or of a continued irregularity of the pulse, or a jugular pulse, of the ventricular type, pregnancy should be forbidden. 3. With fair compensation, with a mitral murmur, systolic or presystolic in time, with the apex beat within the nipple line, and due to the left ventricle, the patient may undertake the burden of pregnancy. In all cases of valvular disease, when conception has taken place the patient should be kept under close observation. One feature of great prognostic significance is the presence or absence of symptoms of edema of the lung.

The Lancet, London.

October 8.

- 14 The Evolution of the Medical Curriculum. Alexander Mac Alister.
- 15 Six Cases of Splenic Anemia in One Family. J. W. Spring Thorpe.
- 16 Case of Pneumococic Pyemia with Recovery. A. T. Davies and W. Langdon Brown.
- 17 Notes on a Case of Quadruplets. Annie C. Gowdy.
- 18 Exclusion of the Intestine. B. G. A. Monyiban.
15. **Splenic Anemia.**—In two of the cases reported by Springthorpe, Stirling performed a splenectomy. Both patients are very much better in every way without their spleens than they were with them, although there are still vulnerable and not in a state of rugged health. So far there seems to have been no consecutive lymphatic enlargement, and apart from the blood (and even there not distinctively) there has been no evidence of substitutional action on the part of the bone marrow. Stirling, in his remarks, expresses a preference for an incision through the left of the median line because it permits of better handling of the spleen. It is well, too, he says, to begin below and work upward, having, of course, packed off the intestines well to the right. He does not leave saline solution in the abdominal cavity, as is usually advised, except in cases of ectopic gestation. Hemorrhage is controlled by forcipressure.

Bristol Medico-Chirurgical Journal.

September.

- 19 A Review of the Work of Infant Milk Depots. J. M. Fortescue-Brickdale.
- 20 Some Observations on Tuberculous Disease of the Hip Joint in Childhood and Youth. Charles A. Morton.
- 21 *The Throat as the Source of Systemic Infection in Acute Rheumatism. P. Watson Williams.
- 22 The Indications for Operation in Myofibroma of the Uterus. James Swain.
- 23 Ethyl Chlorid—A Few Practical Remarks. A. L. Fleming.
- 24 The Induction of General Anesthesia by Intraspinal Injections of Cocain. Alfred S. Gubb.
- 25 Surgical Analgesia by Spinal Cocainization. William Jones Greer.
- 26 *The Relationship of Chorea and Rheumatism. Joseph J. S. Lucas.
- 27 Hematemesis Associated with Small White Kidneys. Theodore Fisher.
- 28 Notes on a Case of Infantlism. E. Cecil Williams.
21. **Systemic Infection in Acute Rheumatism.**—Williams concludes that acute rheumatism is an infective disease *sui generis*. That there is a true rheumatic pharyngitis and tonsillitis. That rheumatic pharyngitis or tonsillitis is a primary infectious disease. That rheumatic fever is a secondary infection, due either to the absorption of the products of the infective micro-organisms or to the growth of such micro-organisms in the tissues, and that the infection may manifest itself in arthritis, pericarditis, endocarditis, chorea, bronchitis, pleurisy, alone or in association. That in a large percentage of cases the portal of infection is in the fauces or pharynx or other region of the upper respiratory tract, but most frequently the oropharyngeal lymphoid ring. That there is no

proportion between the intensity of the primary local lesion and the appearance or severity of the secondary systemic complications.

26. **Chorea and Rheumatism.**—Lucas reports the case of a young girl, aged 14, with no history of acute rheumatism, having chorea in a severe form and showing post-mortem cardiac dilatation and mitral vegetations similar to those found in acute rheumatism. Cultures made from the brain substance and pia mater gave a pure growth of a diplococcus similar in most respects to Poynton's and Paine's rheumatic diplo-streptococcus. Bacteriologic evidence, so far as it goes, strongly supports the idea that chorea is rheumatic in origin, and Lucas believes that the presence of a diplococcus in the brain of his case is some additional confirmatory evidence of this. A culture made from the heart muscle, which was in a state of fatty degeneration, gave negative results, but one from the surface of the cardiac vegetations on the mitral valve gave a copious growth of staphylococcus associated with a few colonies of a diplococcus similar in every respect to those found in the brain. Microscopic sections were also made through the diseased valve, and these, when stained by Gram's method, showed a few diplococci similar in appearance to those found in the brain.

Hospitalstidende, Copenhagen.

Last index d. XLII, page 1396.

- 29 (XLVII, No. 11.) Colorimetric Test for Sugar. H. P. T. Orm.—Kolorimetrisk Sukkerbestemmelse.
- 30 Ether som obstetrisk Narkotikum. P. C. Rjereggaard.
- 31 (No. 12.) *Case of Chronic Tropical Diarrhea. K. Faber.—Et Tilfælde af kronisk Tropediarré ("Sprue") med anatomisk Undersøgelse af Fordøjelseskanalen.
- 32 (Nos. 13-14.) *Phlebitis syphilitica i Extremiteternes subkutane Vener under det sekundære Stadium. A. Haslund.
- 33 Automatic Gynecologic Speculum. H. C. Ringsted.—Volkmanns Skammel med "Sævhjoldende" Spekulum.
- 34 (No. 15.) *Research on Catgut Introduced into the Anterior Chamber. C. F. Heerfordt.—Om køgt formoliseret Catgut (Cunningham, Hofmeister).
- 35 (No. 16.) Three Cases of Eye Injuries from Short Circuiting of Electric Current. K. K. K. Lundsgaard.—Ojelaesioner ved elektrisk Kortslutning.
- 36 *Influence of Light on Course of Malaria and its Quinin Treatment. G. Insek.—Om Dagsslysets Indflydelse paa Forløbet af Malaria med Særlig Henblik paa Klinbehandling.

31. **Anatomic Study of Case of Chronic Tropical Diarrhea.**—Faber cites from fourteen authorities on the subject of psilosis or sprue, but does not mention any American works. He had occasion to observe a case in a European engineer, 44 years old, who had gone to China when he was 22. The description of the case is completed by the necropsy findings, which showed that the immediate cause of death had been diffuse peritonitis resulting from perforation of an ulcer in the small intestine. But this peritonitis was unmistakably recent and had caused scarcely any symptoms. The main affection, the chronic diarrhea, was explained by the changes found in the intestinal tract. In the large intestine there were only a few swollen follicles with surrounding hyperemia, but in the ileum 16 ulcers were found. They resembled somewhat the lesions of typhoid, but were of an unmistakably chronic type. They evidently had originated in Peyer's patches, which in time they destroyed. Some of the higher ulcers displayed a tendency to heal and some had quite healed. The mucosa had retracted, forming folds converging toward a center. The ulcers were larger and deeper in the vicinity of the ileocecal valve, some of them extending down into the muscularis, with necrotic tissue in the depths and perforation. There was no atrophy of the intestinal wall at any point. The microscope disclosed a diffuse inflammation of the mucosa throughout the entire intestinal tract, although the glands and superficial epithelium were everywhere normal, as were also the deeper strata of the intestinal walls. The differences between these findings and those of other observers are apparent. The enterocolitis had no specific features. In dysentery the lesions are deeper and restricted almost exclusively to the colon and rectum. A number of bacteria were cultivated from the stools, none resembling the Shiga-Kruse bacillus. Two predominated; one was the colon bacillus and the other a lanceolate pneumococcus. The latter was especially numerous in the mucosa and was the only micro-organism discovered in the clumps of mucus, which were scattered through the feces. In these clumps

of mucus little bunches were frequently found which proved to be agglomerations of these diplococci in pure cultures. He is inclined to attribute etiologic importance to these cocci, notwithstanding that they did not prove virulent for laboratory animals. The colon bacilli were exceptionally virulent. The stomach also presented evidences of inflammation, a round-celled infiltration throughout. The gastritis may have been secondary, as he has observed a case of hypochylia due to a foreign body in the colon, and another of achylia secondary to enteritis after appendicitis, and one of gastritis in a child with enteritis the consequence of a tuberculous stricture in the intestine. The pathogenesis in these cases was, of course, remote from that of chronic tropical diarrhea, but the latter has several points in common with infantile diarrhea. Bloch has shown that lesions of this kind in the stomach are almost certain to accompany diarrhea in infants. The acute inflammation in these cases is found in the lower ileum and upper colon, and also in the stomach, while the remainder of the ileum and the jejunum are intact. The similarity of the localizations in infantile diarrhea and in the case of sprue suggests that the pathogenesis in each may be identical. Faber is inclined to attribute the gastritis to the elimination of toxins through the stomach wall. He cites Alt and others to show, for example, that half of the dose of morphia injected subcutaneously is eliminated through the stomach, and by prompt lavage of this organ it is possible to prevent the toxic action of the drug. Other drugs, such as tartar emetic, antipyrin, caffeine and chloral, are eliminated in the stomach secretions in the same way. The stomach suffers from the elimination of toxic substances through its walls, as Panum has established. Albeck has shown that a powerful toxin is elaborated in a strangulated loop of intestine, and that this "putrid toxin" is probably the cause of the symptom-complex we call ileus. Injection of this poison into animals induces a hemorrhagic enteritis while the stomach is congested, with ecchymoses, and he found an ulceration in the stomach in one instance. These findings explain the efficacy of lavage of the stomach in ileus and similar conditions, and suggest that it is liable also to prove beneficial in cases of infectious enteritis. It will remove the toxins poured out into the stomach from the blood, which otherwise are liable to induce gastritis. Pernicious anemia is also in this category. Faber has shown that gastritis is nearly constant in this affection, while the intestine is not inflamed. The most plausible assumption in regard to this disease is that it is the result of the generation in the intestines of some toxin—especially in case of bothrioccephalus anemia—which has a destructive action on the blood and induces gastritis directly and also by its copious elimination in the stomach secretions. Faber suggests that a similar mechanism may possibly exist in regard to chronic tropical diarrhea. The article is fully illustrated. (See also title 80 below.)

32. Syphilitic Phlebitis in Secondary Stage.—Haslund reports 10 cases, all but 3 of the patients being men. In only one were there possible alcoholic antecedents. The syphilis was not particularly grave in any case with one exception. Overexertion and trauma could not be incriminated in the etiology in any case. None of the patients had varices. There seemed to be no reason in any of these cases why the syphilis should locate by preference in the superficial veins of the limbs. All with one exception were strong, healthy individuals, between 20 and 30, the infection averaging about nine months. The legs were the sole seat of the phlebitis in every case except one, in which the arms were also involved. The affection was not symmetrical in the majority. In one case a fresh syphilitic efflorescence was masked by gonorrheal symptoms and copaiaba exanthem. In 2 cases the phlebitis developed while the patient was in bed, the fifth or sixth day after entering the hospital to be treated for universal adenitis and an extensive maculo-papulous syphilitic, etc. The phlebitis healed promptly in every instance under mercurial injections, rest and warm applications. It is probably a frequent manifestation, but is liable to be overlooked and may display a tendency to heal spontaneously, but is liable to entail obliteration of the vein.

34. Boiled Formolized Catgut.—One of the results of the research described is that the catgut is liable to be imperfectly sterilized unless it is boiled for thirty minutes after it has been lying in 4 per cent. formaldehyde for twenty-four hours. Another fact noted in the experiments is that an infected catgut and a sterile catgut, under certain circumstances induce the same inflammation and the same pathologic anatomic changes.

36.—This article appeared elsewhere. See THE JOURNAL, July 23, p. 284.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed page 1265.

- 37 (LXXIII, No. 3.) *Erysipelas and Paralyzed Skin. O. Kren. —Ueber das Verhalten des Erysipels bei gelähmter Haut.
- 38 *Sarcoma and Carcinom bei demselben Individuum. II. Haberer.
- 39 Ueber ein Hypernephrom (Impf Rezidiv) in den Bronchial-Lymph-Drüsen. P. Clairmont.
- 40 *Thymus Death During Local Anesthesia. II. Nettel.—Fall von Thymus-Tumor bei Local-Anästhesie, nebst Bemerkungen über die Wahl des allgemeinen Anästhetikum.
- 41 *Zur Technik der Nervennaht (nerve suture). C. Foraniti.
- 42 Fall von Amyloid-Kropf (goiter). von Eiseleberg.
- 43 Experimentelle Untersuchungen über das Verhalten des Cysticus-Stumpfes nach der Cholecystektomie. II. Haberer and P. Clairmont.
- 44 *Zur Pathologie der Schmissverletzungen des Magens (bullet wounds of stomach). von Frisch.
- 45 *Zur Frage der Autointoxikation bei Hens. P. Clairmont and E. Ranzi.
- 46 Casuistische Mitteilungen über inneren Darmverschluss (35 cases of intussusception). E. Ranzi.
- 47 *Weitere Erfahrungen über Colicæxie. A. Weiss.
- 48 Ueber Dehnungs-Gangrän des Oecum bei tiefstehendem Dickdarmverschluss (occlusion of large intestine). A. Weiss.
- 49 Entstehung der Harnbläschen-Drüsenpalpen (origin of ectrophy of bladder). E. Stanzl.
- 50 (No. 4.) *Zur Chirurgie der Magengeschwülste (Carcinom, Sarkom, Tuberkulose) (gastric tumors). O. Nordmann. (Commenced in No. 2.)
- 51 Impossibility of inducing Gastric Ulcer by Lesions of Stomach Nerves. M. Donati (Turin).—Ueber die Möglichkeit, das Magengeschwür durch Läsionen der Magenerven hervorzurufen.
- 52 *Ueber das Vorkommen von Mikro-organismen im Dünndarm des Menschen (in small intestine). J. Jundell (Stockholm).
- 53 Ueber diffuse Brustdrüsen-Hypertrophie (of mammary glands). H. Engländer (Cracow).
- 54 Zur Chirurgie der bei chronischer adhäsiver Mediastino-pericarditis post-pleuritica. E. von Deck (Carlsruhe).
- 55 Ueber die physiologischen und physikalischen Grundlagen bei intrathorakalen Eingriffen in meiner pneumatischen Operations-Kammer (operation on thorax in pneumatic chamber). Saubbruch (Grossau). See page 1181.
- 56 Zur Chirurgie der Nebennierengeschwülste (suprarenal tumors). W. Wendel.
- 57 Aetiology der congenitalen Darm-Atresien (of intestine). E. Kreuzer.
- 58 Zur Chirurgie des Zwerchfells (of diaphragm). F. Neugebauer.
- 59 *Klinisches und Experimentelles über Verschiedenheiten der Pathogenität des Darminhalts gegenüber dem Peritonäum (pathogenicity of bowel contents in respect to peritonitis). C. Brunner.
- 60 Ileus infolge frischer syphilitischer Neubildung der Flexura hepatica (intussusception). (central decubitus in after-treatment of peritonitis). Küster (Marburg).
- 61 Die chirurgische Behandlung der Hepato-Prose durch Laparotomie und Hepatopexie. A. Depage and L. Mayer.
- 64 *Fate of Contained Left in Abdomen.—II. Riese (Fritz).—Schicksal der in der Bauchhöhle zurückgelassenen Compressen.

37. Case of Erysipelas on Paralyzed Arm.—Kren's patient was paralyzed in consequence of a bullet injury of the spinal cord near the tenth thoracic vertebra. The erysipelas commenced about four months after the injury and rapidly extended downward, although above it remained nearly within the limits of the sensory paralysis. It invaded in less than three days the whole of the body below the wound, with only a few small islands of intact skin, and remained restricted to the paralyzed area.

38. Sarcoma and Carcinoma in Same Subject.—A spindle-celled sarcoma was removed from the epiglottis of the patient and eighteen months later an extensive carcinoma of the base of the tongue and epiglottis also required ablation.

40. Thymus Death Under Local Anesthesia.—The enlarged thyroid was removed under Scheich local anesthesia in a case of exophthalmic goiter in a woman of 31. She exhibited dyspnea during the operation and died fifteen minutes afterward. The thymus had not retrogressed and was unusually large.

The entire lymphatic apparatus showed great hyperplasia, especially the lymph follicles at the base of the tongue and in the spleen and intestines. Haberer reviews the scanty literature on the subject of the occurrence of multiple malignant neoplasms of different nature.

41. **Technic for Suture of Nerves.**—Foramiti finds the use of a protecting tube outside is a great aid in suturing a nerve. In his experimental studies he used for the tube the artery from a calf, either fresh or hardened in formalin after thorough boiling. He gives several illustrations to show the fine regeneration of the nerves attained by this technic. He passes a needle threaded with catgut through one of the stumps of the nerve. The needle and thread are then brought through the tube, and the nerve stump can then be readily drawn down into the tube or the latter slipped over the nerve. The one thread can be used for each stump and the tube thus slipped over their juncture. When a fresh artery is used it is taken aseptically from the animal and merely rinsed in salt solution.

44. **Bullet Wounds of the Stomach.**—In the case described the hole made by the bullet as it left the stomach could not be found, and yet it had unmistakably passed entirely through it. The patient recovered without mishap. Research on animals has also confirmed the fact that the hole made as the bullet passes out of the stomach is usually a tiny slit, difficult to be discovered. The entering hole is much larger and the stomach contents, if they escape at all, do so through this first opening. Consequently von Frisch advises when the entering hole is not more than 7 or 8 mm. in diameter, to abandon the search for the other opening if it does not readily present. The abdomen can be sutured with confidence, as the mucosa plugs the second opening. Fourteen figures are given in 3 colored plates to show the anatomic findings after the bullet had passed through the stomach (pigs). The bullet pushes the wall before it, stretching it taut, before it perforates it. This leaves a very small hole as the elastic wall contracts.

45. **Auto-intoxication in Ileus.**—Clairmont and Ranzi have been inducing ileus in animals and studying whether the fatal symptoms that followed were due to the action of toxins generated in the closed gut or to reflex action. The findings unhesitatingly sustain the former view. Sixty-three series of experiments are related, with control experiments. The results suggest the feasibility of serum treatment, although no positive success has yet been obtained.

47. **Remote Results of Colopexy.**—Weiss reports that von Eiselsberg has performed colopexy 17 times on 15 subjects. Four were entirely cured, but 7 presented relapses and no news has been obtained since of the 4 others. The results are better when the prolapse of the rectum is due to trouble in the sphincter than when it is the result of congenital low position of the Douglas. It might be advisable in some cases to combine the colopexy with fastening the Douglas in place. Relapses are most liable to occur after the Mikulicz technic of colopexy.

50. **Surgery of Tumors in Stomach.**—Nordmann reviews the operations done at the Urban Hospital in Berlin on account of gastric tumors, 126 in all. Of the 38 treated by resection 58 per cent. were cured. One of the cured patients had suffered from tuberculosis of the pylorus with stenosis, and was cured by the operation. Gastroenterostomy was done in 67 cases, with a mortality of 19.6 per cent. The vicious circle occurred in only a single instance. The Murphy button is not used.

52. **Micro-organisms in Small Intestine.**—Jundell has previously established that the mucosa of the trachea, conjunctiva and urethra is sterile under normal conditions. He now presents evidence to show that the same is true of the mucosa of the small intestine. He attributes this sterile condition to a bactericidal property possessed by the mucosa. It suggests the necessity for care of the mouth and of sterile foods after operations on the small intestine. It also suggests that the technic of laparotomy involving opening the small intestine might be modified. The patient should fast preliminary to the operation, so that the portion of the small intestine to be

opened will be found empty and sterile. It has also an important bearing on the prognosis of perforations of this part of the bowels.

59. **Varying Virulence of Contents of Digestive Tract at Different Points.**—Brunner has been making a study of the infectious character of the contents of the small intestine in comparison to the large. The contents of the upper part of the small intestine are less infectious than those of the lower part. The appendix has a special place apart in this respect. He found streptococci invariably present with the colon bacilli. He has operated on 7 patients to suture a perforated gastric ulcer. Two were saved. His experience and research have confirmed the assumption that acid stomach content is tolerated much better than the anacid. Rabbits tolerated injection of 20 c.c. of the former, while they succumbed after injection of 1 c.c. of the latter.

64. **Fate of Compresses Left in Abdomen.**—Riese reports a case of a simulated ovarian tumor which proved on operation to be a completely encysted compress, relic of some former surgical intervention. His experiments on animals confirmed the possibility that an overlooked sterile compress can be thus encysted, and also, further, that such a compress may work its way through into the gut and be spontaneously evacuated. He has found 41 cases on record of a compress having been left in the abdomen. In 9 the patient died soon after, with symptoms of peritonitis. In d'Antona's case the experts all testified that the peritonitis observed was not traceable to the compress which had been left in the abdomen at an exploratory laparotomy four weeks before death. Riese doubts whether a sterile compress could ever induce peritonitis. It is much more probable that the abdomen had become infected during the operation. In 11 cases the compress was eliminated in an abscess in the abdominal wall or through the vagina. In another case beside the one reported, the compress became encysted. In 11 cases the compress had worked its way into the bowel and had been evacuated per anum. Only in 7 out of the entire 41 did the compress cause intestinal occlusion, fatal in 2 instances.

Archiv f. path. Anatomie, etc., Virchow's, Berlin.

Last indexed page 288.

- 65 (CLXXVI, No. 3.) Zum Stoffwechsel bei Chlorose (metabolism in). G. Vannini.
- 66 Chemical Study of Kidneys. A. Orgler.—Chemische Nierenuntersuchungen mit Berücksichtigung des histologischen Bildes.
- 67 Die subcutane Myelomeningecele, eine häufige Form der Spina bifida. E. Nennmann.
- 68 Ueber die natürliche Disposition der Speiseröhre zur Divertikelbildung und über die histologischen Merkmale der Traktion und Pulsion (diverticula in esophagus). A. Brosch.
- 69 Der normale histologische Bau und die Sklerose der Aortenklappen (structure of aortic valves). J. G. Mönckeberg.
- 70 Neuer Befund bei Molluscum contagiosum. H. Herzog.
- 71 Zur Kenntnis der Lymphangiome (speziell der Makromelie) mit bes. Berücksichtigung ihrer Pathogenese. R. Kothe.
- 72 (CLXXVII, No. 1.) *Autolyse und fettige Degeneration. Waldvogel.
- 73 Cells in Pus and Serous Effusions. J. Leuchs.—Ueber die Zellen des menschlichen Eiters und einiger seröser Exsudate.
- 74 Giant Cell Formation in Congenital Lues of Liver. A. Binder.—Ueber Riesenzellenbildung bei cong. Lues der Leber.
- 75 Zur pathologischen Histologie der Glomeruli. G. Fichera and V. Scaffidi.
- 76 Zur klinischen Diagnose und path. Anatomie des multiplen Myeloms. S. Jellinek.
- 77 *Hypernephrom der Leber (tumor of suprarenal substance in liver). E. de Vecchi.
- 78 Congenital Absence of Appendix. II. Schritte.—Ueber den cong. Mangel des Processus vermiformis. Beitrag zur Entwicklungsgeschichte und Anatomie des menschlichen Blinddarms.
- 79 Ueber einen Fortsatz des Chiasma nervi optici (process from). K. Reitmenn.
72. **Autolysis and Fatty Degeneration.**—Waldvogel's research has convinced him that these two processes are identical. His reasons for this view are given in detail.
77. **Suprarenal Tumor in Liver.**—At the necropsy of a woman of 29, a tumor the size of a walnut was found in the right lobe of the liver. The microscope revealed that it consisted of suprarenal tissue, the third case of the kind known.
- Archiv f. Verdauungs-Krankheiten, Boas', Berlin.
- Last indexed page 182.
- 80 (X, No. 4.) *Fall von chronischer Tropen Diarrhoe ("Sprue") mit anatomischer Untersuchung des Digestions Traktus. K. Faber.

- 81 *Untersuchungen auf dem Gebiete der motorischen Funktion des Magens (of stomach). S. von Pesthy.
- 82 *Occult Hemorrhages. W. Nic. Clemm (Barmstadt). Aus verborgenen Quellen stammendes Blut im Stuhl und im Mageninhalte, Sein Nachweis und dessen Bedeutung für die Erkennung der Erkrankungen im Gebiete des Verdauungsschlauches.
- 83 Zur Methodik des Nachweises gelöster Eiweißkörper in den Faeces (dissolved albumin in stools). II. Pfy. Ibid., A. Alb.-Reply. O. Simon.
- 84 Ziele, Fortschritte und Bedeutung der Oesophagoskopie. G. Kelling (Dresden).

80. Anatomic Study of a Case of Chronic Tropical Diarrhea.—Faber's article is summarized above, abstract 31.

81. Research on the Motor Function of the Stomach.—Pesthy's announcements in regard to the value of percussio-auscultation as a means of obtaining information in regard to the stomach conditions and functions were summarized on page 66 of the last volume of THE JOURNAL. The difference in the outline of the stomach as determined by this means before and during artificial inflation, indicate the degree of elasticity of the musculature. He found that a normally elastic stomach gives a difference of not more than 2 cm., while in case of ptosis, the difference may be 3 cm., and in case of atony or other muscular insufficiency the difference may reach 4 or even 6 cm. Further study of this subject on 10 subjects with normal stomachs confirmed the exactness of this standard difference of 2 cm. He determined the outlines of the stomach with percussio-auscultation, measuring both diameters and also the distance between the umbilicus and the upper and lower outlines of the organ. He then inflated the stomach with 5 gm. tartaric acid and 8 gm. sodium bicarbonate and repeated the above measurements, with special regard to the vertical diameter. As a further test he gave the subjects 2 gm. iodopin one-half to one hour after a light breakfast, and tested the saliva every five minutes with fuming nitric acid and chloroform. The standard difference in the outlines of a healthy stomach was 2 cm., and the iodopin reaction occurred not later than forty-five minutes. He tabulates the findings in 21 cases of atony of the stomach and in 14 of extreme motor insufficiency. The iodopin reaction occurred after an interval of 60 to 100 minutes in the first group, and of 55 to 150 minutes in the second. The difference in the outlines of the stomach before and during inflation ranged from 3 to 5 cm. in the first group, and from 4 to 9 in the second, with 2 exceptions. These 45 observations, added to the 95 on which his first communication was based, fully establish the diagnostic value of this difference as a test of the dynamic functional capacity of the stomach, more delicate than any other known to date. In all these pathologic cases, irrespective of their etiology, one common symptom is prominent, defective motor functioning, demonstrated by the iodopin test. The musculature of the stomach is incompetent, whether from simple atony or insufficiency of the second degree, that is, when remains of the food are found in the stomach the morning after a test dinner. Pesthy suggests that a good classification of stomach affections might be made by grouping them as class 1, relative insufficiency; the cases with a difference of 4 cm., iodopin test positive after 65 minutes, and stomach empty six hours after test dinner; class 2, relative insufficiency; difference 6 cm., iodopin test positive after 90 minutes, and 300 gm. of stomach content found six hours after test dinner; class 3, absolute insufficiency, difference 9 cm., iodopin test positive after 120 minutes, and remains of food morning after test dinner, with lactic acid. By specifying further in class 1 that ptosis and myasthenia exist also; in class 2, cicatricial stenosis of the pylorus, and in class 3, that a large tumor can be palpated near the pylorus, each of the symptom-complexes would be accurately defined in a few words and due stress placed on the important findings. He accepts Boas' restriction of the term "myasthenia" to cases with congenital weakness, and "atony" to the secondarily acquired weakness of the musculature, a degenerative process. By this classification of gastric insufficiency, treatment will be facilitated as in all of them the chief aim of therapeutics will be the restoration of the defective muscular function. In relative insufficiency appropriate diet and other measures will combat the insufficiency, while in the absolute form the results of the stagnation will have to be

combated also. The complaints of subjects with ptosis will not be lightly dismissed as the effects of nervous dyspepsia, but will be regarded as exclusively the consequences of the existing muscular insufficiency.

82. Occult Hemorrhages in Gastric Contents and Stools.—Clemm reviews the various sources for slight trickling of blood in the digestive tract, and the paramount diagnostic importance of its discovery. One of the latest important communications on the subject was reviewed on page 1525 of the last volume of THE JOURNAL. Clemm urges the importance of seeking for this premonitory occult bleeding as a means of warding off serious hemorrhage in certain affections, especially in tabes and paralysis. In typhoid, so long as a trace of blood can be detected in the feces, the patient should be spared even the slightest exertion. The premonitory occult bleeding in a case of hemorrhagic pancreatitis, reported by Joachim, was the clue to the nature of the affection. Positive findings would enable an operation to be done in time in this rare disease, of which Fiedler has collected 60 cases. In case of gastric ulcer, the coincidence of hyperchlorhydria with occult hemorrhages will confirm a dubious diagnosis, if Ewald's assertions in regard to the former are accepted. The diagnosis can be frequently confirmed by the blood findings in case of an ulcer in the esophagus, stomach and duodenum. They also serve to differentiate cancerous processes in the digestive tract from nervous affections, from simple inflammations and from ulcers, as only in case of cancer is the trickling of blood constant. Clemm mentions, by the way, the opening of a new field for research by Kobert's discovery that the blood from the human umbilical cord crystallizes in an entirely different manner from ordinary human blood, and that the crystals formed by blood from the cadaver are entirely different from both. It may prove to be possible to distinguish between blood from a suppurating cancer and blood of other origin by study of the crystallization, as blood exposed to putrefaction thus differs in this respect from fresh blood.

Centrablatt f. Chirurgie, Leipzig.

Last indexed page 1015.

- 83 (XXXI, No. 26.) Zur Hofmann'schen Peritoneal-Verschluss-Methode in der Radikal-Operation der Leisten-Hernien (inguinal hernia). F. Stielmann (Berg).
- 86 (No. 37.) Ueber einen neuen Wasch-Apparat zur Hände-Desinfektion. F. Hahn (Stanislan).
- 87 (No. 38.) Die Anästhetie in der operativen Chirurgie. E. S. Peiman (Stocholm).
- 88 Eine seltene Luxatio testis. Jurinka (Graz).
- 89 (No. 49.) Ueber Röntgen-Stereoskopie. I. Becker.
89. Roentgen Stereoscopic.—Becker describes and illustrates a simple, inexpensive box which answers the purpose of a stereoscope for Röntgen pictures. He also describes a simple device for taking radiograms for use in a stereoscope. It consists of a box open at both ends, with two wires crossing each other at right angles in the center of the outside. The plate is slipped inside the box and the part to be radiographed is placed at the intersection of the wires. The tube is moved about 7 cm. to one side for the second exposure, the part remaining in the same position.

Deutsches Archiv f. klinische Medicin, Leipzig.

Last indexed page 1012.

- 90 (LXXX, Nos. 5, 6.) *Determination of Acidity of Animal Fluids.—F. Moritz.—Ueber Bestimmung der Bilanz von Säuren und Basen in tierischen Flüssigkeiten. I. Ueber Aciditätsbestimmung in Flüssigkeiten welche neben Phosphorsäure Salze alkalischer Erden enthalten.
- 91 *Act of Protozoaria and Enzymes (Ueber Reaktionen von Protozoa und Enzymen. II von Tappeiner und A. Jodlbauer.—Ueber die Wirkung der photodynamischen (fluoreszierenden) Stoffe auf Protozoen und Enzyme.
- 92 *Ibid. on Parametria and Enzymes (Ueber Reaktionen und Radium Exposures. A. Jodlbauer.—Ibid. auf Parametrien und Enzyme bei Röntgen- und Radium-Bestrahlung.
- 93 *Study of Blood's Passive Congestion and Autotransfusion in Respect to Circulation Elsewhere. W. Piskuda.—Untersuchungen über das "Binden der Glieder" (ausgedehnte Biersehe Stauung und die soz. "Autotransfusion" (ausgedehnte Esmeralche Blutleere), mit bes. Berücksichtigung des Blutdrucks in der freien Gefäßprovinz.
- 94 Ueber Theoin Vergiftungen (Intoxication). E. Allard.
- 95 Paralysis of the Feet, Especially After Long Kneeling. W. Schütz.—Ueber Fußlähmung, speziell Peroneuslähmung bei Röhrenknien.
- 96 Review of Theories in regard to Diverticula of Esophagus. G. Ribbold.—Ueberblick über die Lehre von den Oesophagus-Diverticeln, mit bes. Berücksichtigung der klinischen Bedeutung der Traktions-Divertikel.

- 97 Ueber Bronchitis fibrosa. G. Liebermeister.
 98 Die Typhus Erkrankungen unter den deutschen Truppen in Tiensin im Herbst und Winter 1900-1901. O. Wendel.
 99 Putrefaction Bacteria as Cause of Chronic Digestive Disturbances. Schütz. Fäulnisbakterien als Erreger chron. Verdauungsstörungen.
 100 Cheyne-Stokes'sches Atmen bei Coma diabeticum und Kussmaul's grosses Atmen bei der Uramie (types of respiration). W. Roßstein (Göttingen).
 101 Reply to Article on Cryoscopy in Nos. 5-6 of Vol. LXXIX. D. Rothschild.

90 Study of Acidity in Animal Fluids.—Moritz here presents the first part of an extensive study on the balance sheet of acids and bases in animal fluids. In this part he reports research on the determination of the acidity in fluids which contain alkaline earthy substances besides the phosphates. He gives the particulars of his technic, and of 50 tests of the gastric juice or urine or experiments with various chemicals to determine their value for tests in this line.

91 and 92. Photodynamic Action of Fluorescent Substances.—Protozoa and enzymes first treated with some fluorescent substance and then exposed to the action of light were much more rapidly destroyed than by the light alone. No substances except the fluorescent ones have been found to possess this photodynamic property. Its intensity does not depend on the amount of the fluorescence, but on the capacity of light absorption conferred by the fluorescent substance. This power of absorption increases and diminishes with the amount of fluorescence, but the destructive action is not due to the latter alone. It is not due to any chemical transformation of the photodynamic substance by the light, and neither is it a "sensitizing" process. Its nature is still a mystery; it is evidently an entirely new phenomenon. The effect observed suggests that part of the action of sunlight and electric light may be due to a photodynamic property possessed by some of the rays. Neither the Röntgen nor radium rays displayed any destructive action on paramedia and enzymes, not even when reinforced by fluorescent substances. The paramedia retained their motility after the exposures to the same extent as the controls.

93. Local Passive Congestion in Respect to the General Circulation.—Plaskuda found that loose constriction of the arm or leg or the application of a tight tourniquet or winding the limb from the extremity upward, was able to influence to a marked degree the conditions of the circulation in the trunk and head. It was possible by these means to withdraw from or supply to the trunk from nearly a pint to more than a quart of blood. Pronounced passive congestion in three extremities reduced the blood pressure 20 mm. Hg., as much as 14 per cent. In "nervous" subjects the findings are uncertain. In some instances the blood pressure dropped suddenly, sometimes to such an extent as to threaten collapse, but the symptoms rapidly subsided after removal of the constriction. The blood pressure can be increased by expelling the blood from a limb. He attributes this effect more to nervous than to mere mechanical factors, but in any event it justifies trial of this "autotransfusion," as it is called, as a therapeutic measure.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed page 1208.

- 102 (LXXIII, Nos. 1-3.) *Study of Effects of Bloodless Reposition of Congenital Hip Dislocation. C. Deutscher (Hamburg).—Zur Beurteilung der unblutigen Reposition der congen. Hüftverrenkung.
 103 Zur operativen Behandlung des Nabelschnurbruchs (umbilical hernia). G. Zell.
 104 *Fractures of Leg and Industrial Insurance. F. Bähr. Heilungsergebnisse bei Unterschenkelbrüchen in der Unfallversicherung.
 105 *Experimentelle Beiträge zur Harnblasen-Plastik (of bladder). W. v. Braun (Hamburg).
 106 Zur Lehre des Karzinoms der Schilddrüse (of thyroid). B. Huguenin.
 107 Eine experimentelle Arbeit über die Aetiologie der Perityphlitis. M. Mor.
 108 *Ueber Nierenerspaltung (slitting the kidney). M. W. Hermann.
 109 Zur Kenntnis von "Paget's disease of the nipple." A. Krogius (Helsingfors).
 110 *Ueber tropische Leber-Abscess (of liver). Wendel.
 111 Sklerodermie mit Muskel-Atrophien und Symptomen der Raynaud'schen Krankheit. K. Lücke.
 112 Absorption of Bone by Malignant Growths. M. Matsuoaka.—Ueber die Knochenresorption durch maligne Geschwülste.
 113 *Ueber ovariale Hernien mit Strick-Torsion. E. Grauele.
 114 *Zur kombinierten Exstirpation der hochsitzenen resp. hochbunförmigen Mastdarm-Karzinome bei Männern (high rectal carcinoma in man). Ito and Kunikida (Kyoto, Japan).
 115 *Die tuberkulöse Osteomyelitis der Diaphysen langer Röhrenknochen (long bones). F. v. Friedländer.
 116 Fall von Luxatio claviculae suprascapulae. M. M. Klar.
 117 Ueber ein neues rhinoplastisches Verfahren (new process). C. Beck (New York).
 118 Operativ getheilte traumatische Zwerchfell-Hernie des Magens (hernia of stomach through diaphragm). W. Müntz.
 119 (Nos. 4 & 6.) Weitere Beobachtungen über Sensibilität in Organen und Geweben und über locale Anästhesie. K. G. Lennander (Upsala).
 120 Ueber Ursache und Behandlung des Caput obstipum musculare. F. Kempf.
 121 *Ueber Myxosis ossificans. Busse and Blecher.
 122 Die Entstehungsursachen der Fussgeschwülste (etiology of foot tumors). Momburg.
 123 Zur Luxation der Keilbeine (uneiform bones). G. Fischer.
 124 *Ueber Chylorrhoe traumatisches. A. Dietze.
 125 Traumatische subcutane Ruptur des Ductus choledochus. R. Stierlin.
 126 Die Syringomyelie und ihre Beziehungen zur sozialen Gesetzgebung. W. Siemmel (Breslau).
 127 Diagnostische Irrtümer bei der Leistendrüsenerkrankung (mistakes in diagnosing tuberculous inguinal glands). P. Fridberg.
 128 *Zur Behandlung varicöser Unterschenkelgeschwüre (leg ulcers). C. Georgl.
 129 *Extraction of Foreign Bodies by Alternating Röntgen and Daylight. G. Holzkecht and R. L. Grünfeld.—Die Fremdkörperentziehung bei wechselndem Röntgen- und Tageslicht als Grundlage der Lehre von den radioskopischen Operationen.
 130 Verletzung der Arteria subclavia durch Zerrung mit Zerreissung des Plexus brachialis (trauma). Snamma.
 131 Reply to Kreuter on "Bursitis subdeltoidea." Langemak.

102. Study of Effects of Bloodless Reposition of Hip Dislocation.—Deutscher has been producing luxations in young cats and studying the effects of reposition. He found it an invariable rule that any disturbance in the mechanism of the joint entailed increased growth and development, instead of checking the development. When the joint capsule is extirpated the growth proceeds with abnormal intensity. His study of the condition in man shows that in case of luxation of the acetabulum the conditions are never those of rudimentary growth, but the contrary, the growth is exaggerated. These facts are of great importance for the treatment of hip dislocation. An anatomic cure of the trouble is possible only when the hypertrophied contents of the acetabulum can be forced to atrophy under the pressure of the head of the femur brought into contact with it. Anatomic cure is achieved by bloodless reposition only in about a third of the cases—that is, in unilateral luxation. In a fourth or fifth of all the cases there is sure to be some complication or actual failure as the result. About half the cases reported are qualified as improved, but no mention is made as to how long the improvement persisted. The failures in bloodless reduction should compel more extensive application of operative treatment. He tabulates the published results of over 1,000 cases from the literature. The failures amount to 27.8 per cent.

104. Fractures of the Leg from Standpoint of Industrial Insurance.—Out of 44 cases of these fractures 14 healed with permanent deformity, and 30 to 40 per cent. were incapacitated so that they were entitled to a pension.

105. Plastic Operations on Bladder.—Pedunculated flaps of serosa and muscle were sutured into the defect in the bladder in Brunn's experimental experiences. They all softened and became necrotic in a few days. Further experiments showed that when the pedunculated flap was cut from serosa and unstriated muscle it healed mostly in the defect and answered the desired purpose.

108. Advantages of Transverse Nephrotomy.—The principal result of Hermann's experiments on dogs was the discovery that the animals bore a transverse incision of the kidney much better than a lengthwise incision. After a longitudinal incision extensive infarcts formed and there was more or less interstitial inflammation. After transverse incision, the kidney tissue did not disappear by any means to the extent observed in case of a longitudinal incision. He suggests that a transverse incision might be better than the lengthwise for man.

110. Tropical Liver Abscess.—In 5 of the 6 cases reported there had been a history of dysentery. The abscess was located in the right lobe in every case. Two of the patients died. Exploratory puncture is an important help in diagnosing, and ample exposure and evacuation of the abscess are indispensable.

113. Hernia of the Ovary with Torsion.—In nearly every

case on record the hernia occurred in infants less than a year old. There is very little general disturbance. Gauzele describes a case.

114. **High Cancer in Rectum.**—At the surgical clinic at Kyoto 3 cases of rectal cancer located high or reaching up high, were removed by the abdominal-sacral routes. One patient recovered. In the 25 cases which the authors have found on record death occurred in 16.

115. **Tuberculous Osteomyelitis of Long Bones.** From 15 cases observed by Friedländer he finds that the *x* rays readily settle the diagnosis. There are three varieties, the cases with progressive infiltration, those with circumscribed infiltration with sequester formation, and the cases of central, caseous infiltration without macroscopic sequestrs. Demarcation of a large sequester without suppuration and before fistula formation, is an unconditional sign of tuberculous. It is characteristic of the caseous focus without sequester formation that the cavity is larger than the new-formed mass of bone, as can be ascertained by radioscapy. Operation is contraindicated in case of multiple foci in a long bone with progressive infiltration. Amputation is the only resource in such a case. The Moseley iodoforn filling is a great aid in treating tuberculous osteomyelitis of the long bones.

119. **Sensibility in Organs and Tissues in Respect to Local Anesthesia.**—THE JOURNAL has frequently quoted Lennander's views in regard to the lack of sensibility in certain organs and tissues, allowing them to be incised and handled without pain. He has continued his research on the subject, deeming it one of great importance for the use of local anesthesia. He proclaims now that all the organs which are exclusively innervated from the sympathetic or vagus system, below the inferior larynx, are lacking in nerves to convey pain sensations. Consequently there is no need for anesthesia in operating on them. The list of such organs includes the small and large intestine, the liver, spleen, pancreas, gall bladder, rectal and vaginal mucosa, uterus, ovaries, tubes and bone proper. The periosteum is sensitive. By observing certain precautions it is possible to operate in cases of hernia and appendicitis exclusively with local anesthesia and very little of this, and yet the patient knows no pain. He gives the details of more than 50 operations of various kinds in which the particulars in regard to the sensibility of the tissues were carefully noted. They include several amputations. It was noticed that after injection of cocaine into a nerve it was still painful when taut, but not painful when the nerve was relaxed. The periosteum could be incised without pain in an amputation for senile gangrene, for example, after local injection of 1.5 c.c. of 0.5 per cent. cocaine. The sawing of the femur caused no pain, nor the cutting of the bone marrow for 1.5 cm. above the cut surface. Even the application of the actual cautery to the stump was painless. Dry gauze was then applied to lessen the absorption of cocaine, and the operation concluded with no mishap. Another patient had his arm amputated without the slightest pain after the inflamed periosteum had been injected with a 0.25 per cent. cocaine solution, and turned back from the bone. (See abstract 108, page 344, in vol. xxxix of THE JOURNAL.)

121. **Myositis Ossificans.**—From further study of 5 more cases, Busse and Blecher reiterate that the process in this affection is both clinically and anatomically an inflammation. Under certain circumstances it is capable of retrogression. The neoformation of bone occurs exclusively in the muscles, not starting in the periosteum.

124. **Traumatic Chylothorax.**—In the month following a bullet wound of the breast, 27 liters of chylous fluid were evacuated by punctures. The patient recovered. Eight cases of traumatic chylothorax are on record and are reviewed. All but the present one were the result of contusions.

128. **Treatment of Leg Ulcer.**—Georgi reports very encouraging results from application of Wenzel's technic. This includes a circular incision between the middle and upper thirds of the thigh, and ligation of all the veins found above the fascia in the course of the incision, carefully avoiding the

nerves. This forces the blood to seek an outlet through the deeper veins and prevents recurrence. All of Wenzel's 26 patients were permanently cured.

129. **Alternating Roentgen and Daylight Operations.**—The radiologic operating table described allows the in-erposition of the fluorescent screen at any moment, a pedal arrangement turning on the Röntgen rays and excluding the daylight, while another touch to the pedal removes the screen and restores the daylight. The technic is described as practiced in 9 cases of extraction of a foreign body, which thus becomes a scientifically exact, simple and easy procedure. The apparatus is illustrated in detail.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last Index, XIII, page 865.

- 132 (XVIII, No. 1.) Disinfection of Hands. T. Westhoff.—Zur Händeinfektionsfrage.
133 Serum Treatment of Typhoid. Mesnil de Rochemont.—Ueber die Behandlung des Typhus mit Heilserum.
134 *Treatment of Senile Deafness. D. D. Akhsharumoff.—Beiträge zur Behandlung der senilen Schwerhörigkeit.
135 Zur Technik der Infusion. Adolf Weber.
136 Local Cauterization in Diphtheria. Hecker. Ortellehe Atzungen bei Diphtherie.

134. **Successful Treatment of Senile Deafness.**—Akhsharumoff reports his experience with a method of checking the inroads of senile deafness in his own person. He noticed that his hearing varied with the weather. This suggested the idea that catarrhal conditions of the mucosa might obstruct the entrance of air, and thus interfere with the functional capacity of the ear. He sought to dilate the aural air passages by inflation with air, and found that it effectually relieved his deafness. He uses an ordinary double bulb spray apparatus with a nose douche tip. The latter is introduced into one nostril and both nostrils are closed air tight with the fingers. The mouth is held open and the subject breathes regularly all the time. The bulb is then squeezed with the other hand, the atomizer standing on a table on a level with the mouth. Air is thus pumped into the nose. The bulb must be rapidly compressed about 150 times to the minute or thereabouts, the pressure being moderate. This causes rhythmic vibration massage of the eustachian tube and of the ear drum. These exercises for a few minutes twice a day for several months restored his hearing and relieved him of the subjective acoustic phenomena which had previously annoyed him, especially when lecturing.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

TEXT-BOOK OF HUMAN HISTOLOGY, including Histology and Microscopical Anatomy, with Especial Reference to the Practice of Medicine. By Dr. L. Landis, Professor of Physiology and Director of the Physiological Institute in the University of Greifswald. Tenth Revised and Enlarged Edition. Edited by Albert P. Ribbaker, M.D., Professor of Physiology and Hygiene in the Jefferson Medical College. Translated by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic. With 394 Illustrations. Cloth. Pp. 1027. Price, \$7.00. Philadelphia: P. Blakiston's Son & Co. 1904.

TOXICOLOGY. A Manual for Students and Practitioners. By Edwin Welles Dwight, M.D., Instructor in Legal Medicine, Harvard University. Series Edited by Victor Cox Pedersen, A.M., M.D., Instructor in Surgery and Anesthetist and Instructor in Alcesthesia at the New York Polyclinic Medical School and Hospital. Cloth. Pp. 298. Price, \$1.00. Philadelphia and New York: Lea Bros. & Co.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By J. A. Milroy, M.A., M.D., Demonstrator of Physiology, Queen's College, Belfast, and T. H. Milroy, M.D., B.Sc., F.R.S.E., Professor of Physiology, Queen's College, Belfast. Cloth. Pp. 200. Price, \$1.60 net. New York: Longmans, Green & Co. 1904.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE. By George M. Egebohs, A.M., M.D., LL.D., Professor of the Diseases of Women in the New York Post-Graduate Medical School and Hospital. Cloth. Pp. 327. Price, \$2.90. New York: Frank P. Lippincott, 1904.

A TEXT-BOOK OF HISTOLOGY. By Frederick P. Ballou, A.M., M.D., Adjunct Professor of Normal Histology, College of Physicians and Surgeons. Profusely Illustrated. Cloth. Pp. 481. Price, \$3.00 net. New York: Wm. Wood & Co. 1904.

THE MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY AND CONNECTICUT. Published by the New York State Medical Association. Vol. VI. Cloth. Pp. 858. 1904-1905. New York: Trow Directory Co. 1904.



Fig. 1. Chorio-epithelioma malignum of the uterus. The fundus uteri is filled with a bloody tumor the size of a man's fist. On the peritoneal surface of the fundus are two nodules of a dark red color and firm consistency. A secondary nodule of similar texture was removed from the vagina.

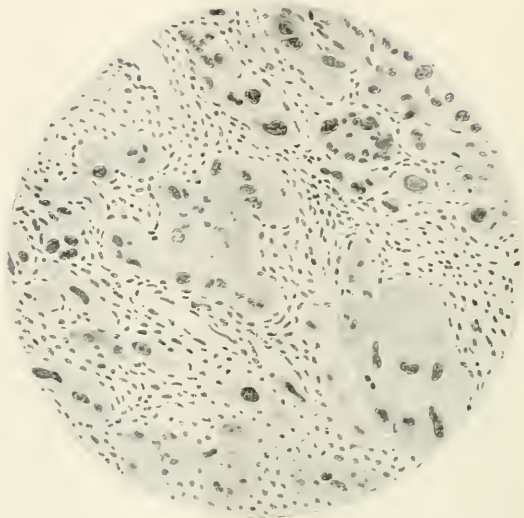


Fig. 2. -Carcinoma uteri, showing numerous giant cells closely resembling syncytium.

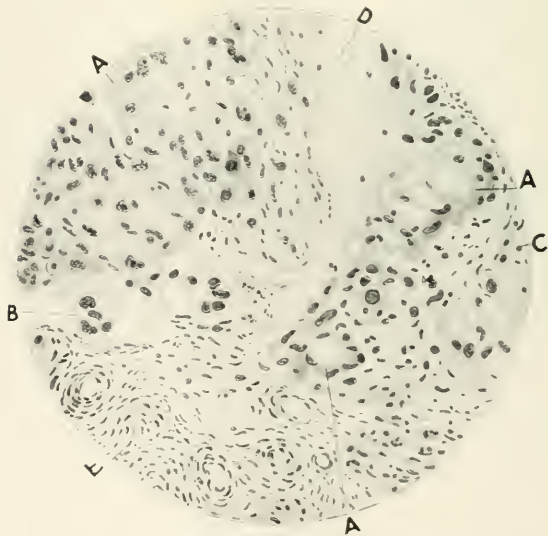


Fig. 3. Chorio-epithelioma malignum. A. Protoplasmic masses with no well-defined outline, vacuoles and many nuclei. B. Giant syncytial cell in a blood coagulum. C. Langhans' cells. D. Blood. E. Uterine musculature.

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Original Articles.

PRIMARY CHORIO-EPITHELIOMA MALIGNUM OUTSIDE OF THE PLACENTAL SITE.

WITH REPORT OF A CASE.*

PALMER FINDLEY, M.D.

CHICAGO.

In spite of the enormous amount of literature lately evolved on this subject, little has been presented that throws light on the true character of the growth. This statement was recently made by W. Risel, and I think we must all agree with him.

Progress has been made in the study of the histology of these growths, and we have arrived at a more definite understanding of certain points in the histogenesis which were formerly much discussed.

The term deciduoma malignum, introduced by Sänger, has been abandoned, and it is generally conceded that this growth, composed as it is of Langhans' cells and syncytium, arises from the fetal ectoderm. But we seem to have been led into still greater confusion by the recent reports of cases of primary chorio-epitheliomatous growths arising outside of the placental site, and these not confined to the female, but found as well in the teratomata of the testicle.

During the past seven years 20 cases of primary chorio-epitheliomata arising in woman outside the placental site have been reported, and to this number I have added the report of a case that was primary in the uterine musculature.

The following is a brief résumé of the 20 reported cases:

CASE 1.—Reported by L. Pick² and Th. Landau, in 1897. Aged 22. Primipara; no abortions. There developed a hydatidiform mole, which was expelled spontaneously. While the mole was yet *in utero* a vaginal tumor the size of a walnut appeared in the anterior wall of the vagina. The surface of the tumor was slightly ulcerated, and bled freely. No blood came from the uterus. The tumor was removed, and three days later the mole was expelled spontaneously. Three and one-half years later there was a normal birth, and a second normal birth the following year. There has been no recurrence of the growth.

Histologic examination of the vaginal tumor showed villi re-

sembling those of a hydatidiform mole in the center of a large blood coagulum. Langhans' cells and syncytium were found in abundance. The overlying mucosa was necrotic.

CASE 2.—Reported by Schmorl,³ in 1897. Aged 35. Eighteen weeks after a normal labor a vaginal tumor appeared, which was followed by metastatic growths in the lungs, liver, kidney and intestine. The uterus, tubes and ovaries remained free. Death followed.

The histologic structure of the primary and secondary growths was that of a typical chorio-epithelioma malignum.

CASE 3.—Reported by Schlagenhauer,⁴ in 1899. Aged 38. IV-para. An incomplete abortion was followed in two or three months by hemorrhage from the vagina, and this recurred in six months. Ten months after the abortion a tumor the size of a large nut was found in the posterior wall of the vagina. It was round, of a dark red color, and on cross-section it appeared to the naked eye to be a blood coagulum. Microscopic examination showed the blood clot to be invaded by syncytial and Langhans' cells—a typical chorio-epithelioma. The overlying mucosa was broken through by the tumor mass, permitting blood fibrin and tumor cells to approach the surface. Twenty-one months after the vaginal tumor was removed the patient was reported well.

CASE 4.—Reported by von Guérard,⁵ in 1899. Aged 40. A hydatidiform mole of two or three months' development was artificially removed. There was nothing unusual seen in the histologic structure of the mole. Four weeks later a slight vaginal hemorrhage appeared, and continued to increase in amount. A tumor the size of a hazelnut was removed from the anterior lip of the cervix, two and one-half months after the removal of the mole. It was from this tumor that the bleeding occurred.

Microscopic examination of the tumor showed large quantities of syncytium. Two years after the removal of the mole the patient was reported to be in good health.

CASE 5.—Reported by H. Schmitz,⁶ in 1900. Aged 38. V-para. Three abortions; one hydatidiform mole.

Three months after the removal of the mole a dark red tumor, the size of a hen's egg, appeared in the anterior wall of the vagina, and a second tumor, the size of a hazelnut, appeared in the posterior wall of the vagina. There was no bleeding from the uterus. Vaginal tumors removed and uterus scraped, with negative findings.

Microscopic examination of the vaginal tumors: In a blood coagulum of the large tumor were chorionic villi, surrounded by large numbers of Langhans' cells and syncytium. No villi were present in the small tumor, but the arrangement of the cellular structures was not unlike that of the large tumor.

3. Schmorl: Demonstration eines syncytialen Scheidentumors. Verhandlungen der Gesellschaft Deutscher Naturforscher u. Aerzte in Braunschweig, 1897, vol. II, No. 2, pp. 21 and 111.

4. Schlagenhauer: Zwei Fälle von Tumoren des Chorioepithels. Wiener klin. Woch., 1899, No. 18, p. 488.

5. Von Guérard: Deciduoma malignum der Portio bei frei bleibendem Corpus. (a) Niederrhein-Westf. Gesellsch. f. Geburtshilfe u. Gynäkologie, Elberfeld, 11, vi, 1899. Referat: Monatschr. f. Geburtshilfe u. Gynäkol., 1899, vol. x, p. 239. (b) Versamml. Deutscher Naturforscher und Aerzte in München, 1899. Referat: Münchener med. Woch., 1899, No. 43, p. 1440.

6. H. Schmitz: Zur Casuistik der chorioepithelialen Scheidentumoren. Centralbl. f. Gynäkologie, 1900, No. 47, p. 1257.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstons, A. Palmer Dudley and L. H. Dunning.

1. Th. Langhans: Syncytium und Zellschicht. Placentarreste nach Aborten. Chorioepithelium. Hydatidennmole. Hegar's Beiträge zur Geburtshilfe u. Gynäkol., 1901, vol. v, No. 1, p. 1.

2. L. Pick: Ueber Metastasenbildung und Histologie der gutartigen Blasenmole. Verhandlungen der Gesellschaft Deutscher Naturforscher u. Aerzte in Braunschweig, 1897, vol. II, No. 2, p. 111; also see Von der gut. u. bösarartigen Blasenmole, Berliner klin. Woch., 1897, Nos. 49 u. 50, pp. 1069 and 1097.

One and a half years after the removal of the vaginal tumors the patient was reported well.

CASE 6.—Reported by Fiedler,⁷ in 1900. (Schmorl's⁸ second observation.) Aged 35. 11-para. Severe hemorrhage occurred two months after a normal labor. Eight months later there developed severe abdominal pains and some swelling of the abdomen. Then followed vomiting, anorexia, and within a month (eleven months after labor) death occurred.

Postmortem examination revealed a soft dark red nodule, the size of a cherry stone, on the posterior wall of the fundus. Cysts the size of a child's head were in the ovaries; the tubes were normal. A soft reddish-gray tumor, the size of a child's head, was found in the liver. Similar but smaller growths were in the kidney, suprarenal glands and retroperitoneal lymph glands.

Microscopic examination: These tumors were largely composed of syncytium and blood coagulum. In the uterus was a decidua, 3 cm. thick.

CASE 7.—Reported by A. O. Lindfors,⁹ in 1901. Aged 22. 1-para; one abortion. Three weeks after labor there occurred a severe hemorrhage from the vagina, and a small tumor was found at the introitus vaginæ. In five weeks this tumor was the size of a cherry. Three weeks later a tumor, the size of a walnut, appeared above the urethra. It was pedunculated, dark red, and appeared to be composed of a blood coagulum. Scrapings from the uterus presented a normal mucosa.

Microscopic examination: The tumors contained large numbers of Langhans' cells and syncytium, which invaded the blood vessels of the vaginal mucosa. There were no villi. Nine months after the child-birth, or two months after the removal of the vaginal tumor, the patient succumbed to what was diagnosed as influenza, with an exudative pleurisy. Two hundred c.c. of bloody fluid were aspirated from the pleural cavity two days before death.

Postmortem examination: In the left lung was a large chorio-epithelioma, and smaller tumors of similar structure were found in the right lung, kidneys, brain, spleen, liver and intestine. The histologic structure resembled a typical chorio-epithelioma. Uterus and its appendages were free from tumor growths, as was also the vaginal scar.

CASE 8.—Reported by Schmit,¹⁰ in 1901. Aged 41. 0-para; two abortions. Last abortion was immediately followed by hemorrhage, which was checked by scraping away some retained placental tissue. Seven weeks later a tumor appeared in the vault of the vagina, which bled so freely that it required tamponing. This tumor was soft, of a bluish color, and the size of a hazelnut. No hemorrhage came from the uterus. Microscopic examination of the excised tumor revealed a large blood coagulum, within which were hydropic chorionic villi and a typical grouping of Langhans' cells and syncytium. Scrapings from the uterus showed normal mucosa. Eight months after operation patient was reported in good health.

CASE 9.—Reported by Marchand,¹¹ in 1901. One month after the artificial removal of a hydatidiform mole, brain symptoms developed, and death came speedily.

Postmortem examination revealed a malignant chorio-epithelioma in the right cerebrum; also numerous nodules in the lung and left kidney. The uterus was somewhat enlarged; there was a decided decidual formation in the uterus.

CASE 10.—Reported by Holzappel,¹² in 1901. Aged 37. Three years after an abortion a vaginal tumor appeared, which bled freely. The uterus was slightly enlarged. No blood came from the uterus. The vaginal tumor was excised and the uterus removed.

In the posterior wall of the uterus was a tumor, not connected with the mucosa. A third growth, the size of a walnut, was removed from a point above the urethra. The three growths presented the microscopic picture of a typical chorio-epithelioma. In the uterus was a decidual formation. Recovery followed.

CASE 11.—Reported by Pick¹³ and Th. Landau. Aged 20. Not married. An abortion occurred in the third month. Shortly afterward hemorrhage came from the vagina and lungs. The vaginal hemorrhage was seen to come from two small ulcerated nodules in the vaginal wall. These were excised, and their base curetted. The uterus was also scraped, with negative findings.

Microscopic examination of the excised nodules showed the presence of a few villi and a typical formation of a chorio-epithelioma. Hemorrhage ceased from the vagina and lungs. Seven months later she again aborted in the sixth week of pregnancy, and at the time of making the report she was three months pregnant. The author was of the opinion that the spitting of blood was due to a chorio-epitheliomatous growth in the lungs, which apparently healed.

CASE 12.—Reported by Wehle,¹⁴ in 1901. Aged 46. VII-para. Six months after the last normal child-birth a tumor appeared on the right labium. This was excised, and recurred in eight days, growing to the size of a mandarin. Death resulted in five weeks. The growth was a typical chorio-epithelioma.

CASE 13.—Reported by Wehle,¹⁴ in 1901. Aged 39. VI-para. Five weeks after the last labor there appeared a mucosanguineous discharge from the vagina. On examination there was found a tumor the size of a large orange on the posterior wall of the vagina. This was removed by curette and cautery. Ten days later the tumor recurred, when further surgical intervention was impossible. Death soon followed.

Microscopic examination: Typical chorio-epithelioma.

CASE 14.—Reported by H. Peters,¹⁵ in 1902. Aged 30. A normal labor was followed by a period of amenorrhœa, lasting from March to June. In June and July there were irregular hemorrhages. From July, 1900, to March, 1901, menses were again suspended. At this time a hydatidiform mole was expelled. Three days later bleeding recurred, and lasted six weeks. A tumor, the size of a pigeon's egg, was found in the vagina. It was bleeding profusely. The surface was ulcerated. The uterus was found normal, after an exploratory curettage. The vaginal tumor was removed, and healing was perfect. Oct. 20, 1901, a second tumor appeared near the cicatrix in the vagina, and grew rapidly to the size of a pigeon's egg. Death followed three days after the appearance of the second vaginal tumor, preceded by paralysis of left leg and forearm, and asphyxia. The vaginal tumor was composed of a typical chorio-epithelioma. There was no postmortem examination, but doubtless there were metastatic formations in the lungs and brain.

CASE 15.—Reported by Hugo Hübl,¹⁶ in 1902. Aged 36. VII-para. Four normal labors; one abortion at third month.

12. Holzappel: Fall von Chorioepithelioma malignum. (a) Physiol. Verein in Kiel, 10. vi. 1901; Ref.: Münchener med. Woch., 1901, No. 29, p. 1550. (b) 73. Versamm. Deutscher Naturforscher u. Aerzte in Hamburg 1901; Ref.: Centrabl. f. Gynäk., 1901, No. 41, p. 1193.

13. L. Pick: Zur Kenntnis der Teratome: blasenmoleartige Wucherung in einer "Dermoidcyste" des Eierstockes, Berliner klin. Woch., 1902, No. 51, p. 1189.

14. Wehle: Diskussion im Anschluss an den Vortrag von Buschke, "Ueber einen Fall von Syncytium" in der Gynäk., Gesellschaft zu Dresden am 21 Febr., 1901; Referat: Centrabl. f. Gynäkologie, 1901, No. 52, p. 1429.

15. H. Peters: Zur Lehre vom primären Chorioepitheliom der Scheide nebst einem Falle von Recidiv nach Exstirpation des Scheidenknotens. Centrabl. f. Gynäkologie, 1902, No. 29, p. 769.

16. H. Hübl: Ueber das Chorioepitheliom in der Vagina bei sonst gesundem Genitale. Wien, 1903 (November, 1902).

7. O. Fiedler: Beitrag zur Kenntnis der syncytialen Tumoren. Dissert., Kiel, 1900.

8. Schmorl: Diskussion zu Albert's Vortrag über Chorioepitheliom. Gynäk. Gesellsch. zu Dresden, vol. xvii, 1900; Centrabl. f. Gynäk., 1900, No. 49, p. 1329.

9. A. O. Lindfors och A. Vestberg: Det vidare förloppet och den sällnta ntnganger af ett fört beskrivet fall af syncytioma (chorioepithelioma) malignum vaginæ. Upsala Läkareförening Förh., vol. vi, No. 8, 1901. Ueber den weiteren Verlauf und Ausgang meines Falles von "Syncytioma malignum vaginæ," nebst Obduktionsbefund. Vorläufige Mitteilung. Centrabl. f. Gynäkologie, 1901, No. 21, p. 557.

10. H. Schmit: Ein neuer Fall von Primärem Chorioepitheliom der Scheide. Centrabl. f. Gynäkologie, 1901, No. 49, p. 1350; also see Ueber malignes Chorioepitheliom der Scheide bei gesundem Uterus. Wiener klin. Woch., 1901, No. 44, p. 1077.

11. Marchand: Demonstration zweier Fälle von malignem Chorioepitheliom. Medizin. Gesellschaft zu Leipzig, 2. vii, 1901; Münchener med. Woch., 1901, No. 32, p. 1303.

and one hydatidiform mole. The last pregnancy terminated at the seventh month. Seven weeks later there was a vaginal hemorrhage, which rendered the patient very anemic in a few days. A tumor was then found in the posterior wall of the vagina, the size of a large nut, with an ulcerated surface. Scrapings from the uterus showed negative findings.

The vaginal tumor was extirpated and presented a typical chorio-epithelioma. Twenty days later it returned in the posterior wall of the vagina, to be shortly followed by the appearance of several similar growths in the vagina. Death occurred five months after the miscarriage, or thirteen weeks after the appearance of the vaginal tumor.

Postmortem examination: Secondary growths were found in the liver, lungs, base of bladder and ovary. All the tumors were identical in their histologic structure.

CASE 16.—Reported by Senarclaus, in 1902. Aged 38. I-para. In 1898 she had an early abortion. In November, 1901, there appeared a foul-smelling, bloody discharge from the vagina, together with severe abdominal pains. In February, 1902, an abdominal tumor was recognized and diagnosed as a swelling of the right adnexa.

Death occurred March 9, 1902, shortly after an abdominal section.

Postmortem examination: Multiple tumor growths were found in the lung, anterior mediastinum, the wall of the right ventricle of the heart, thyroid and suprarenal glands, and kidneys. The fallopian tubes, ovaries and uterus were negative.

Microscopic examination: An atypical chorio-epitheliomatous formation was found in all of these growths. Senarclaus was of the opinion that there had existed a tubal pregnancy.

CASE 17.—Reported by Busse,¹⁷ in 1902. Aged 40. Patient entered the hospital July 2, 1902, with hemiplegia of the right side. Postmortem examination revealed chorio-epitheliomatous growths in the lungs, liver, kidney, pia mater and intestine. The uterus and adnexa were negative. The primary growth was not recognized.

CASE 18.—Reported by Moltrecht,¹⁸ in 1902. An incomplete abortion was followed by curettage. There was no evidence of malignancy in the scrapings. Four months later a bleeding tumor was discovered on the posterior wall of the vagina. The uterus, adnexa and greater portion of the vagina were removed. The uterus and adnexa were normal.

Microscopic examination of the vaginal tumor showed a typical chorio-epithelioma. Recovery followed.

CASE 19.—Reported by Davis and Harris,¹⁹ in 1900. Aged 40. XIV-para. Uncontrollable vomiting occurred in the second month of her fifteenth pregnancy. Pregnancy was terminated and death soon followed.

Postmortem examination: Nine tumors were found in various portions of the brain; also similar growths in both lungs, left kidney, liver and thyroid gland. The tumor in the kidney was thought to be primary. The uterus and adnexa were negative.

Microscopic examination showed a typical chorio-epithelioma.

CASE 20.—Reported by G. Schmauch,²⁰ 1903. Aged 25. IV-para. Labors normal. Last birth Aug. 20, 1901. Entered clinic with severe postpartum hemorrhage. Placenta removed and reported normal; hemorrhage stopped, and patient apparently recovered. Three weeks later severe hemorrhage came from vagina, which was seen to come from a tumor in the vaginal wall; this was excised and the bleeding stopped for three weeks. The hemorrhage returned, and a second tumor was

found in the vagina. This was cauterized, and the uterus curetted. The bleeding was checked for a short time, and shortly returned, with vomiting. Four or five vaginal tumors were successively excised to control the hemorrhage. The pelvic connective tissue was invaded, and this, together with the anemic condition of the patient, made a radical operation impossible. Death followed ten weeks after the normal birth.

Postmortem examination: Typical chorio-epithelioma malignum of the vagina (primary), metastatic growths of similar structure in kidney, lungs, spleen, brain and pelvic connective tissue.

In addition to the previously reported 20 cases, I have the privilege of reporting a case, through the kindness of the operator, Dr. Karl Sandberg, Chicago:

CASE 21.—Mrs. M. L., aged 50. Danish; housewife. Father died at 84; mother at 80 years of age. No tuberculosis or malignancy in the family. Patient was never sick except from measles and whooping cough. Menstruation always regular in time and amount. Has had five children, the oldest 19 years and the youngest 5 years and 8 months of age. Labors not difficult. One miscarriage eleven years ago. No unusual hemorrhage, pain or fever followed the child-births or miscarriage. Has not been pregnant to her knowledge since the last child-birth, five years and eight months ago. She nursed this child two years, during which time, and the year following, she did not menstruate. In all, there was a period of amenorrhea lasting three years. The menses then appeared, were one week in duration, unusually copious and irregular. There was an associated headache and pain in the right side.

Present illness.—During the last fifteen months the pain has steadily increased, the flow has been gradually prolonged and increased in quantity, and intermenstrual hemorrhages were noted. These were brought on by physical exertion. An offensive leucorrhœal discharge also made its appearance. The flow appeared daily during the two months preceding the operation.

Examination.—Just prior to the operation the patient was found to be anemic and emaciated. A sanguinopurulent discharge flowed from the vagina. There was a nodular tumor the size of a hen's egg on the posterior wall of the vagina. It was of a dark red color. The overlying mucous membrane was intact and apparently not adherent to the tumor mass over the greater part of its circumference. It was of elastic consistency, and rather movable.

A bloody purulent discharge exuded from the cervix. There was nothing unusual in the appearance of the vaginal portion of the cervix. The body of the uterus was about the size of a three months' pregnant uterus, and inclined to the right side. Its mobility was restricted. The surface was nodular, the consistency elastic, and there was tenderness on pressure. The findings in the heart and lungs were negative.

Operation.—Dec. 15, 1903. A complete abdominal hysterectomy was performed, after separating extensive adhesions involving the body of the uterus. The patient made an uneventful recovery from the abdominal operation. Jan. 11, 1904, the vaginal tumor, which had continued to bleed, was removed.

The patient left the hospital January 31, and has continued to improve from that time to the present. A thorough physical examination, made April 15, four months after the operation, and nineteen months from the onset of the symptoms, failed to reveal any evidence of recurrence.

Microscopic Examination.—The uterus measured 18 cm. in length, 12 cm. from horn to horn, and 8 cm. in its greatest anteroposterior diameter.

It was dark red in color; the consistency was firm and elastic, and its surface smooth, with the exception of several nodules on the fundus, ranging in size to that of a hazelnut. Both appendages presented a normal appearance. The left appendage was elevated about 3 cm. above the right.

On cross-section it was seen that in the fundus, and inclining to the left, was a tumor apparently composed of a firm coagulum of blood. This was sharply circumscribed, and about 6 cm. in diameter. The upper surface of this tumor was immediately covered by peritoneum. At the sides, and separat-

17. Busse: Ueber Decidua malignum, Vortrag im Griefswalder medicin. Verein. Sitzung vom, Aug. 2, 1902; Münchener med. Woch., 1902, No. 38, p. 1588; Deutsche med. Woch., 1902, Vereinsbeilage, No. 38, p. 280.

18. Moltrecht: Ueber Chorioepithelioma malignum bei gesundem Uterus. Abteil. des Aerztl. Vereins in Hamburg, 28, x, 1902; Münchener med. Woch., 1902, No. 48, p. 2028.

19. Davis and Harris: Syncytioma Malignum and Ectopic Gestation, Causing Periculous Nausea, American Journal of Obstetrics, etc., July, 1900, vol. xlii, p. 1.

20. Schmauch: Das Syncytioma malignum vaginale p. p. matur. ohne Geschwulstbildung im Uterus und seine Aetiologie (Zeitschrift für Geburtshilfe und Gynäkologie, vol. xlix, No. 3).

ing the mass from the uterine cavity, was the musculature of the uterus, which ranged from 1 mm. to 1 cm. in thickness. There was no evident connection between the tumor and the uterine cavity.

Microscopic Examination.—We find in the center of a large coagulum of blood, varying amounts of syncytium and Langhans' cells, not unlike a typical primary chorio-epithelioma of the placental site. In a portion of the circumference of the tumor the serous covering of the uterus directly overlies the blood mass. In three places no serous covering was found, and the blood fibrin with invading syncytial cells presented at the surface.

The lateral muscular walls of the uterus became more and more in evidence from the fundus to about the level of the internal os, and from this point downward there was the usual structure of the cervix, without the presence of invading cell elements. Higher up in the musculature of the uterine body wandering syncytial cells were everywhere in evidence. Between the uterine cavity and the tumor there was not only an intact mucosa, but a distinct muscular wall containing numerous wandering syncytial cells. It is apparent, not only to the unaided eye, but under the microscope, that the growth had no direct connection with the endometrium, nor is it possible to account for its primary origin in the placental site.

The walls of blood vessels in the musculature were seen to be invaded by syncytium and Langhans' cells. No villi were found. In the blood coagulum were numerous large, irregular, branching, multinuclear masses of syncytium. Vacuoles were distributed in these masses, as well as in the isolated smaller syncytial elements, the so-called "wandering cells." In isolated fields and irregularly distributed throughout the tumor were the characteristic small polyhedral cells of Langhans.

Without entering into an extended description of the histology of the growth, suffice it to say that it corresponds with the "typical" chorio-epithelioma of Marchand.²¹

The metastatic growth in the vagina bore the same typical characteristics. There were negative findings in the tubes and ovaries.

In the above recorded 21 cases unmistakable chorio-epitheliomatous tumors have been observed in locations remote from the placental site of the uterus and fallopian tubes. In no case has it been possible to trace a direct anatomic connection between the placental site and the primary tumor.

In nearly all cases it has been possible to trace a direct clinical relation between pregnancy and the tumor formation. These tumors have arisen during the course of pregnancy, at varying intervals after the completion of normal pregnancy, following complete and incomplete abortions, while hydatidiform moles were *in situ*, and a variable time after their expulsion. In no instance has such a growth been recognized in a nullipara, though in one instance the appearance of the tumor followed the establishment of the menopause.

In primary chorio-epithelioma of the placental site the vagina is most often the seat of secondary invasion by metastasis. It is also true that primary extra-uterine chorio-epithelioma arises with greatest frequency in the vaginal walls. This is an exception to the rule that tissues which are a common seat of primary malignant growths are seldom a seat of secondary invasion by these growths. The following presents the topographical distribution of the chorio-epitheliomata in regions not connected with the placental site: Vagina, 14; lungs, 8; liver, 5; brain, 5; kidney, 5; uterine musculature, 3; intestine, 3, and 1 each in spleen, thyroid, suprarenal gland, retroperitoneal lymph glands, heart muscle, ovary, bladder, labium and mediastinum.

It was not always possible to identify the primary growth apart from the secondary metastatic growths. The vagina was believed to be the primary seat in eleven

cases, the uterine musculature in three cases, the cervix, brain, kidney and labium each in one case. In the remaining three cases it was not possible to identify the primary growth. The size was not found to be a safe guide in judging the priority of the growths. For example, in the case reported by Fiedler,⁷ the primary growth in the uterine musculature was the size of a cherry stone, while in the liver was a secondary growth the size of a child's head.

Undoubtedly small metastatic growths in various portions of the body are frequently overlooked, and subsequently disappear spontaneously. They are known to vary in size from that of a hazelnut to a child's head, and in number from one to a score or more. Multiple growths in the same organ or tissue have been repeatedly described, and in all cases there was an almost uniform appearance in the gross structure. In general, they have presented the macroscopic appearance of blood clots. As a rule, they were of firm consistency, bluish-red in color, and on cross-section presented a fibrinous-like character in the center of the blood coagulum.

In the vagina the overlying mucosa was frequently ulcerated, and through the defective covering blood escaped. Occasionally the hemorrhage was so great as to require tamponing or immediate operation.

In all cases of primary vaginal growths the hemorrhage was at first thought to come from the uterus, but direct inspection readily located the seat of hemorrhage in the vaginal tumor, and a subsequent exploratory curettage, with microscopic examination of the scrapings, excluded the presence of the growth in the uterus.

Krebs and E. Fränkel²¹ reported cases in which no hemorrhage occurred.

A case of Brault's, reported as "sarcoma angioplastique," was doubtless a chorio-epithelioma malignum, primary outside of the placental site.

In the liver was a tumor the size of an orange, and presented the appearance of a large red blood clot. Smaller ones of similar structure were found in the stomach, lungs and lymph glands. No lesion was found in the uterus and adnexa.

Histologically, the growth was composed of protoplasmic masses, which were rich in nuclei and very irregular in outline. These were vacuolated. Numerous smaller polyhedral cells, with single nuclei, resembling Langhans' cells, were intimately associated with the protoplasmic masses.

The decidual changes in the uterine mucosa in the cases of Schmorl,³ Fiedler⁷ and Holzapfel¹² are remarkable. The decidua was not unlike the decidua vera of normal pregnancy, and averaged $\frac{3}{4}$ cm. in thickness. We recognize here an analogy to the decidual formation of ectopic pregnancy.

HISTOGENESIS.

It is interesting to speculate on the genesis of these growths. We ask: Was the placental tissue malignant when *in utero*, and had metastatic invasion been instituted prior to a complete expulsion of the malignant placental tissue from the uterus? Can we conceive of a complete spontaneous expulsion of malignant placental tissue from the uterus, i. e., self-elimination of the original uterine tumor while the metastatic growths remain in distant portions of the body and continue to develop?

Is spontaneous involution of the original uterine

21. E. Fränkel (Breslau): Das Chorioepitheliom malignum (früher Deciduoma malignum). Sammlreferat. Deutsche med. Wech., 1899, No. 11, p. 177.

tumor possible? Is it possible that the primary growth at the placental site was removed by the curette or finger?

These are interesting and very important questions, which must remain for future investigations to answer.

It has been conclusively shown by Webster, Veit,²² Pick and later observers that not only chorionic epithelium, but the entire villus as well, is carried to distant parts of the body through the blood stream, and this under perfectly normal conditions.

May these deported elements proliferate to form tumor growths which may be benign in one case, malignant in another, and leave the uterus free from tumor formation?

With our present knowledge of the pathology of the placenta, we can not solve these problems. Macroscopic and microscopic examinations of the expelled placenta, of hydatidiform mole and of scrapings from the placental site afford no information, because we can not distinguish a malignant from a benign growth of the epithelial elements found in these structures.

Neumann's statement that malignancy is recognized by the epithelial invasion of the stroma of the villus has been disproven.

The atypical growth of syncytium with large and richly chromatic nuclei has been regarded by Gottschalk and others as indicative of malignancy, but this, too, has been disproven.

The proliferation of Langhans' cells and their atypical distribution was thought by Voigt to suggest malignancy, but subsequent investigations fail to substantiate his views.

Primary chorio-epitheliomatous growths outside of the placental site have developed where macroscopic examinations of the expelled mole or placenta showed none of these features (Pick,¹³ v. Guerard⁹).

The fact that syncytium under normal conditions is known to disappear spontaneously from uterine and other tissues leaves the question open as to the possibility of malignant chorio-epithelioma spontaneously disappearing from the uterus.

Under perfectly normal conditions we see the syncytium rapidly proliferating, destroying tissues as it advances, burrowing into blood vessels and carried to distant portions of the body. For all we are now able to judge, the difference in the behavior of normal syncytium and the malignant type is one of degree in its proliferating tendencies. It is probable, as Risel has suggested, that the difference between the benign and the malignant syncytial growth does not lie in these elements, but is dependent on the peculiar resistance of the tissues invaded. We find every possible gradation between the normal placenta, the hydatidiform mole and chorio-epithelioma malignum, and a transition from one to the other in the order named is possible.

Permanent healing has followed the removal of the growths, and even the partial removal, as in the case of Fleischmann,²³ in which a secondary vaginal tumor was removed, and only a portion of the primary uterine tumor was removed by the curette. Yet not only did the uterine tumor completely disappear, but there was subsequent child-bearing and complete recovery.

The microscopic examinations of the tissues scraped

from the uterus showed what appeared to be a typical chorio-epithelioma malignum.

We, therefore, are forced to the conclusion that we have no way of judging the malignancy of these growths save by the subsequent course of the case.

Schlagenhauser²⁴ and, about the same time, but independently, Wlassow²⁵ observed chorio-epitheliomatous growths in the testicle identical to those found in the female. These growths are regarded by the above observers to have the same histogenesis, i. e., that they arise from embryonic elements of the fetal ectoderm and contain both syncytium and Langhans' cells. Wlassow examined twelve teratomata of the testicle and found this peculiar cell structure in three.

L. Pick¹³ has since found a similar structure in ovarian tissue. Risel, Schmorl²⁶ and Steinhaus²⁷ have made further observations in cases of chorio-epithelioma malignum of the testicle. It is possible, though not yet proven, that such tumors may occur elsewhere in the male.

Breus (1878) recorded a testicular tumor with a secondary tumor in the heart, which Schlagenhauser regarded as a malignant hydatidiform mole in the male, and Breus later accepted his views as highly probable. In view of this case and the other testicular tumors reported by Schlagenhauser,²⁴ Risel, Schmorl,²⁶ Wlassow²⁵ and Steinhaus,²⁷ the question naturally arises, what light does this throw on the origin of teratomata, and on the chorio-epitheliomata in woman?²⁸ Certainly it establishes the theory of the fetal origin of these growths, as opposed to the theory of maternal origin. Furthermore, the epithelial covering of the villi must be regarded as being epiblastic in origin.

It is probable that in the antenatal period, when the fetus is little more than a segmentation sphere, one or more polar bodies or blastomeres become displaced and incorporated in the structures which go to make the tes-

24. Fr. Schlagenhauser: Ueber das Vorkommen chorioepitheliom- und traubenförmiger Wucherungen in Teratomen, Wiener klin. Woch., 1902, Nos. 22 and 23, pp. 571 and 604.

25. K. Wlassow: Ueber die Patho- und Histogenese des sogen. "Sarcome angioplastique." (a) Medizinische Obosenje, No. 16, 1902 (Russisch). (b) Virchow's Archiv, vol. clxix, No. 2, p. 220.

26. Schmorl: Diskussion zu Schlagenhauser's Vortrag "Ueber das Vorkommen chorioepitheliom- und blasenmolartigen Wucherungen in Teratomen," Verhandlungen der Deutschen Patholog. Gesellschaft V. Tagung zu Karlsbad, 1902, p. 211.

27. J. Steinhaus: Ueber chorioepitheliomartige Wucherungen beim Manne, Wiener med. Woch., 1902, No. 17, p. 793.

28. Other references may be consulted as follows: O. Schmltdt: Ueber einen Fall von Chorioepithelioma malignum, Centrabl. f. Gynäkologie, 1902, No. 42, p. 1100. Bostroem: Diskussion zum Vortrage von Schlagenhauser, "Ueber das Vorkommen chorioepitheliom- und blasenmolartigen Wucherungen in Teratomen," 74. Versammlung Deutscher Naturforscher u. Aerzte in Karlsbad, 1902; Verhandlungen der Deutschen Patholog. Gesellschaft V. Tagung zu Karlsbad, 1902, p. 212. W. P. Zagorjanski-Kissel: Ueber das primäre Chorioepitheliom ausserhalb des Bereichs der Eiansiedlung, Archiv f. Gynäkologie, vol. xlix, No. 2, 1902, p. 326. H. Schmltdt: Zur Kasuistik der Chorioepitheliome. Geburtshilf.-gynäkol. Gesellsch. zu Wien, 19, xl, 1901; Ref., Centrabl. f. Gynäkol., 1902, No. 8, p. 212. Kleinbasn: Zwei Fälle von Chorioepitheliom, 74. Versammlung Deutscher Naturforscher u. Aerzte in Karlsbad, 1902; Ref., Centrabl. f. Gynäkol., 1902, No. 43, p. 1149. Palmer Findley: Hydatidiform Mole; with a Report of Two Cases and Clinical Deductions from 210 Reported Cases, American Journal of the Medical Sciences, 1903, vol. cxv, No. 3, p. 486. Hirschmann: Demonstration eines Chorioepithelioms des Uterus, Geburtshilf. Gynäkol. Gesellschaft in Wien, 12, ii, 1901; Referat.: Centrabl. f. Gynäkol., 1901, No. 28, p. 520. P. Kworostansky: Syncytium malignum und sein Zusammenhang mit der Blasenmole, Archiv f. Gynäkologie, 1900, vol. lxi, No. 1, p. 69. Pierce: Chorioepithelioma Malignum, American Journal of Obstetrics, etc., March, 1902, vol. xlv, p. 339. W. Poten and W. Vassmer: Beginnendes Syncytium mit Metastasen, beobachtet bei Blasenmolenschwangerschaft, Archiv f. Gynäkologie, 1900, vol. lxi, No. 2, p. 205. A. O. Lindfors: Till frågan om ovarialtumorer uppkomne efter graviditet och med struktur af syncytium malignum utan dock någon svulstbildning förefinnes i uterus, Upsala Läkareförenings Föreläsningar, N. F., vol. vi, No. 4, p. 177; Referat.: Centrabl. f. Gynäkologie, 1901, No. 19, p. 501.

22. J. Veit: Das Deciduoma malignum, Handbuch der Gynäkologie, herausgegeben von Veit, vol. lii, No. 2, Wiesbaden, 1899, p. 533.

23. C. Fleischmann: Ueber eine seltene vom Typus abweichende Form des Chorioepithelioms mit ungewöhnlichem Verlaufe, Monatsschr. f. Geburtshilfe und Gynäkol., 1903, vol. xvii, No. 4, p. 415.

ticle, and later develop into structures comprising all three layers of the blastoderm.

Why a complete embryo is not developed, and why the growth at times becomes malignant, are unsolved problems.

DIAGNOSIS.

From a study of these cases it is observed that the clinical diagnosis of primary chorio-epithelioma has only been made in the cases where the lesion could be directly inspected, i. e., in the vagina, labium and cervix. They were recognized by their characteristic rounded shape and bluish color, their tendency to bleed freely, and by the absence of uterine hemorrhage, together with negative findings in the uterus after exploring with the finger and curette.

The clinical diagnosis was at all times confirmed by microscopic examinations of portions of excised or curetted tissue. Without the microscope a positive diagnosis is not possible.

Tumors lying in hidden portions of the body, e. g., kidney, liver and lung, were not diagnosed with certainty without a postmortem examination.

Where the case did not end fatally, it was not possible to say that the growth was malignant, from the fact that the macroscopic and microscopic findings in these growths were in no way diagnostic of malignancy.

The ages at the time of operation were from 20 to 50 years. Twelve of the seventeen cases in which the age was recorded occurred between 35 and 41 years of age.

The following table presents the nature of the last pregnancy and the time of appearance of the symptoms and primary tumor, in relation to the last pregnancy:

- Case 1.—Hydatidiform mole *in utero*.
 - Case 2.—Eighteen weeks after normal labor.
 - Case 3.—Hemorrhage from vagina two or three months after an incomplete abortion. Tumor in vagina discovered ten months later.
 - Case 4.—Four weeks after artificial removal of hydatidiform mole.
 - Case 5.—Three months after artificial removal of hydatidiform mole.
 - Case 6.—Two months after normal labor.
 - Case 7.—Three weeks after normal labor.
 - Case 8.—Seven weeks after incomplete abortion.
 - Case 9.—One month after artificial removal of hydatidiform mole.
 - Case 10.—Three years after normal labor.
 - Case 11.—Shortly after abortion.
 - Case 12.—Six months after normal labor.
 - Case 13.—Five weeks after normal labor.
 - Case 14.—Few days after expulsion of hydatidiform mole.
 - Case 15.—Seven weeks after miscarriage at seventh month.
 - Case 16.—About three years after an early abortion.
 - Case 17.—Not known.
 - Case 18.—Four months after incomplete abortion.
 - Case 19.—Two months fetus *in utero*.
 - Case 20.—Three weeks after normal labor.
 - Case 21.—Five years and eight months after normal labor.
- Time of appearance of tumor not known; probably four years and five months after labor.

We find in this number that in one case a hydatidiform mole was *in utero* at the time of appearance of the symptoms and primary growth. In another case there was a two months' fetus *in utero*. In three cases the tumor followed incomplete abortions; in three others the abortions were complete, and in seven cases there were normal labors.

In all cases where there were vaginal or cervical tumors, hemorrhage was the symptom which led to the detection of the growth. In exceptional cases a foul-smelling vaginal discharge followed the appearance of the hemorrhage.

From the fact that these growths are so frequently located in the vagina, and that hemorrhage is an early and constant symptom, our suspicions should always be aroused by the occurrence of bleeding from the vagina

during the course of pregnancy, after the expulsion of a hydatidiform mole, an abortion or labor.

If, on inspection, such a tumor is found, it should be excised, and if on microscopic examination chorionic epithelium is found, an exploratory curettage of the uterus should be made. However, we have learned that we can not rely on the microscopic findings in the scrapings in determining the malignancy; hence, because of our present limitations, it would appear to be advisable to make a complete extirpation of the uterus when syncytial tissue is found in the scrapings. The cases which have recovered after the removal of the vaginal growth, and leaving the uterus, do not, in our present knowledge of these cases, justify us in leaving the uterus unless by an exploratory curettage the uterus is found free of all chorionic epithelium.

TREATMENT.

In view of our inability to accurately judge the character of these growths, a radical procedure of treatment should always be adopted. Vaginal growths should be excised. When the cervix is involved, a high amputation of the cervix or vaginal hysterectomy is demanded. Where, in the presence of a characteristic vaginal growth, nodules can be palpated on the surface of the uterus, or where the form of the uterus is irregular for an unaccountable reason, the possibility of a primary growth in the uterine musculature must be considered, and, though the uterine scrapings are negative, it would seem that a hysterectomy would be justifiable in the light of recorded cases in which the growths were primary in the uterine musculature.

If a characteristic chorio-epithelioma appears in the cervix or vagina during pregnancy, not only should the extrauterine growth be removed, but a total hysterectomy should be done.

It has been demonstrated that the emptying of the uterus and the examination of the fetal tissue will afford no reliable information as to the presence or absence of a malignant growth. An immediate removal of all tissues under question would, therefore, appear to be the only safe procedure.

From the fact that metastatic growths have been known to disappear spontaneously, the primary growth should be removed if possible, even in the presence of metastatic growths too remote for surgical interference. This is done in the hope that the metastatic growths may disappear spontaneously.

PROGNOSIS.

In view of the uncertainty as to the existence of metastatic growths and of the malignant intent of the growth, it is at all times necessary to give a guarded prognosis. Inasmuch as it is impossible to say that the growth is benign, and since metastatic growths may not make their appearance for an indefinite time, these cases demand careful attention for many years.

Doubtless the favorable prognosis of primary vaginal tumors, as compared with the primary growths located in less accessible regions, is accounted for by early recognition and prompt interference.

Of the twenty-one cases, twelve died and nine recovered after the removal of primary growths in the vagina, labium and cervix. In one instance recovery followed the removal of a primary growth in the vagina, and a probable secondary growth in the lung. In the fatal cases, death intervened in from a few days to eight months after the removal of the vaginal growth, and in all instances death appeared to be due to metastatic invasion of remote structures.

RESUME.

1. Twenty-one cases, including the above-recorded case, of unmistakable chorio-epitheliomatous tumors, have been observed in locations remote from the placental site. No direct anatomic connection between the tumor and the placental site was demonstrable.

2. These tumors have arisen while a fetus or hydatidiform mole was *in situ*, and at varying intervals of days and years following abortions, labors and the expulsion of hydatidiform moles.

3. The vagina was believed to be the primary seat of the tumor in 50 per cent. of the cases; the uterine musculature in 15 per cent.; the cervix, brain, kidney and labium, each 5 per cent. It was not always possible to identify the primary growth.

4. In all cases the growth presented the appearance of blood coagula, and were only identified with certainty by the aid of the microscope.

5. Nothing definite is known of the histogenesis. The degree of resistance of the invaded tissues probably determines the malignancy of these growths.

6. Microscopic examination of the tumor will demonstrate the presence of chorionic tissue, but will determine nothing as to the malignancy of the growth.

7. In primary vaginal and cervical growths it has been possible to make a highly probable diagnosis by a consideration of the history of the previous pregnancy, the occurrence of hemorrhage from the vagina, and by inspection of the tumor. The positive diagnosis was reserved for the microscope.

8. Sixty per cent. of the cases occurred between the ages of 30 and 41. The earliest was at 20 years of age, the oldest at 50.

9. Hemorrhage is the one constant symptom in the growths of the vagina and cervix, and should always arouse suspicion when occurring weeks, months or years after the termination of pregnancy, abortion or hydatidiform mole. The possibility of these growths occurring during the course of pregnancy must be borne in mind.

10. After the recognition of the primary growth outside of the placental site, an exploratory curettage is done and the scrapings examined by the microscope. If syncytial tissue is recognized, the uterus should be removed. Inasmuch as we are unable to judge the malignancy of the scrapings from the uterus in such cases, it would seem wise to anticipate the existence of a malignant growth by removing the uterus.

11. The malignancy of these growths can only be determined by the remote results. If the individual makes a permanent recovery after the removal of the primary growth, we are at a loss to know whether the growth was malignant.

12. It is necessary to give a guarded prognosis in all cases, because of the uncertainty as to the existence of metastatic growths, and the inability to differentiate a benign from a malignant growth.

100 State Street.

Health of Pilots.—The *Australasian Medical Gazette* states that the following regulation has been gazetted under the navigation act in New South Wales:

No person appointed as first class pilot shall be deemed eligible to continue to hold such position and discharge the duties thereof unless, in addition to compliance with other regulations relating to licensed pilots, at least once in each year he attends before a medical officer appointed by the treasurer, and obtains a certificate under his hand that he is in good health and not affected with any bodily or mental complaint or infirmity rendering him unfit to perform the duties of a pilot, particularly as to sight (vision and color), hearing and speech.

We understand that similar action is also being taken in Victoria.

THE DOWNES ELECTROTHERMIC CLAMPS.

FURTHER EXPERIENCE IN THEIR USE IN THE TREATMENT OF CANCER OF THE UTERUS.*

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PHILADELPHIA.

The treatment of cancer of the uterus is one of the important questions of the day. Without treatment the disease is a hopeless one and usually causes death within two or three years.

The accepted treatment for cancer of the uterus at the present time is hysterectomy; and, without entering into details, it may be stated that cases thus operated on before the disease has apparently invaded the parametria have the following results: The primary mortality of the operation is from 5 to 10 per cent. Adenocarcinoma of the corpus uteri is cured by hysterectomy in about 75 per cent. of the cases. Epithelioma of the cervix uteri is cured in about 10 per cent. of the cases. Less than 10 per cent. of cases of adenocarcinoma of the cervix uteri are cured by hysterectomy.

Perhaps these figures would be more accurate if it were stated that this is the general average rather than the results secured by early operation. The results should be somewhat better in selected cases. My own results correspond with these figures. Taking all the cases of cancer of the uterus on which I have operated, about 20 per cent. of those subjected to hysterectomy have remained free from recurrence at the end of five years. This includes all three classes of cancer of the uterus, and the apparently high percentage of cures is due to the fact that the general average is raised by the proportion of cancers of the corpus uteri.

The alternative operation which has been practiced is amputation of the cervix in cases of cancer of the cervix uteri. The amputation has been practiced by removing the cervix with the knife and scissors, and also with the galvanocautery. The names of Sims and Schroeder are intimately associated with the first operation, and the name of Byrne with the second.

So far as statistics can determine the results of operations there is not much to choose between the results of amputation of the cervix and hysterectomy. As a matter of fact the results named by Byrne are better than those secured by hysterectomy. Every one, however, who has had large experience in dealing with statistical statements knows the difficulty of presenting statistics which will tell absolutely the truth about the subject.

The general results of operation for cancer in all portions of the body make it appear reasonable that hysterectomy should give better results than amputation of the cervix, because it is well known that, as a rule, cancer has invaded the tissues more widely than is apparent on clinical examination; and, therefore, in spite of the statistical evidence, most surgeons are convinced that hysterectomy should have the preference over amputation of the cervix in all cases in which hysterectomy is feasible. Nevertheless, it is true that no one has presented statistics so good as those of John Byrne of Brooklyn. This being true, when Dr. A. J. Downes of Philadelphia offered the profession a practical electrothermic clamp with which hysterectomy for cancer can be done without increasing the primary mortality of

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee. Drs. J. H. Crutens, A. Palmer Dudley and L. H. Dunning.

HYSTERECTOMIES WITH "DOWNES CLAMPS."

Number.	Name and Date.	Marital Status or Widow.	Age at Operation.	Microscopical.	Diagnosis.	Condition of Patient Before Operation.	Operation.	Time.	Drainage.	Course.	Temp.	Subsequent History.
1	Mrs. H. 3-27-02.	W.	48	3	Squamous carcinoma of cervix.	Uterosacral ligaments invaded.	Celiotomy; pan-ophorosalpingo-lysis; clamps used first in vagina.	100 G a size in vagina.	Uterovag. fistula.	Febrile.	Died about 10 months after operation from cancer.	
2	Mrs. B. 10-5-02.	M.	50	2	Squamous carcinoma of cervix.	Parametria invaded.	Celiotomy; pan-ophorosalpingo-lysis; clamps not used first in vagina.	140 G a size in vagina.	Uterovag. fistula.	Febrile.	Died 10 months after operation from cancer.	
3	Mrs. B. 10-5-02.	M.	42	6	Papilloma of cervix.	Extensive involvement of cervix.	Celiotomy; pan-ophorosalpingo-lysis; clamps not used first in vagina.	67 G a size in vagina.	Left lobar pneumonia.	Febrile.	Unable to trace subsequent history.	
4	Mrs. C. 10-25-02.	M.	35	2	Squamous carcinoma of cervix.	Uterosacral ligaments invaded.	Celiotomy; uterovag. amputation above internal os; cervix removed from below.	115 None.	None.	Febrile.	Recurrence in seat in vagina, 9-11-03.	
5	Mrs. C. 10-27-02.	W.	33	0	Squamous carcinoma of cervix; uterosacral ligaments involved.	Uterosacral ligaments invaded.	Celiotomy; pan-ophorosalpingo-lysis; cervix removed from below.	80 G a size in vagina.	Uterovag. fistula.	Febrile.	Spontaneous healing in nine months.	
6	Mrs. M. C. 3-29-03.	M.	52	3	Squamous carcinoma of cervix.	Nephritis; parametria invaded.	Celiotomy; pan-ophorosalpingo-lysis.	80 G a size in vagina.	Uterovag. fistula.	Febrile.	Uterovag. fistula still open. Family physician reports recurrence.	
7	Mrs. K. 3-29-03.	M.	35	3	Squamous carcinoma of cervix.	Extensive involvement of cervix.	Celiotomy; pan-ophorosalpingo-lysis.	125 G a size in vagina.	Vesicovag. fistula.	Febrile.	Uterovag. fistula closed spontaneously a few weeks after operation.	
8	Mrs. C. 1-25-03.	M.	31	0	Squamous carcinoma of cervix; left hysterical flux.	Uterosacral space invaded. Prognosis doubtful.	Celiotomy; pan-ophorosalpingo-lysis.	120 G a size in vagina.	Vesicovag. fistula.	Febrile.	Uterovag. fistula apparently is closing; no involvement can be made out.	
9	Mrs. H. 11-4-03.	M.	41	3	Adenocarcinoma of cervix.	Parametria invaded; prognosis bad.	Celiotomy; pan-ophorosalpingo-lysis.	60 G a size in vagina.	Uterovag. fistula.	Febrile.	Uterovag. fistula closed spontaneously in 10 months.	
10	Mrs. H. 12-11-03.	M.	42	4	Adenocarcinoma of cervix; uterine intramural fibros-myoma.	Parametria invaded; prognosis bad.	Celiotomy; pan-ophorosalpingo-lysis.	125 G a size in vagina.	Uterovag. fistula.	Febrile.	Died five months after operation.	

the operation, it seemed to me a step in advance, and I was prepared to adopt this instrument for the treatment of cancer of the uterus, because it seemed to me that through the employment of this instrument we could secure the advantages of hysterectomy and also the advantages of the electrothermic cautery as employed by Byrne, and that, therefore, the results of hysterectomy performed by means of the electrothermic clamp should be still better than is true of hysterectomy performed in the usual manner, or the results secured by Byrne through amputation of the cervix with the galvanocautery knife together with the roasting of the adjacent parametrial tissues with the electrocautery.

At the meeting of the Southern Surgical and Gynecological Association in Cincinnati, Nov. 11, 1902,¹ I read a paper entitled "The Use of the Electric Cautery Clamp in the Treatment of Cancer of the Uterus." I reported four hysterectomies for cancer of the uterus. Three of the patients made typically good recoveries from the operation. The fourth case died mainly as the result of an accidental hemorrhage. I stated that this experience, while not large, was sufficient to convince me that the method has certain practical advantages. "It guards against oozing hemorrhage from numerous small vessels, which is so annoying in operations for cancer, and it leaves a dry field of operation to be buried under the peritoneal flaps. The special points in the method which appeal to me are: First, by its use less blood is lost during operation; second, the lymphatics are sealed up, thus lessening the risk of septic absorption and implantation of cancer; and third, more of the broad ligament is removed than by the usual operation. If the ligature is used, the needle must be passed to the uterine side of the ureter, and fear of including the ureter inevitably tends to make the ligature hug the uterus. Not only is this true, but the button which is left requires that the broad ligament tissues shall be cut directly against the cervix. With the cautery lamp, at least one-third of an inch of tissue is cooked outside of the uterus, and the tissues beyond are more or less heated. This is an absolute advantage, unless experience shows a certain percentage of ureteral fistulae from cooking this structure."

I wish to present the additional cases operated on since that date, together with the present condition of the cases already reported and those operated on since the date of my last communication.

In justice to the method it should be stated that the ten cases operated on by means of the electrocautery clamp were, without exception, advanced, or, rather, unfavorable cases. A number of them would have been refused operation by the ordinary methods. In the first case the uterosacral ligaments were involved. In the second case the parametria were invaded. In the third and fourth cases the cancer of the cervix was extensive. In the fifth case the uterosacral ligaments were invaded. In the sixth case the parametria were invaded and the patient had also a chronic nephritis. In the seventh case there was extensive involvement of the cervix and the prognosis was doubtful. In the eighth case the uterovesical space was invaded and the prognosis was doubtful. In the ninth case the parametria were invaded and the prognosis was bad. In this case the disease was far advanced and operation would not have been undertaken by the ordinary methods. In the tenth case the parametria were invaded, the prognosis

1. Am. Gynecology, December, 1902.

was bad and the operation would not have been undertaken by the ordinary methods.

This analysis of the cases shows that the results secured in this series of ten cases should not be taken as typical nor as representing what can be secured by the method in selected cases.

In discussing the advantages and disadvantages of the method in my previous communication, I stated that in my judgment an objection to the method, theoretically, seemed to be that it might well happen that a larger percentage of fistulæ would follow the use of the electrothermic clamp than the usual methods of operation. My experience has borne out this theoretical consideration, because of the nine cases there have been three ureterovaginal, and two vesicovaginal fistulæ. In one case of ureterovaginal fistulæ there was a vesicovaginal fistula in addition.

I have had the remarkable experience that of the three ureterovaginal fistulæ, two have healed spontaneously and one gives every appearance of spontaneous closure.

The first ureterovaginal fistula closed nine months after the operation. The second ureterovaginal fistula gives every appearance of closure five months after operation. The third ureterovaginal fistula closed ten weeks after operation. The first vesicovaginal fistula is still open thirteen months after operation, and the patient now has a recurrence. The second vesicovaginal fistula closed spontaneously within a few weeks after her discharge from the hospital.

This experience bears out the theoretical objection to the clamp that it would give a relatively high percentage of fistulæ. As to the ultimate results secured, the first patient died about ten months after operation. The second died about ten months after operation. The third patient has been lost sight of. The fourth patient died largely as the result of hemorrhage during the operation. The fifth patient, a very unfavorable one, is still alive, but undoubtedly will die from the disease, as there is an extensive growth. The sixth patient, a most unfavorable one, shows no evidence of recurrence thirteen months after the operation. The seventh patient, also an unfavorable case, has a recurrence. The eighth patient, also an unfavorable one, shows no evidence of recurrence one year after the operation. The ninth patient, a very unfavorable one, shows no evidence of recurrence. The tenth patient, a very unfavorable one, died five months after the operation.

It has always been my habit to present the unfavorable side of operations as well as the more pleasing side, and therefore I have made this supplementary report.

Those who oppose operation for cancer might conclude that their contention was supported by this experience. I do not feel at all that this is true, as this series of cases was a most unfavorable one, and undoubtedly the patients embraced in this series have suffered much less as a result of operation than they would have done without it. It seems to me that the true conclusion to be drawn from my experience with this series of cases is that the most pressing need in the treatment of cancer of the uterus is that the diagnosis of the disease shall be made early, in order that the patients may be submitted to early operation. In that case I feel confident that much better results can be secured.

So far as the electrocautery clamp is concerned, I believe that we should secure better results with it than with the ligature, knife and scissors, used after the

classical technic. Also, I am firmly convinced that hysterectomy can be performed with relative safety in a more advanced type of cases with the electrocautery clamp than is true of the classical technic. This is because a dry field is left after operation. On the other hand, I am satisfied in this class of cases that a definite percentage of ureteral and vesical fistulæ will be produced.

THE INVASION OF CARCINOMA CERVICIS UTERI INTO THE SURROUNDING TISSUES

AND ITS BEARING ON THE MORE RADICAL OPERATIONS FOR THAT DISEASE.

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BALTIMORE.

(Concluded from p. 1275.)

OPERATIVE TREATMENT OF CARCINOMA CERVICIS UTERI¹³

It is evident that hysterectomy alone seldom cures this condition. As, for instance, in 12 of 15 cases in which the more radical operation has been done, the growth was found to have extended beyond the uterus, as has been mentioned in this paper. In the Johns Hopkins Hospital there have been 63 vaginal hysterectomies, with 5 deaths; 26 combined abdominal and vaginal hysterectomies, with 5 deaths, and 67 abdominal hysterectomies, with 16 deaths. The comparison of the percentage of cures and also the primary mortality in these three classes of cases is of no value, for the abdominal or combined abdominal and vaginal operation has in many instances been used instead of the vaginal operation, because the growth was too far advanced for the vaginal route. It can never be hoped that the abdominal operation will be attended with as low a primary mortality as the vaginal; on the other hand, by the vaginal route the wide excision of the parametrium and pelvic lymph nodes is impossible.

Whether one shall employ the vaginal route or the more radical abdominal operation in these cases can not be determined from statistics, for sufficient time has not elapsed since the use of the more radical abdominal operations to furnish enough cases to compare with those removed by the vaginal route.

Olshausen¹³ has recently endeavored to compare the results of the two methods of operating, and concludes that for the majority of cases he prefers the vaginal hysterectomy. He states that he has had 671 cases, of which 31.6 and 44 per cent. (two periods) were operable, with a primary mortality of 6 per cent.; 74 per cent. of the cases operated on were free from recurrence at the end of two years, and 38.8 per cent. at the end of five years. He compares these with Wertheim's 120 cases, of which 40.3 per cent. were operable, with a primary mortality of 20 per cent., and 77 per cent. free from recurrence at the end of two years. Five years have not elapsed since Wertheim's first cases were operated on, so one has no way of comparing the results at the end of this time. Our results, with less than 25 per cent. free from recurrence at the end of five years, as compared with Olshausen's 38.8 per cent., can only be explained on the ground that in the patients who were operated on by him the growth was limited to the uterus

¹³ Olshausen: Zum Vergleich der vaginalen und abdominalen Operationsmethode bei Carcinoma uteri, Zeitschrift f. Geburt. u. Gyn., 1903, vol. 1, No. 1, pp. 1-6.

in more instances than in our cases. The most ardent supporter of the vaginal route must admit that only those cases can be cured by a vaginal hysterectomy in which the growth is limited to the uterus. Even Ols-hausen states that it is advisable to use the abdominal route in those cases in which the parametrium is involved, so that the ureters may be the more safely dissected from the cancerous tissue.

Could one operate on cases before the growth had extended beyond the uterus, then the vaginal operation would be the operation of choice, as it is the one attended with the lowest primary mortality. In view of the fact that clinical experience can count for so little, the decision as to the choice of an operation must be based on a study of the parametrium and the pelvic lymph nodes in the so-called operable cases. The operation which should give the highest percentage of cures is one in which the lymphatics were removed from the sides of the pelvis, and *en masse* with them the growth and uterus, including all the tissue from pelvic wall to pelvic wall.

DESCRIPTION OF A MORE RADICAL OPERATION.

1. Building up of the patient before the operation, rest in bed, and treatment of anemia, if present, are all very essential if anything can be gained by it; on the other hand, some patients seem to lose by a too long preliminary preparation.

2. A preliminary curettage of the growth seems to me to be unnecessary, except in occasional instances, where it is the only way available to control the bleeding in order that the patient may be in a better condition to stand the operation. Theoretically, it would seem to be attended with danger of causing a spread of the disease. In one case in this hospital where the cervix was curetted the cervix and tissue about it became infected, probably from organisms present in the necrotic growth, causing an inflammatory condition about the cervix, and as a result the operation had to be postponed. The patient left the hospital, later refusing operation. In two other cases in which there was a preliminary curettage of the cervix, I painted the raw area with a gum acacia suspension of lamp black, thinking that it might get into the lymphatics and thus I would be able to study its distribution in the specimen removed later by operation. The operation in one case was five days and in the other one week after the curettage. The lamp black was found in the lymph spaces near the raw area caused by the curettage, but none in the parametrial or pelvic lymphatics. The danger of infection occurring during the operation is minimized by wiping the vagina out with gauze just before burning across it, and clamping it with two large right angle clamps, and burning between the two clamps with a Paquelin cautery. The uterus, with the vaginal cuff clamped below the growth, may thus be removed with very little danger of infecting the field of operation.

3. The preliminary catheterization of the ureters certainly aids during the operation, and should be done before the patient takes the anesthetic. I have operated with and without having the ureters catheterized, and in two cases have had only one catheterized, and find that the catheterized ureter is much easier to locate and is a very important landmark in controlling the vesicovaginal and uterovaginal plexuses of veins which are close to the ureter near its entrance into the bladder. The ureters can usually be catheterized with the patient in the Sims posture. This posture is not as generally satisfactory as the knee-chest, but is much easier for the pa-

tient, and unless she is very stout is usually just as satisfactory for the physician.

4. After the patient is anesthetized the passing of a rectal tube will frequently relieve any distension of the rectum, if gas is present, and this should be left in the rectum during the operation, for it keeps the rectum empty and can easily be palpated, and so serves as a means of locating the rectum, as the renal catheter does the catheterized ureter.

5. The patient is now placed in the high Trendelenburg position and an incision is made from the umbilicus to the symphysis down to the peritoneum, but not through it. The peritoneum is now pushed back from the anterior abdominal wall and a transverse incision is made through it just above the bladder. This gives rise to a peritoneal apron, which, after pushing back the intestines, is sutured to the posterior pelvic wall with catgut, thus shutting off the general peritoneal from the pelvic cavity and keeping the intestines from the field of operation, and doing away with bolsters and gauze pads in the general peritoneal cavity. This exposure, which was first described by Poter,¹⁴ is all that could be desired, especially if a self-retaining retractor is used and the sides of the abdominal incision are protected with gauze. It seems to me that the incisions proposed by Amann¹⁵ and Mackenrodt¹⁶ where the recti are cut, are unnecessary. I have used the Poter incision in twelve or fifteen of these more radical operations, and think it is much to be preferred to the older methods of packing back the intestines with gauze. It protects the abdominal cavity better and possibly also diminishes the shock of the operation, although I have seen patients at the close of an operation where this was used apparently as much shocked as in other cases where it has not been used. This peritoneal flap is released at the close of the operation, and the incision in the peritoneum is closed transversely.

6. After obtaining a satisfactory exposure, the high Trendelenburg position may be lowered if so desired. The ovary on the left side is now grasped by a pair of forceps and pulled outward and downward, thus making taut the ovarian vessels and the peritoneum covering the iliac vessels. The peritoneum is now split below the parallel to the ovarian vessels as high up as the iliac vessels. The ureter will lie with its sheath on the lower peritoneal flap and be out of harm's way. The ovarian vessels and the round ligaments are now cut. Beginning at the division of the common iliac artery (the apex of the pelvic axilla), dissect downward, removing the fat and lymphatic structures, including lymph nodes from along the iliac vessels, thus exposing the pelvic vessels and removing the tissue *en masse*. By using a blunt dissector or a small wad of gauze on a clamp, and always dissecting down along the vessels, hemorrhage may be avoided. The uterine artery is exposed and ligated at its origin. I do not think that there is any operative advantage to be gained in ligating either the internal iliac artery or its anterior branch over the ligation of the uterine artery alone, and there is this disadvantage, that the nutrition of the pelvis is interfered with, thus predisposing it to infection and possibly necrosis. The other side is treated in a similar manner. If difficulty is experienced in locating the uterine artery, first find

14. Poter: Die neue Eröffnung des Bauchfelds besonders bei der abdominalen Entferrung des Uteruskrebs, *Cent. f. Gyn.*, 1902, vol. xxvi, pp. 750-753.

15. Amann: Ein neuer Weg zur Extirpation der carcinomatösen Uterus, *Cent. f. Gyn.*, 1901, vol. xxv, pp. 744-750.

16. Mackenrodt: Die Radikaloperation der Gebärmutter-Schleimdrüsenkrebses mit Ausräumung des Becken, *Cent. f. Gyn.*, 1901, vol. xxv, pp. 789-794.

the obliterated hypogastric and follow that back, taking care not to injure its superior vesical branch, and this will lead one to the uterine vessel.

7. The tissue on either side is now dissected from the sides of the pelvis, thus freeing the bladder and uterus with all the tissue from pelvic wall to pelvic wall, including the lower portion of the ureters in one mass.

8. The uterus is now drawn upward, thus making the uterosacral ligaments taut; these are cut on each side, care being taken to avoid the ureter at this place; the vagina is now freed posteriorly from the rectum, care being taken to go well out toward the rectum and give the cervix and vagina a wide margin. This allows the uterus to be lifted further out of the pelvis.

9. The uterus should next be pulled upward toward the umbilicus and the bladder dissected free from the cervix down to the entrance of the ureters into that organ. If the bladder is adherent an opening should be made into it above the adherent portion, and with a finger in the bladder the exact area involved may be palpated and excised. This opening into the bladder aids in freeing the bladder in all cases in which there is any evidence of the growth being adherent to it.

10. The next step is a very important one, and that is to control the vaginal veins which go to form the vesicovaginal and uterovaginal plexuses of veins. These veins are situated for the most part lateral to the ureters at this level, and give rise to very troublesome bleeding unless properly controlled. The ureter should be freed just at its entrance into the bladder, and this is the one point in the operation where the catheter in the ureter is of the most value. The veins lateral to the ureter are now tied, and this will save much unnecessary bleeding and does away with the preliminary sutures described by me in previous publications.

11. The treatment of the ureters should occupy one's attention next. There is now situated in the pelvis a mass of tissue consisting of the uterus and all the tissue from pelvic wall to pelvic wall, through which the ureters pass. This tissue is held in the pelvis by the vagina; the ureters, which pass through it; the vesicovaginal and uterovaginal plexuses of veins; by the tissue uniting the vagina to the rectum posteriorly, and by similar tissue extending from the lower portion of the parametrium to the bottom of the pelvis. Whatever is done, the peri-ureteral arterial plexus must be guarded; otherwise there is liability of ureteral necrosis; and also, if possible, the ureteral sheath should be preserved, as it protects the ureter and its blood vessels, as has been explained.

(a) If the growth has apparently extended out to or beyond the ureters, and especially if there is any evidence of compression of the ureters by the growth, they should be cut off just within the parametrium and also at their entrance into the bladder.

(b) On the other hand, if the ureters are apparently free, it is probably best not to resect them, for an implanted ureter will not protect the patient from an ascending renal infection as well as one with a natural orifice, and we must realize that a most important accessory factor in the causation of ascending renal infection is a diseased ureteral orifice, and especially a strictured one. Unfortunately, a post-operative cystitis seems inevitable in these cases, and while the severity of this may apparently be lessened by making a vesicovaginal fistula, nevertheless the excision of the lower ends of the ureters in every case needs further clinical support. The following procedure seems best: Beginning at the entrance of the ureter into the parametrium,

an incision is made through the lateral wall of the sheath for its entire length, and the ureter is very carefully shelled out, taking care not to injure its peri-ureteral arterial plexus. In doing this one realizes the importance of having ligated the vaginal veins as has been described.

12. After having disposed of the ureters either by having resected their lower ends or else shelled them out of their sheath and gently drawn them to one side, the cervix must be freed all around posteriorly and laterally down to the vagina. This is difficult for there are always troublesome vessels here, the loss of control of which may give rise to very serious bleeding. This is the only place in the operation where I think the cauterizing clamp can be used with advantage, and I have tried it here, but prefer clamping with long artery clamps and cutting between, and then ligating with catgut, or else passing the catgut sutures first, with a large curved needle, well out toward the pelvic wall, and after tying, cutting internally to the ligature.

13. A wide excision of the upper portion of the vagina is very essential in these operations. On the other hand, I think that there are disadvantages in removing large portions of uninvolved vagina, for the bladder will lose the support afforded by the anterior vaginal wall. In order to determine how much of the vagina should be removed, I have found very serviceable the end of a spool which has been covered with gauze and grasped by a heavy pair of Jacobs' forceps. If this is inserted in the vagina, by palpation one can easily feel the rim of the spool and so determine how much of the vagina should be removed.

14. After dissecting the vagina free down to a point determined by palpating the end of the spool in the vagina, the vagina is first wiped dry from below, and then clamped with two right-angle clamps and burned across between the two clamps with a Paquelin cautery. The specimen, the vaginal end of which is closed by the upper right-angle clamp, is removed through the abdominal incision. The lower clamp is now released and the anterior and posterior vaginal walls are grasped with forceps, and a piece of gauze is forced through the vagina from above in order to remove all traces of necrotic material which may not have been removed when the vagina was wiped out before clamping and burning across it.

15. The ureterovesical implantation: The bladder should first be freed laterally and anteriorly so that the ureter may reach the bladder with as little tension as possible. The ureter in the lower peritoneal flap should be drawn down to the bladder. The opening into the bladder may be made in various ways. A long pair of forceps may be introduced into the bladder through the urethra and the bladder wall pushed out in a portion of the bladder as near the original ureteral orifices as possible, but at the same time in a portion of the bladder which has a good blood supply and which the ureter can reach without tension. An incision about 1 cm. long should be made in the bladder and the forceps pushed through. The end of the ureter may be split open for a distance of from 3 to 5 mm. and after freeing it from its sheath for 1.5 to 2 cm. it is grasped by the forceps and drawn into the bladder. Another way of drawing the ureter into the bladder is to grasp the bladder wall with two thumb forceps, at the place chosen, as stated above, in which the ureter is to be implanted. Now incise the bladder between the forceps, making an incision from 1 to 1.8 or 2 cm. long. The split ureter may now be drawn into the bladder by a suture armed with two

needles which is first passed through the end of the ureter and then into the bladder opening and out through the bladder wall, about 1 to 1.8 cm. beyond the incision. After having drawn the ureter into the bladder (by forceps or by the suture), the bladder wall should be sutured with mattress sutures of fine silk to the ureteral wall, the sutures including only the muscular coats of the bladder and ureter. Usually 2 or 3 sutures will be sufficient, taking care not to compress the ureter. If possible, have the ureter pass through the bladder wall in an oblique direction. Care should be taken that the ureter will not be kinked when the ureter and bladder are in the position they will assume at the close of the operation, and that the ureter is not compressed by the sutures, causing a stricture.

The most important feature of the implantation is that the ureteral sheath and peritoneal flap are now sutured to the bladder wall. This relieves to a great extent the tension of the implantation and the ureteral sheath is preserved and the blood supply of the ureter protected. If possible, fix the site of the implantation by suturing the bladder at this place to the side of the pelvis.

I have made 14 ureterovesical implantations in women for various causes, and 25 in dogs, and have tried the method previously reported by me,¹⁷ and also the Budinger¹⁸-Witzel¹⁹ implantation, but think that, while both of the latter have their advantages, the one described above will be the most successful in the greatest number of cases.

16. The vesico-uterine peritoneal fold should be sutured to the anterior vaginal wall and the recto-uterine fold to the posterior vaginal wall. A small gauze drain is now placed in each side of the pelvis and out through the vagina, taking care that they do not come in contact with the ureters. All raw areas are now covered with peritoneum.

I have done 15 of these more radical operations, resecting the trigonum of the bladder and reimplanting both ureters in one, resecting and reimplanting the lower ends of both ureters in another, and resecting the lower end of one ureter and reimplanting in the bladder in two cases. Three of the 15 cases have died, one on the fifth day from intestinal obstruction, and two from ascending renal infection, one dying on the ninth day and the other on the seventeenth. In the two cases dying from renal infection the ureters were resected in one but not in the other. Ureteral necrosis occurred in one case in which the ureters had been dissected free.

The post-operative treatment of these cases is most important, and especially so is the care of the bladder. Post-operative cystitis seems almost inevitable. It seems best that the patients should be catheterized every three hours with a two-way catheter and the bladder irrigated with salt solution after the catheterization. Urine cultures should be taken frequently and cystoscopic examinations made, and, if a severe cystitis develops, I think that the best treatment is to make a vesicovaginal fistula. This may be done without an anesthetic and closed without one.

It must be borne in mind that the object of the surgeon should be to cure as large a percentage as possible

17. Sampson: The Importance of a More Radical Operation in Carcinoma Cervicis Uteri, as Suggested by Pathologic Findings in the Parametrium. *Johns Hopkins Hospital Bulletin*, 1902, vol. XIII, pp. 299-307.

18. Budinger: Beitrag zur Chirurgie des Ureters. *Archiv f. Chirurgie*, 1894, vol. XLVIII, pp. 639-652.

19. Witzel: Extraperitoneale Ureterocystostomie mit Schrägkanalbildung. *Cent. f. Gyn.*, 1896, vol. XX, pp. 289-293.

of all cases coming under his care. It is evident that the more radical operations extend the operability of cancer of the uterus, and possibly cases may be cured which previously would have been considered inoperable. On the other hand, we must not forget that the primary mortality is higher, and this must be taken into consideration in estimating the percentage of cures. The first demand is a wide excision of the primary growth and the removal of the pelvic lymph nodes is of secondary consideration, for they are probably not involved in over 50 per cent. of the operable cases, and in those cases in which they are involved we can not hope to remove all the involved lymph nodes in every instance.

For the above reasons we must consider two distinct classes of operable cases:

1. Patients where the uterus is freely movable and the growth apparently early.

2. Those in which the growth is apparently extensive and its removal difficult, the so-called "border-line cases."

In the first class of cases the patients are usually in good condition and the operation relatively easy. In these cases we should try to do as thorough an operation as possible. The lymphatics should be removed from the sides of the pelvis, the ureters freed and all tissue lateral to the cervix removed. We are thus able to improve the chances of a cure, and also, the patient being in excellent condition and the parts freely movable, the operation can be quickly accomplished, and with a low primary mortality.

In the second class of cases the patients are apt to be in poor condition and the extensive growth makes the operation very difficult. If the operation is indicated, the first demand is the removal of the primary growth. The removal of the lymphatics should be a secondary consideration and should be reserved for the last, and only removed if the condition of the patient warrants it, for we should expect them involved in only about from 50 to 60 per cent. of these cases. In these cases the operation is difficult and the primary mortality necessarily high, especially as the patients are apt to be in poor condition and unable to stand a severe operation. It seems that unless all can be removed, nothing should be tried, for severe operations are not justifiable for gaining very uncertain and temporary palliative results.

These are the cases in which excisions of the lower ends of the ureters and portions of the bladder are justifiable if indicated. By so doing I believe that we may hope to cure some of these cases, for the parametrium apparently is able to temporarily check the further advance of the disease, and by a wide excision of the entire growth we should expect to cure these cases, unless the disease has metastasized to parts which can not be removed.

CONCLUSIONS.

1. The invasion of carcinoma cervicis uteri into the surrounding tissue manifests itself clinically:

First, in the large per cent. of the cases (over 60 per cent. of the cases admitted to this hospital) in which the disease is not diagnosed until after it has extended beyond operative treatment.

Secondly, in the still larger per cent. of the cases (over 75 per cent. of the cases operated on in this hospital after a period of five years or more) in which the growth returns after the removal of the uterus for this disease, showing that at the time of the operation the cancer had already extended beyond the uterus, and on this account hysterectomy alone seldom cures this disease.

2. A careful study of the specimens removed by the

more radical operations (that is, where an attempt has been made to remove the lymphatics from the sides of the pelvis, and with them the uterus and growth, with all the tissue from pelvic wall to pelvic wall) has shown that in 12 out of 15 of the so-called "operable cases" the growth had extended beyond the uterus at the time of the operation, demonstrating that, at least in these 12 cases, hysterectomy alone would not have removed the entire diseased condition. In seven of these cases there was a direct extension of the disease from the cervix. There were metastases to the parametrial lymph nodes in four cases, while an apparent metastasis to a parametrial lymph space (at some distance from the cervix) was found in only one case. In 12 cases in which the pelvic lymph nodes have been studied, cancer has been found in 6. Further investigations of the same cases may show an even greater number in which the growth is not limited to the cervix. The study of these cases has shown that there is no relation between the size of a primary growth and the presence or absence of lymphatic involvement, and that only by the use of the microscope can we make a positive diagnosis of the presence or absence of metastases in the parametrium or pelvic lymphatics.

3. A study of the relation between the cervix and the neighboring parts shows that this is altered by the position of the uterus in the pelvis, i. e., whether in anteposition or retrorposition, high in the pelvis or in *descensus*, and especially the left and right lateral positions of the uterus. The position of the uterus in the pelvis must be considered a factor in determining what parts may first be involved in the extension of the disease.

4. The relation between carcinoma cervicis uteri and the ureters manifests itself clinically:

First, in renal insufficiency resulting from a compression of the ureters by the growth.

Second, in the frequency of accidental injury to the ureters occurring during operation for the removal of the growth, there having been in the Johns Hopkins Hospital 19 cases of accidental injury to the ureter in 156 hysterectomies for carcinoma of the cervix, as compared with only 11 similar injuries in 4,513 other major gynecologic operations, Jan. 1, 1904.

5. The anatomic relation between the ureters and the cervix shows that this relation is altered by the position of the uterus in the pelvis, and that the lower end of the cervix is very near the ureters, and that this distance may be less than 5 mm., especially in the lateral displacements of the cervix: so that it would take but very little extension of the growth either by direct invasion or by metastases for it to reach or extend beyond the ureters.

6. A study of the specimens removed in the more radical operations demonstrates the frequency of the involvement of the parametrium by a direct extension of the growth (in 7 out of 15 operable cases), and also by metastases, especially to the parametrial lymph nodes (in 4 out of 15 operable cases, and in 3 of the 4 cases the parametrial lymph nodes were involved without there being a direct extension of the growth into the parametrium), and for these reasons the ureters pass through tissue which should be removed.

7. Anatomic, experimental and clinical studies show that, while many liberties may be taken with the lower ends of the ureters, their blood supply must be preserved, otherwise necrosis will occur; and that the most important etiologic factor in the causation of ureteral necrosis is injury to the periureteral arterial plexus from

roughly handling the outer-perimuscular fibrous coat of the ureter, in which these blood vessels are imbedded. Other factors are also important in the causation of ureteral necrosis and should be guarded against, as exudates, especially if infected, gauze against the ureter, necrosis of the surrounding tissues, and general lowered resistance of the patient.

8. The relation between carcinoma cervicis uteri and the bladder manifests itself clinically:

First, the bladder wall may become involved in the anterior extension of the disease, and with the necrosis of the cancerous tissue a vesicovaginal fistula is formed.

Second, in the frequency of accidental injuries to the bladder in the operative treatment of this disease, there having been 17 such injuries in 156 hysterectomies for carcinoma cervicis uteri in the Johns Hopkins Hospital.

Third, in the frequency of cystitis following these more radical operations, suggesting that the operation must be considered an accessory etiologic factor in its origin. Cystitis has occurred in 12 out of 16 cases in which I have followed the bladder conditions after these operations, resulting in ascending renal infection and death in two cases. In 3 of 4 cases in which the bladder apparently escaped an accidental vesicovaginal fistula was present.

9. As a result of the removal of the uterus, with cervix and upper part of the vagina and parametrium on each side, a large area of the bladder loses its natural support, and in addition its blood and nerve supply is injured, so that it is unable to resist infection, and cystitis occurs.

10. The best surgical treatment for infection in any part of the body is incision and free drainage, together with rest of the part diseased, and apparently that is what a vesicovaginal fistula does for these cases.

11. The excision of portions of the bladder adherent to the growth improves the chances of a cure, and the presence of a vesicovaginal fistula apparently lessens the severity of a postoperative cystitis and the dangers of an ascending renal infection.

12. The relation between carcinoma cervicis uteri and the rectum manifests itself clinically in the rectovaginal fistulae resulting from the invasion of the rectum by the growth and by the accidental injuries to the rectum occurring during hysterectomy for the disease.

13. The relation between the cervix and the rectum is altered by the position of the uterus in the pelvis, and the invasion of the rectum by carcinoma cervicis uteri may occur by a direct extension of the growth either through the cul-de-sac, the surfaces of which may become adherent, or the posterior vaginal wall may become involved and the rectum secondarily invaded from the vagina, or in the lateral positions of the uterus the growth may extend across the obliterated cul-de-sac from the parametrium, which lies in front of the rectum, and which may have been invaded by the growth.

14. The relation between carcinoma cervicis uteri and the vagina manifests itself in the direct invasion of the vagina by the primary growth and in the so-called vaginal implantations. A wide excision of an involved vagina is most important; on the other hand, the removal of long portions of uninvolved vagina weakens the bladder and makes the closure of raw areas more difficult.

15. A study of the pelvic lymph nodes shows that they are involved in from 30 to 50 per cent. of the operable cases, and that there is no relation between the size of the primary growth and the presence or absence of metas-

tases to the pelvic lymph nodes. Furthermore, a large node is not necessarily cancerous and a small one may contain cancer. On this account the pelvic lymph nodes should be removed in every instance of the operative treatment of this condition, if the condition of the patient warrants it.

16. The importance of an early diagnosis can not be too strongly emphasized, for by it the operability and percentage of cures are increased and the primary mortality is lowered.

17. Past clinical experience and a study of the specimens removed by the more radical operations has taught us that hysterectomy alone seldom cures this disease, and that the operation which will give the highest percentage of cures is one in which the lymphatics are removed from the sides of the pelvis and *en masse* with them the growth and uterus and all the surrounding tissue from pelvic wall to pelvic wall. What shall be done with the lower ends of the ureters which pass through this tissue which should be removed? If the growth extends out to or involves the ureteral sheath, the lower ends of the ureters should be sacrificed and the renal ends implanted in the bladder, taking care to secure the ureteral sheath and the peritoneal flap on which the ureter with its sheath lies, to the bladder, in order to relieve the tension of the implantation and protect the ureter. If an attempt is made to dissect an adherent ureter free, the cancer is not only apt to return, but ureteral necrosis will probably result. Why not resect the lower ends of the ureters in every instance? Postoperative cystitis seems to be inevitable, and an implanted ureteral orifice is an injured one; and, while suturing the ureteral sheath and peritoneal flap to the bladder, which may be freed, relieves in a measure the tension of the implantation, nevertheless there must be some present on account of the amount of ureter resected, and a ureter implanted into the bladder under tension means a ureteral stricture. Animal experimentation and clinical experience show that an injured ureteral orifice, especially if a stricture is present, is very apt to lead to ascending renal infection in the presence of cystitis.

It would seem that with our present knowledge of the subject the resection of the ureters should be restricted to those cases in which there is apparently evidence of the growth having extended out to or beyond them. If the growth has apparently not invaded the ureteral sheath, then the ureteral sheath may be split open by means of an incision made through its lateral surface and the ureters very carefully shelled out. While there is danger of ureteral necrosis as a result of shelling the ureter from its sheath, if the outer coat of the ureter is handled very carefully this danger is reduced to a minimum, and in time the ureter will form a new sheath from the tissue in which it becomes imbedded.

If the bladder is adherent to the growth, the portion of the bladder adherent should be excised, for the first demand is a wide excision of the primary growth, and a vesicovaginal fistula apparently lessens the severity of cystitis and the dangers of ascending renal infection. After the operation in these cases in which the bladder is intact, frequent catheterizing of the bladder followed by irrigation is indicated, and if cystitis develops the formation of a vesicovaginal fistula apparently offers the best chance for a cure and lessens the danger of renal infection. The vesicovaginal fistula may be made and closed without the use of a local or general anesthetic.

18. Are these operations justifiable? I have done 15, resecting and implanting both ureters in one, resecting

the trigonum of the bladder and reimplanting both ureters in another, resecting and implanting one ureter in two. In the remaining 11 cases the ureters were dissected free and ureteral necrosis occurred in only one. Three have died, one on the fifth day from intestinal obstruction and two from ascending renal infection, one dying on the ninth and the other on the seventeenth day. In these last two cases the ureters were resected in one, but not in the other. So far, I have not lost any from immediate effects of the operation itself. The duration of the operation has varied with the difficulties of obtaining a satisfactory exposure, and also with the extent of the growth, that of the longest being four and a half hours and the shortest two hours and ten minutes. Several of these cases have been in a very critical condition at the close of the operation, emphasizing the narrow margin with which one has to work and the importance of an exact knowledge of the anatomy and pathology of the parts concerned, for any "nutting" will surely result in the loss of life, which is especially true in the so-called "border-line cases." The surgeon who is unwilling to learn thoroughly the retroperitoneal anatomy of the pelvis, and who is not in a position to recognize and meet the vesical and ureteral post-operative complications, should not attempt such an operation. The large percentage of recurrences in the so-called operable cases demands a more radical operation. Clinical experience shows that this operation is possible; but, on the other hand, that it is difficult unless one is thoroughly familiar with the anatomy of the parts concerned, and that the dangers of post-operative complications are great, thus requiring special training and a most careful attention to the details of the operation, which should not be learned entirely on patients.

A study of the specimens removed by these more radical operations shows that the disease has already extended beyond the cervix in a large percentage of the cases (12 out of 15 cases) at the time of operation, thus demonstrating why hysterectomy alone so seldom cures this disease. On the other hand, apparently the lymphatics of the parametrium and of the pelvis are able to arrest temporarily the progress of the disease, and if these are removed with the disease we should expect a cure in many instances in which the disease has extended beyond the uterus. Some claim that when the disease has extended beyond the cervix, either by direct extension or metastasis, that the case is hopeless. If it can be shown in from five and ten years from now that patients are living and free from cancer, in whom there was found to have been an extension of the disease from the cervix (as shown by the microscope) at the time of the operation, then these more radical operations are justifiable. On the other hand, we will never know whether or not they are justifiable unless they are done, and the specimens removed very carefully studied in order to form a basis from which to draw conclusions.

19. The object of the surgeon should be to cure as large a percentage as possible of all cases coming under his care, and, while the more radical operation not only increases the operability of cancer and also the percentage of cures, it is at the same time attended with a higher primary mortality, which is especially true in the so-called "border-line" cases, where the operation is difficult and the patients are usually in poor condition. For these reasons we must consider two distinct classes of operable cases:

(a) Those where the uterus is freely movable and the patient in excellent condition, thus permitting a thor-

operation, which can be quickly and easily accomplished and with a low primary mortality.

(b) The so-called "border-line" cases, where the growth is extensive and the patient is apt to be in poor condition. These patients usually will not stand a very severe operation, and on this account the first demand is a wide excision of the primary growth, and the removal of the pelvic lymphatics should be reserved for the last, and attempted only if the condition of the patient warrants it. The primary mortality will be high in the operative treatment of these cases. Still, we should hope to be able to save a few by a wide excision of the primary growth, even if the lymph nodes are not removed, for they are probably not involved in over 60 per cent. of these cases.

DISCUSSION

ON PAPERS BY DRs. FINDLEY, NOBLE AND SAMPSON.

DR. WILLIAM H. WATHEN, Louisville, Ky., said that a number of years ago a few of our progressive surgeons made a claim for a more radical operation for cancer of the uterus, especially when it had its origin in the cervix and that we found surgeons opening the abdomen and dissecting out the invaded tissues. The operation was prolonged and the immediate results were far more fatal than were those of previous methods. Dr. Wathen at that time took the position that this radical operation was not justifiable, and he has had no reason to recede from that position; nor has he seen statistics that justify a recession. The mortality is greatly increased, especially at the hands of inexperienced operators. It is impossible to dissect out all the infected glands. The larger glands may be dissected out, but what is the use when a large number of infected smaller glands that can not be discovered are left? Secondary invasion is bound to occur. Therefore, in his opinion, the operation mentioned is not justified. He said that we should go as far beyond the area of the cancer as possible, but should not prolong the operation unnecessarily. Furthermore, in these protracted cases, we never know when or how far the glands are invaded. Sometimes they are involved in the early stages, and sometimes not till later. The plan suggested by Dr. Noble would be a very good one if it could be applied in the proximity of the ureters without the danger of injury, which he has reported, for the reason that the method might destroy some of the cancerous tissue that otherwise would be left in the ligature or clamp and cause infection.

DR. JOHN G. CLARK, Philadelphia, said that notwithstanding the more radical means which have been instituted to permanently eradicate cancer, as yet there does not appear to have been a great decrease in the ultimate mortality further than the reduction due to more rigid and early examination and earlier operation. Therefore, hope lies in an early and radical operation. He said that the great merit of Dr. Sampson's work is that it does not rest on mere theory, but is based on the most careful histologic study of metastases to the pelvic lymph glands and their surrounding structures.

From 1894 to 1897, while Dr. Clark was engaged in the perfection of the radical operation described by Riess and himself, he was most enthusiastic as to its possibilities, and believed that if he could succeed in extirpating the pelvic lymph glands he would greatly enhance the curative value of the radical operative measure, but his experience since that time has led him to formulate the working hypothesis that if the glands are found after removal to be the seat of metastatic foci, the prognosis is bad. This opinion is further confirmed by Wertheim's statistics, which demonstrate from his careful study of the extirpated glands that in 33 per cent. of his cases operated on by the radical method, they are not the seat of metastasis. Dr. Clark said that when we consider that at the highest we can not hope for more than 30 per cent. of ultimate cures, he believed that these favorable results occur almost wholly among the 33 per cent. of cases in which there are no metastases. In Dr. Sampson's 15 cases there were three in

which there were no metastases, and while Dr. Sampson's series is not so large as Wertheim's, still the percentage in which there were no metastases is about the same. The work, therefore, of both Sampson and Wertheim, together with Dr. Clark's own practical experience, indicates that our recoveries depend on the absence of metastases.

Dr. Clark approved the extreme caution which Dr. Sampson exercises in advocating its extensive adoption, and said that no man should attempt this performance unless he is thoroughly skilled technically, and has the most accurate anatomic knowledge of the pelvic organs and the surrounding tissues. If it were possible to leave this matter in the hands of Dr. Sampson until he could prove definitely that the most radical measures are to be commended it would be much the wiser plan; but to increase the statistics through which it is only possible to prove its value, it will be necessary for other surgeons to adopt the method. With the electrocautery knife the tissues on both sides of the blade which come in contact with it are thoroughly burned; therefore, the frontier line of invasion is much more nearly destroyed than with the knife or scissors. It would seem, therefore, that the use of the electrocautery in all operations for carcinoma is preferable to any other means of removing the growth.

DR. G. B. MASSEY, Philadelphia, said that no one can be engaged in this work for any time without concluding that cancer is a parasitic disease, although that fact has not yet been proved. The victim of cancer is every moment liable to autoinfection in some other part of the body. It is difficult to transplant a germ from one animal to another, but the metastasis resulting from the uterine discharges of cancer coming in contact with the walls of the vagina and implanting cancer there, teaches that the individual is extremely prone to autoinfection. There is great danger in curetting, cutting and scraping operations, in causing autoinfection. A cancer of the breast invariably remains movable even when the ribs are infected. Remove it with the knife and when it recurs it is no longer movable. The lymph spaces have been opened by the cutting operation, and the germs have spread into the surrounding tissue. He compared this thorough knife operation that has been advocated to a man going to hoe a garden full of weeds that are ready to drop seed, with the result of a rapid growth in the disturbed portion. He emphasized the value of cauterization and said that since the subject was presented at the last session he had demonstrated in one case that cauterization by cataphoresis has the additional advantage of being capable of being given without ether, as the uterine cervix can stand 300 milliamperes. Held there for half an hour it will do considerable cauterization, if the zinc-mercury electrode is not large. If repeated daily it is a means of doing thorough work under the guidance of observation of the patient, with less danger than if done suddenly. In treating cancer of the cervix we are working in an extremely dangerous region. Any method of destroying the disease piecemeal, if it be effectual, would give us the advantage of checking the work as we go along.

DR. A. LAPHORNS SMITH, Montreal, Can., said that for several years he had dissected out the glands of the pelvis, and that so far there has been no practical result. He said that there is a great future for cancer of the uterus if the plan were adopted of operating so early that the pathologist is not sure that the disease is cancer. Since he has adopted this plan he has had better results than when he waited for the pathologist's diagnosis before operating. The time to operate is while the disease is in the precancerous stage. In many cases we know when to expect the development of a cancer, as in the case of a badly lacerated cervix in a woman over 40. In one of these cases he was clinically certain that the disease was cancer, but the pathologists reported month after month that it was not. Finally he operated and then the pathologist had no difficulty in diagnosing the removed specimen as cancer. He said that it is absolutely essential that the general practitioners throughout the country send these cases for operation just as soon as they suspect them to be cancer. By taking these uteri out and fighting about their cancerous na-

ture afterward we save the lives of the patients. The "wait-till-we-are-certain" plan has given 100 per cent. of ultimate deaths; it is time to change it.

DR. F. F. LAWRENCE, Columbus, Ohio, said that a number of years ago, to scrape out and cauterize deeply was not considered good practice. A little later high amputation was resigned in favor of vaginal hysterectomy. About sixteen years ago, in the Ohio State Medical Society, one of the most heated discussions was held on this very question, and in it one of the most distinguished and ablest men and one among the soundest in his pathologic ideas, voiced the opinion that high amputation and cautery was safer, so far as the ultimate result was concerned, than hysterectomy. Dr. Lawrence believes now that Dr. Reamy was right. In his experience for a number of years, early recurrence was the rule after hysterectomy for cancer, especially cancer of the cervix. A few years ago he found but one who had lived four years after the operation for removal of cancer of the uterus. In cases where he followed the teachings of Reamy and Lawson Tait, three or four cases had gone beyond six, seven or eight years. We must have something more than a logical argument because this does not hold in the majority of cases. We must accept those things that give us the results in the living patient for the longest time with the greatest comfort. No matter how much anatomy one knows, the best anatomist can not determine when there is infiltration of the pelvic tissues or whether he has gone beyond the cancerous area. These infiltrated tissues give the greatest trouble, and by deep cauterization the very best results are obtained.

DR. W. H. HUMISTON, Cleveland, Ohio, said that the work Dr. Sampson is doing is the foundation for future observations and results, and gives a very complete method not only for resection of the uterus and the structures of the pelvis, but also for keeping a close clinical history of cases and results. In these lengthy operations a certain number of cases succumb to the anesthetic. Dr. Humiston has found the submammary transfusion of saline solution of value and in all desperate cases he commences the injection at the beginning of the operation and continues it to the end. There is no shock and the patient leaves the table, in nine cases out of ten, in far better condition than before the operation, and the convalescence is undisturbed. He has used this method for two years with great satisfaction. That these cases are not sent to surgeons early by the general practitioner, he thinks is not their fault, as three-fourths of the cases do not present themselves to the physician until they have pain, hemorrhage and odorous discharge; and when these three symptoms are present there is a great spread of the carcinomatous disease and the results will be very bad. When a case has laceration of the cervix and eversion of the os with discharge, it is time to operate. The general practitioner should be thoroughly impressed with this idea of having these operations done immediately, and in that way many cases of cancer of the uterus will be saved.

DR. SWITWIN CHANDLER, Philadelphia, said that it was wise to examine the bladders before and after operation, particularly in the early stages of malignant disease, to learn the cause of the cystitis. Dr. Chandler said he thoroughly believed that it would have been impossible for us to advance to the point which we now occupy had it not been for the valuable assistance of the microscope and our studies in pathology. In many cases of the kind reported by Dr. Findley, it is impossible to tell whether or not the growth is malignant, except by the subsequent history of the case. In one case there was a condition in which even the pathologist thought it was malignant and advised operation, but the patient recovered after simple curettement. He said that there could be no question but that when we are sure and certain an operation should be performed in a case of malignant disease, it should be a radical operation.

DR. K. F. M. SANDBERG, Chicago, said that we look on the chorio-epithelioma a little differently from the way we looked on deciduoma malignum. We thought that these cases devel-

oped only immediately after a pregnancy, taking their origin from the decidual tissue. Now we know that they can develop years after a pregnancy and that they also may develop in the male. He said that we ought to furnish Dr. Findley and other men as much material of this kind as we can. Undoubtedly much of it is going to waste. Uteri are extirpated for cancer that may have been deciduomata. Dr. Sandberg said that the case he operated on was diagnosed as cancer, but the appearance of the tumor on exposing it made him change his diagnosis. It had a peculiar angiomatous appearance and perforated the uterus in four or five places and through the parietal peritoneal covering to the right of the rectum. There also was a tumor in the vagina and both were extirpated with good result. There was no evidence of recurrence four months after operation and the woman was in good health. It is evident that chorio-epithelioma is not so malignant as cancer.

DR. A. GOLDSPOHN, Chicago, said there are two important facts to which we subscribe: First, the extreme desirability of getting these cases at the very earliest possible moment, even, perhaps, running the chance of operating on a case where the microscope might not show the nature of the disease. Second, operating as far away from the disease focus as possible. The second proposition is open to a great deal of difference in procedure, according to the physical condition of the patient, and also as to where the recurrences of the malignant disease have been found to occur most frequently. These recurrences occur very largely in the upper part of the vagina and the connective tissues just above, indicating that the technic of the operation was defective, either in not removing enough of the tissue of the vagina at its insertion in the cervix, or that the carcinomatous elements were vaccinated into the wound at the time of extirpation. In view of the great difference in the mortality of the operation, it is far more important to remove, along with the uterus, a pretty good portion of the adjacent vagina than it is to do a somewhat risky and unwise extirpation of the glands and with it a difficult dissection of the ureters and cutting off of the circulation of the bladder with its evil effects, and a longer narcosis and higher mortality. The upper part of the vagina can be removed easily, and by a thorough procedure it will greatly improve our results.

Dr. Goldspohn said that the cautery clamp is one way of avoiding the danger of vaccination of carcinomatous elements and another is in the technic of removing the uterus. Naturally we should choose the abdominal route in the majority of cases. We should do reasonable work, and as thorough, in removal of glands, as possible, without greatly increasing the danger to the life of the patient. Then tuck the uterus into the still attached vagina and remove it from below by a process of evagination, having closed the pelvis from the abdominal cavity and also the abdominal wound, then removing the uterus easily from below with the adjacent portion of the vagina. By that method there will be the least opportunity of implantation of carcinomatous elements, and the best prospect of thorough work, without a much higher mortality. The forceps are valuable, particularly in vaginal hysterectomy for other reasons. After all cases of vaginal hysterectomy that do not positively demand drainage (as for pus tubes or extensive adhesions) the rule should be to close the abdominal cavity as after every other form of peritoneal section, at least closing the peritoneum and not leaving any drain or foreign body in contact with the peritoneum or intestines, which frequently invites adhesions of intestines, and sometimes leads to intestinal obstruction later on. In order to do this, no forceps should be left within the peritoneum, but the tying off of forceps requires heavy ligatures that are slow to be absorbed. Such infected ligatures sometimes lead to infection and breaking down of the thrombus, and consequently a late hemorrhage from the uterine artery. The electrothermic forceps avoids all this, as well as the difficult ligating high up in the vagina. In five cases he had removed the uterus by means of these forceps without any ligature at all, making it more simple and

making the possibility of closing the abdomen easy, and running practically no danger from infected ligatures.

DR. A. H. CORDIER, Kansas City, Mo., said that a few years ago he was very enthusiastic on removing as much of the tissue surrounding the uterus as possible, because he believed that that method would diminish the frequency of recurrence. After performing many operations, both with the clamp and with the ligatures, and finding that in from 95 to 98 per cent. the disease recurred and proved fatal, he abandoned the idea. Then he took up the use of the Paquelin cautery in advanced cases, where the disease had involved the vaginal wall, and his immediate mortality has been nothing so far as the operative procedure is concerned. These patients are alive as long as five or six years after the primary cauterization. He said that any operation that has a mortality of from 16 to 20 per cent. in the hands of skilled men, is a dangerous procedure. Any operation that requires two to four hours to perform will have a very high mortality, not only from the operation, but the anesthetic as well. We must not only think of the primary mortality, but also of the ultimate death rate, because that tends to discourage patients who could be operated on successfully. All these things must be taken into consideration. An operation that has no primary mortality and that prolongs life as long as can be expected, should be given the preference, hence he has been using the Paquelin cautery in these cases. It goes further into the tissue than ligature, forceps or knife; the heat destroys the diseased structures, producing an aseptic slough, and the wound heals kindly by granulation. The cancerous tissue is removed and the rapidity of recurrence is diminished. Many fail to recognize the importance of keeping down infection. It has much to do with the rapidity of the growth. Following the cauterization, Dr. Cordier said he packs usually packs the cavity with gauze to control any oozing which might occur, and at the end of three or four days he begins the use of carbide of calcium, first drying out the cavity thoroughly, then inserting the calcium and putting a piece of gauze over this. This generates acetylene gas, which has a predilection for cells of low vitality. At the end of 24 to 36 hours the dressing is removed and a solution of potassium permanganate is used. It keeps down the odor, diminishes the discharge, prevents infection, makes the patient comfortable and prolongs life.

DR. J. H. CARSTENS, Detroit, Mich., said that nothing is known about the anatomy of the lymphatics. One work on anatomy states that the lymphatics run one way, and another book says that they run somewhere else, and men who have operated do not know where they run, but pick out a few and remove them. Schauta, of Vienna, has had his assistants make a careful examination of cancer patients who die. He had 60 postmortems and every lymphatic gland was removed carefully from the pelvis, groin, above the promontory of the sacrum and the bifurcation of the aorta, up to the diaphragm. He placed these into four groups. One group comprised those in the pelvis that could be removed by abdominal hysterectomy, and he found that in 13 per cent. of these cases the lymphatics were limited to the pelvis and in 87 not; so that if one removes the lymphatics in the pelvis there are 13 per cent. to which the disease was limited. The question is whether one should operate on 87 per cent. where the lymphatics are elsewhere and can not be reached, simply for the sake of removing them in 13 per cent., and subject patients to such a serious operation. Schauta found lymphatics in the groin with cancer, and he found others in the pelvis absolutely free from cancer, and others over the sacrum and at the bifurcation of the aorta full of cancer; and cases where the second and first stages were free, but glands up near the diaphragm contained cancer cells. Now, what is the use of operating on the lymphatics in the pelvis and around the ureters and aorta when others that can not be reached are involved? Schauta had 160,000 sections made. Every gland was sectioned carefully. He found that the lymphatics did not only contain cancer cells, but the surrounding cellular tissue was full of cancer cells, and this, usually, is not removed. So what is the use of removing the glands? He also found that it is not necessary to remove these glands: that the cancer cells in them usually do no harm be-

cause the glands hold them and do not allow them to travel any further, and eventually they die there and that the recurrence of cancer takes its origin in the surrounding loose connective tissue. Dr. Carstens said that we know very little about cancer after all. If one can not remove a cancer by the vagina, one should leave it alone. Do a radical operation per vagina and do it early. Have every case of lacerated cervix and curettage examined carefully for cancer, and if it is found, that is the time to operate.

DR. A. J. DOWNES, Philadelphia, said that he had used the cautery clamp in 70 cases of cancer. In one the entire vagina had been removed, and in his efforts to get close to the bladder he scorched it and a fistula resulted, but healed within six months. The patient died 18 months afterward, but without any recurrence in the vagina. In another case he encircled the vagina from below, freed the cervix and found that the right broad ligament was very much involved, and the clamp must have got very close to the right ureter for a uretero-vaginal fistula resulted, but it healed nicely. He said that these accidents are not a discredit to the method, and did not argue against its further use, for as Dr. Noble said, in two of the cases one would do a very close vaginal operation and leave more tissue than we did in this case, but even in these very difficult cases it is possible to isolate the ureters. The operation for cancer as Dr. Downes performs it includes cauterization of the cervix. He encircles the cervix, beginning considerably below it, and dissects it out, follows up along vagina, and then opens the abdomen. It is a better operation than just cauterizing the cervix for the reason that we have already cauterized the cervix before we remove the balance of the uterus. He said that a careful dissection and using a sufficient amount of heat before cutting the base of the broad ligament without scorching the ureter, is enough; no dissection could go beyond that.

DR. FRANK CARY, Chicago, said that where there are two cases that come for operation, in one there is much involvement of tissue, as shown macroscopically and microscopically, it is operated on and does not recur for a long time. In another case there is little involvement of tissue, it is operated on and the patient succumbs to an early recurrence. Now is it not possible that in the first case the cellular connective tissue was in excess of the cancer cells, while in the latter case the cells developed excessively while the connective tissue developed very slowly? In his opinion the man with the knife is better able to tell where he is going than the man with the cautery. The only advantage of the cautery that he could see is that it leaves a large scar which, possibly, protects the tissues for a longer time against invasion by the cancer cells.

DR. C. O. THIENHAUS, Milwaukee, Wis., said that in looking over the large amount of literature on this question compiled within the last few years, he had been impressed with two facts: First, the primary mortality of these abdominal operations is much higher than in those cases performed by the vaginal route. Secondly, he failed to see that the ultimate results of the abdominal operations up to this time are better than those of Schuchard, who uses the vaginal route with the aid of what he calls a paravaginal incision. By this incision, extending from the cervix down on the left side of the rectum and anus to the os coccyx, the parametria are brought into such clear view that they can be resected at liberty even up to the pelvic border. His results have been 40 per cent. radically cured after five years, and his statistics are unquestionably reliable. So long, therefore, as the advocates of the abdominal route with extirpation of the glands can not show better results, we are justified, in order to avoid their primary high mortality, in using the vaginal route with the aid of the paravaginal incision. One other fact which has not been pointed out sufficiently has to be taken into consideration, and that is that a differentiation must be made, as well in regard to the histology of the different forms of cancer of the uterus and as in regard to their virulence. (Slow or rapid progress in growth locally and the possibility of early metastasis or metastasis in a very late period.) What shall we do with so-called

inoperable cases, taking it for granted that a case which has transgressed the boundary of the uterus and has formed metastatic growths in the parametrium should be classified as such? Schuchard and others have oftentimes attacked even such cases by radical operative procedures. Very interesting in this respect are recent statistics compiled by Lomer, in which he collected over 130 cases which had been treated by thorough curettement, followed by the use of the thermo-cautery, and which were still living after a period of five years. This shows that even for those cases we are enabled to do something, provided the form of cancer we have to deal with belongs to that class, which tends to grow slowly, and has no tendency to early metastasis.

Dr. J. A. SAMPSON said that this is a new field and there is much yet to be done. Probably none of us will live to see the work finished. Pathologic study and clinical experience show the importance of a more radical operation. Experience will prove whether it is justifiable. If cases are cured which would not have been cured by a less radical operation, then it is justifiable, otherwise not. A study of the parametrium and pelvic lymphatics shows that, apparently, they are able to check temporarily the further advance of the disease, so that if we can remove these with the primary growth we can hope to cure a certain number of cases where the disease has extended beyond the uterus. When long portions of the vagina are excised the bladder is weakened, and also large raw areas arise, which are difficult to close and less likely to resist infection. In regard to implantation and infection by the abdominal route: After the vagina is freed it is carefully wiped out with gauze and clamped with two right angle clamps and then burnt across between the two clamps with a Paquelin cautery, so that the only time that there is any chance for infection is when the cautery passes through the tissue.

Many think that cancer of the cervix is incurable. Out of 66 patients who have survived the operation and whom we have been able to hear from, over 20 per cent. are free from recurrence after five years and more, and in these patients the diagnosis was made not only from the clinical symptoms, but by the microscope as well. When we see patients free from recurrence, eight, ten and eleven years after operation, and in other cases are unable to find any evidence of cancer in the pelvis of patients dying after operation, we feel that cancer can be cured. Dr. Sampson said that in these cases urine cultures and cystoscopic examinations were made in fourteen after operation, and in two other patients, who died, an autopsy was made and the bladders carefully studied. A diagnosis of cystitis can not be made without such examinations because an apparently inflamed bladder may not yield anything on culture and organisms may be present in the bladder without causing cystitis. We have had cases in which an unfavorable prognosis was made at the time of the operation, but they are apparently cured five to ten years afterward, and in other cases we find just the opposite to be true. Some think that the more cellular the growth, the less the resistance of the surrounding tissues, and on this account the more malignant the disease; but this needs further study. He tried Dr. Downes' thermo-cautery, but preferred to operate without it. Future experience may show that the thermo-cautery has a field of usefulness. There is one place in which its use appeals to me, and that is after one has freed the lymphatics and ureters, ligated and cut the ovarian and uterine arteries and utero-sacral ligaments. The uterus is now held in place by the vagina and plexuses of veins, going out from the uterus laterally and posteriorly. The bleeding from the cutting of these veins is always difficult to control. It seems to me that the cautery clamp may be used with advantage in this step of the operation. He tried it in his last case, but it did not work very well. With regard to the post-operative uterine fistula, which close spontaneously, clinical and experimental studies show that usually a uterine stricture follows the above, frequently renal infection, and sometimes the ureter becomes occluded, for even if the ureter of a dog is cut completely across the fistula may close spontaneously, but the ureter becomes occluded and the kidney is thrown out of function.

Dr. CHARLES P. NOBLE said that the suggestion made by Dr. Sampson is a good one. The way to avoid trouble with the clamp is to operate according to his method and finish up the operation with the clamp. Aside from its possible value in sealing the lymphatics and thus preventing implantation during the operation, there is no doubt that the greatest practical value of the clamp is in sealing the numerous veins about the cervico-vaginal regions, thus leaving a dry wound.

Dr. PALMER FINDLEY said that he wished to challenge the statement that the microscope will not make a diagnosis prior to the appearance of clinical symptoms. He believes in the microscope in the early diagnosis of cancer because he has had no small amount of experience. It is not altogether improbable that the man who looks through the microscope may be unskilled in its use and in the interpretation of what he sees. In the hands of a capable man the microscopic diagnosis is perfect and may be relied on much more often than the clinical findings. There is not one symptom or group of symptoms which, in early cases of cancer, will make a diagnosis. Instead of operating on suspicion, I would do an exploratory curettage and excise a portion of the cervix and then make a microscopic diagnosis.

THE DIFFICULTIES AND DANGERS OF ACCOUCHEMENT FORCE.

A SIMPLE, SAFE AND SUCCESSFUL METHOD.*

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That we may reason from a foundation of established basic principles, let us assume that it is generally agreed: 1, That absolute sterilization of the hands from all pathogenic bacteria and spores is impracticable; 2, that the parturient canal is usually free from pathogenic organisms, and that when they are present it is fair to assume that they have been introduced from without; 3, that frequent and prolonged manipulations within the genital canal, and the lacerations and abrasions they produce, vastly increase the dangers of and from infection.

All manual operations for the rapid dilatation of the cervical canal and extraction of the fetus are dangerous, beside being slow and exhausting. The routine use of rubber gloves reduces the risk of infection to a great degree, but they operate somewhat against facility and certainty in the work. Present instrumental methods are also slow and dangerous and demand expensive special instruments, which are often unavailable when most urgently needed.

When the employment of accouchement forcé becomes necessary, it is always for the relief of some serious complication of pregnancy which demands, or at least warrants, the operation and the known risks incident to it. We are confronted with a necessity to make a choice of alternatives, of which the operation, with its attendant dangers, is believed to be the better one.

In making this choice, however, we assume the responsibilities that go with it; and it is incumbent on us to so select and conduct the operative procedure as to reduce the known dangers to the minimum. In the regular course of events these dangers are rupture and laceration of the uterus and vagina, hemorrhage and infection for the mother, and injury and death for the infant.

Immediate success and good ultimate results depend on the simplicity, rapidity and cleanliness of the operation and on the use of the necessary force in exactly the

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best way to avoid injury to the soft parts, hemorrhage, and accidents to the child.

INSTRUMENTS.

It is not the purpose of this paper to consider further the well-known manual methods of accouchement forcé, the advantages, disadvantages and limitations of which are familiar to all.

With regard to instrumental methods with various hydrostatic bags, branched metallic dilators, and graduated bougies, I believe it will be conceded that they are slow, cumbersome and unsatisfactory.

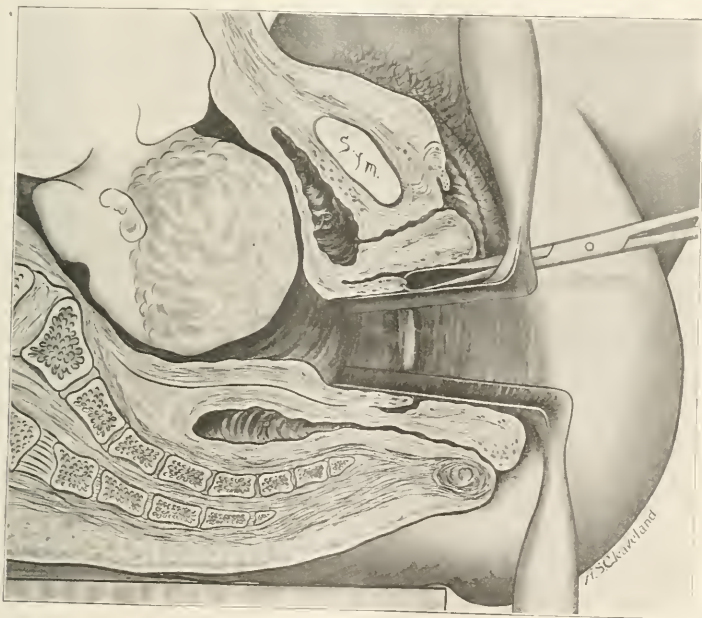
The huge, many-branched dilators, like that of Bossi, are expensive, unwieldy and seldom at hand when most needed. Monstrous instruments of this type are, furthermore, offensive to the artistic sense of the skilled surgeon, who associates them in his mind with veterinary practice. It is also unquestionably true that it is not

literated, packing with gauze or the use of the hydrostatic bag or some metallic branched dilator of the type of Goodell, Wathen or Starling may be demanded.

When, however, the internal os is dilated or dilatable, and the vaginal portion of the cervix is ready to yield to force such as may be safely and appropriately applied, we have in our armamentarium for this purpose one of the oldest and best instruments known to the gynecologist and obstetrician; one that will apply this force better and more efficiently than any other, an instrument bearing the name of a pioneer of modern gynecology, whom we all delight to honor. I refer to J. Marion Sims and his duck bill speculum.

TECHNIC.

The method I submit for your consideration, subsequent trial, and, I trust, approval, may not be universally applicable; but I am very sure it will be found



easy to estimate the force employed with them, nor are they so perfectly under the control of the operator as they should be.

Such appliances are too suggestive of the crowbar and jackscrew to have a permanent place in modern American gynecologic surgery. It is easy to predict that they will soon find repose in some remote corner where already rest the trephine perforator, the cranioclast and cephalotribe, and to which more recently has been consigned the ceraseur, Tuffier's angiotribe, the 10 and 12 inch hemostatic clamps, and various big vulsellum forceps of horse power hayfork design. American gynecology and obstetrics have passed beyond the stage when such huge instruments are necessary or even tolerable, and the resourceful and dexterous surgeon does not need to employ them. Others should not.

Instruments are necessary in making rapid dilatation of the cervix for immediate delivery; and when the supravaginal portion of the cervix has not been ob-

adaptable to a large proportion of the cases in which accouchement forcé is necessary.

In case the supravaginal cervix has not dilated and the external os is still rigid, it will be necessary to employ some instrument as a pilot for the Sims speculum used as a dilator. For this purpose, if time and the nature of the case permit, the gauze packing or hydrostatic bag is preferred; but if not, the Wathen or Starling type of metallic dilators is better.

The cervix being dilated to the diameter of the smallest Sims speculum or retractor available, the farther dilatation is readily, safely and rapidly completed with these instruments. For this operation the patient is fully anesthetized and drawn well down over the edge of the table, in the lithotomy position.

I employ Sims' specula of varying widths and lengths, with flat, shallow blades, the smallest a half inch and the largest two inches broad, and from three to four inches in length. With the exception of the narrowest

one, they are regular stock instruments. Sometimes I have employed for the upper lip of the cervix a long, narrow Eastman or Jackson retractor. Two stout double tenaculum forceps that will not lacerate and tear out of the cervical tissue are also necessary.

The *modus operandi* is as follows: The cervix is caught on either side in its upper outer quadrant with the tenaculum forceps, which are then handed to an assistant. The narrow speculum or retractor, as the case may be, is then slipped into the cervical canal between the tenaculum forceps, and with it the anterior lip of the cervix is drawn forward and upward under the symphysis pubis and held there by a second assistant. Now a Sims speculum with the broadest blade that can be introduced is crowded into the cervical canal, and with it the posterior lip of the cervix is drawn steadily downward and backward, the anterior lip being held forward and upward. Then the operator, grasping the lower end and shaft of the posterior speculum with both hands, presses firmly and steadily downward and backward and rocks the instrument from side to side. In this way he gently but surely and quickly irons out, dilates and paralyzes the cervix under the guidance of his hand and eye, and uses as much or as little force as may be actually required. He need not lacerate or damage the tissues if he proceeds with ordinary care; and in case he should do so he at once knows the extent of the injury.

After both specula are well placed inside the cervix the point of the blade of the upper one should be raised and the point of the lower one depressed to prevent them from slipping out, and the tenaculum forceps must now be removed. The diverging blades of the specula within the cervix will serve to hold it well down in the pelvis, and the strongly held upper one must allow plenty of room for the lower to be moved from side to side through the cervix and over the perineum, which is undergoing dilatation at the same time.

As dilatation progresses, rock the posterior blade well up on the sides of the cervix and have the position of the anterior blade slightly changed to better oppose the force exerted by the posterior. Thus the force is applied always from the center toward the circumference and at a right angle to the axis of the circular muscular fibers of the cervix, while the rocking motion of the broad blade distributes it to advantage.

If there be much hemorrhage the cervix may be tamponed between the blades, or constant irrigation may be employed during the operation.

Technically the method is ideal, but, as suggested, there may be cases to which it can not be applied during the first stages of dilatation. My obstetric practice is limited, and I have not had opportunities for trying the method fully under all conditions; but in the cases in which it has been employed it has worked admirably, and with such facility, safety and speed as to form a delightful contrast to all former methods.

The plan has to commend it the use of only such instruments as may be found in the armamentarium of every physician, uncomplicated instruments, too, and capable of absolute sterilization by boiling. Best of all, they are instruments with broad, smooth bearings for contact with the tissues, which are consequently not exposed to lacerations and abrasions through their use.

During one week of September last it was my fortune to have at the Denver Maternity and Woman's Hospital two very similar cases on which the method was used, one proving so easy and satisfactory as to be astonishing in the facility with which results were attained, and the

other presenting difficulties from a rigid and undilated supravaginal cervix and internal os, which served to demonstrate the value of the method under adverse circumstances. Permit me to quote these cases as examples.

Both were multipara. Each of them was found to have her urine loaded with albumin, and the quantity for twenty-four hours was reduced to a very few ounces. The urine of each was highly colored, of high specific gravity, and hyaline and granular casts and renal epithelium were abundant. Partial blindness and other pronounced symptoms of profound toxemia were present in both, though neither had had convulsions. Ophthalmoscopic examination showed well developed albuminuric retinitis, with small hemorrhages in one eye of each patient, and vision was much impaired in both eyes.

The first was at the end of the eighth month of pregnancy, and the second was at eight and one-half months. The fetal hearts were heard to beat strongly and fetal movements were active. No pains or other signs of labor were present, the heads were high in the pelvis and the ora were undilated, just admitting the tip of the index finger. In the first case, however, the supravaginal cervix was obliterated, the cervix was soft and the os dilatable. In the second these conditions did not exist. Immediate delivery by accoucheement forcé was determined on for each and was undertaken by the method here outlined.

The first patient was put under full surgical anesthesia, dilatation made, high forceps applied, and a living child was delivered, the record showing the time of anesthesia to have been but twenty minutes.

The second patient was similarly treated, but owing to the unobliterated supravaginal cervix and rigid external os much difficulty was encountered in the preliminary dilatation. When, however, the retractor and Sims' speculum could be introduced the hard cervix yielded readily to the ironing process and was rapidly dilated and paralyzed. High forceps were then used and a living child extracted. Time of anesthesia, one hour.

Both mothers made good recoveries. The child of the second died of uremic toxemia in thirty-six hours, the other being alive and well at this writing. Vision was restored to both women after the lapse of time, but is still somewhat impaired in the worse eye in each instance.

You must take these cases for what they are worth, but I believe that you will grant that, for their kind, they yielded to the peculiar treatment employed with rather more facility and rapidity than could have been hoped for from any other known method. The results, at least, were beyond criticism.

This method has not been sufficiently tried. I submit it for your consideration and use, and for such alterations and improvements as may suggest themselves to you.

Let me beg, merely, that the simple instruments employed be not evolved into one of those gynecologic engines with which our art has been peculiarly cursed.

If I were permitted to take any credit to myself in the formulation and presentation of this subject, it would be for having spared you the infliction of a huge new device to bear my name to the peaceful oblivion of your instrumental scrap heap.

DISCUSSION.

DR. J. H. CARSTENS, Detroit.—The question of accoucheement forcé is an important one. If a woman has albuminuria and has no convulsions, but there is a probability of convulsions

setting in later on, there is no need of accouchement forcé. That is an ordinary case in which you can bring on labor by introducing the catheter without the exhibition of force, delivering the woman slowly and deliberately in the course of ten or twelve hours. In such a case there is no need to use the Sims retractor, or the Bossi instrument, or anything else of that kind. If you have a case of placenta previa so far advanced in labor that you can introduce a Sims speculum, that woman will die; she would die before you got the os dilated sufficiently to introduce forceps and deliver the head. The use of such a method is a perfect absurdity, especially when the os is dilated so that you can introduce a finger, grasp a foot and pull it down. We should not let this paper go out as being the right thing to do in placenta previa. If the woman has convulsions then you must deliver quickly, unless the convulsion is slight, when the woman recovers from it in a few minutes. Then use the catheter and take your time. But if the convulsions are profound, deliver quickly or she will die. Do not depend on the Sims speculum or the use of any other instrument to dilate the os. Deliver in five minutes, and the only thing to do is vaginal cesarean section, a rapid, simple, yet efficient operation without any disastrous after-effects. In five minutes more you can repair the damage done to the uterus. Anybody can do it in fifteen minutes. That is the kind of accouchement forcé to do.

DR. RUDOLPH W. HOLMES, Chicago—Unfortunately, we have not as yet an ideal instrument for dilating the os in late pregnancy and labor. An instrument which will satisfy all conditions would be received gladly. The instrumental method advocated by Dr. Wetherill requires three conditions: First, there must be a material dilatation of the os. As a rule, in those cases demanding rapid dilatation, the os is closed. Second, the head must be high up. If the woman is a primipara at term, this condition ordinarily is not present; in multiparæ it usually exists. Third, the cervix must be so lax that it can be pulled down; if the cervix is high up and can not be pulled down, the ordinary Sims specula are not long enough to reach within the internal os. Furthermore, even if the Sims specula were in place, and vulsella held the cervix, there would be great danger of pulling out the vulsella, thereby producing lacerations of the cervix. For the general practitioner there must be a contrivance which is cheap and which all may possess; this, one may say, is a practical impossibility. The hand is always available, and at the present time is the least dangerous if properly used, method of dilating the parturient os. Of course we all know there is not any method used in dilating, even the hand, which has not its disadvantages and dangers, but with all the shortcomings, the methods of Harris and Edgar-Bonnaire are the most preferable. A competent assistant may relieve the operator whenever his hands become tired, thus permitting him to become rested before the delivery occurs. In placenta previa this method will be particularly contraindicated, because the tips of the specula will surely separate the placenta and cause an increased hemorrhage. I believe rapid, bloody dilatation of the os is contraindicated in placenta previa. Dr. Carstens is not exactly in the right position, for there are times when a woman is in such a precarious condition that it becomes necessary to deliver rapidly, and in such cases rapid means of dilatation are of inestimable value. I object to the strictures against craniotomy instruments. There always will be use for these instruments. I consider it exceedingly unscientific and little short of malpractice for a doctor to make prolonged and unduly forcible tractions in a vain attempt to deliver a dead baby intact, producing grave lacerations in the mother; or, as too often happens, finally delivering a much mutilated head. A scientific craniotomy is less horrible and offers less liability of producing maternal injuries.

DR. C. S. BACON, Chicago—There is need of methods for dilating the cervix in conditions other than eclampsia, but that, of course, is the chief indication for removing the child. The vaginal cesarean section, as advocated by Dr. Carstens, undoubtedly is preferable to any method of rapid dilatation of the cervix, provided you have the facilities for doing the opera-

tion. In the majority of cases these facilities are not at hand, hence arises the necessity for rapid dilatation to be followed by removal of the child, in certain cases. The question is whether the method proposed by Dr. Wetherill is better than the method that we now chiefly employ, manual dilatation. The instrument of Bossi has never been in favor in this country, and is now losing favor in Europe on account of the tears made by it. The method of manual dilatation as described by Harris and Edgar in this country, and Bonnaire in France, unquestionably is the best at the present time. Now, is Dr. Wetherill's method better than manual dilatation? One would suppose that there was risk of injury to the tissues by grasping the cervix with a tenaculum forceps and pulling it up against the symphysis, followed by pressure made with the speculum from behind. That danger would not be present in the use of the hand. Now, is it any cleaner? The hand may be made clean, if one has the time, or gloves may be worn. The greatest danger is the introduction of contamination from outside, and that is the chief danger of the Edgar method. But the same danger applies here; the manipulation with the speculum posteriorly must be involved with considerable contamination from the anal region. That is where the chief danger lies, and it is quite as great in the Edgar method, and much more dangerous than the use of the one hand, the method of Harris. So that I doubt that this method possesses any real advantage over the others.

DR. CHARLES J. HASTINGS, Toronto, Canada—We are not quite so fond of instruments in Canada as they are in some other places. I feel that there is no other method to compare with digital dilatation, as suggested by Harris with gloved hands, for the safety of the mother; and the means by which it is accomplished is always at hand. In my opinion the only condition demanding "accouchement forcé" is severe concealed accidental hemorrhage, in which case the uterus must be emptied as rapidly as possible or we will lose our patient. With regard to eclampsia, I can not agree with Dr. Carstens as to rapid emptying of the uterus, even in the eclamptic seizure. I prefer to control the convulsions with morphin and chloroform and when the patient is under the influence of these drugs, empty the uterus. Operative interference before this is done only intensifies the seizure. In placenta previa, in my opinion, accouchement forcé is positively contraindicated. How very easily we could produce a fatal issue from an uncontrollable hemorrhage by producing even a slight laceration, owing to the changed condition of the parts, the enormously enlarged vessels at the placental site. While some of the more rapid methods of dilatation may possibly diminish the infant mortality yet, for the aforesaid reasons, I should be afraid to adopt them.

DR. HENRY D. FRY, Washington, D. C.—Two weeks ago, in Boston, at the meeting of the American Gynecological Society, Dr. Harris presented an instrument for rapid dilatation of the cervix. I mention this merely to show that Dr. Harris, whose method of manual dilatation is so popular, has seen fit to get up this ingenious instrument to take the place of his manual method. We all have in mind only one single method, to the exclusion of all others. That is wrong. We should not attempt to use one method in all cases. In dilatation, the most difficult part is to start it, and here the difference is great between multipara and primipara. Dr. Wetherill's cases were multiparæ, and, as a rule, the multiparous cervix is dilated easily, either manually or instrumentally. I believe that there are some cases of multiparæ in which this is an efficient and simple method, far better than the use of any instrument. In primiparæ the hard part is starting dilatation, and here Dr. Wetherill's instruments would not be of much use to us. I agree with what has been said in regard to not using any of these methods for dilatation in placenta previa. The mortality of that condition has been brought down so far by bipolar version, that it would be retrogression to go back to any of the older methods. The maternal mortality will be higher, although we may save more children. Each method is applicable to certain cases, but in the majority of cases I prefer to use the manual dilatation.

DR. H. G. WETHERILL—It is not possible to listen to a paper of this kind without having some misapprehension as to the exact field it proposes to cover. That has occurred, apparently, in the mind of almost every one who has discussed this one. Dr. Carstens seems to have lost sight of the fact altogether that the two cases reported were operated on for retinal hemorrhages and albuminuric retinitis, which are accepted as a justification for immediate delivery by every obstetric authority. In regard to the degree of dilatation that is necessary: The ordinary Bossi instrument measures $1\frac{1}{2}$ inch across the end which is introduced, and it is circular, so that its circumference is something more than three inches. If, then, it is possible to use the Bossi dilator in any case, it is also possible to use the Sims specula, as I have advocated their use on this occasion. As to the hand: We all acknowledge that absolute sterilization of the hand is impossible, and that there is always a residuum of infection that goes with the hand into the vagina and which the tissues and secretions must take care of. We know how impossible it is to cleanse the hands and keep them clean throughout an entire obstetric operation, notwithstanding the fact that these cases often are seen in the hospital, under the most favorable circumstances, so that the hand always carries with it a certain danger, which is not carried by smooth, polished instruments. Dr. Bacon also had a misapprehension in regard to a very specific direction given in the paper. I did not say that a vulsellum forceps should be used to grasp the anterior lip. I said that the upper outer quadrants of the cervix should be grasped with forceps and drawn down until the specula could be introduced, and then the forceps be taken off, thus avoiding the possibility of a laceration of the cervix. It is very easy to listen to a paper of this kind, which presents only simple methods, and offer theoretical objections. I say simply this: Here is a method which has served me admirably: it may serve some of you a good turn at some time, and I am glad to suggest it to you, so that if opportunity occurs you may try it. It must be remembered that the obstetric and gynecologic specialist is not the only person to be considered. General practitioners often require methods which Dr. Carstens or Dr. Bacon might not think of using, and while this method may not appeal to Dr. Carstens, it may find a field of usefulness in the hands of some other practitioner, who may save a life with it. Perhaps I may be permitted to remind the Section that Dr. Oliver Wendell Holmes once wrote an essay on the congeniousness of puerperal fever. The rather conservative body of medical men whom we now represent were a generation in grasping and accepting the opinions which Dr. Holmes promulgated in 1844. It was more than fifty years before his views were practically applied. That is a sufficient commentary on your tendency to criticize severely certain things, while, on the other hand, you grasp at others, principally operative measures, with great avidity.

ANEURISM OF THE INNOMINATE ARTERY.*

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My interest in aneurism of the innominate artery was stimulated by a case which came under my observation in the medical dispensary of the University Hospital in December, 1901. After studying the symptoms and physical signs of this case for several months, I presented the patient before the medical society of the University of Pennsylvania, and my diagnosis was very generally concurred in.

It must be admitted, however, that "experience is fallacious and judgment difficult," and that in the last

analysis we must go to the post-mortem room for confirmation of such diagnoses. I, therefore, proceeded with the study of my subject there, and was able to collect eight cases.¹ In but one instance in this series, and in that case only tentatively, had the correct diagnosis been made, and the question naturally presented itself as to whether there existed in these cases such clinical obscurity as to warrant this apparent difficulty in diagnosis.

Proceeding, therefore, further in my study with the idea of at least satisfying myself on this point, I had recourse to the literature of the subject; and after collecting and analyzing in all 147 cases of these interesting morbid growths, where, in many instances, the correct diagnosis had been made clinically, a more definite clinical picture formulated itself which I have the honor to present herewith.

ANATOMY.

Before taking up the subject proper of this paper it will, perhaps, be well to review briefly the anatomic features involved. The accompanying chart (Fig. 1) shows well the relation of the arch and its great vessels to the chest wall. It will be seen that the arch² of the aorta begins from the upper part of the left ventricle opposite the lower border of the third costal cartilage, behind the left half of the sternum, and passes obliquely upward, forward and to the right, in the direction of the heart's axis, as high as the upper border of the second right costal cartilage. This is the ascending portion of the aorta, and is covered by the pericardium. From this point the aorta passes backward and to the left, to the left side of the lower border of the fourth dorsal vertebra. This is the transverse portion or arch and it is from this portion that the innominate artery and the left common carotid and subclavian are given off. The aorta from this point passes downward, lying in close proximity to, and to the left of, the spinal column, to the aortic opening in the diaphragm in front of the last dorsal vertebra (descending portion), where it becomes the abdominal aorta.

The innominate artery, its axis and position being well shown in the chart, is the largest of the three vessels arising from the arch. It arises from the lower portion of the arch, opposite the first intercostal space behind the left half of the sternum in front, or the fourth dorsal vertebra behind. It ascends obliquely to the right sternoclavicular articulation, where it divides into the right common carotid and right subclavian arteries. It varies from one and a half to two inches in length. The axis of this vessel is approximately that of the heart, and follows a line from the middle of the sternum opposite the lower border of the third costal cartilage to the right sternoclavicular articulation.

In front it is separated from the first bone of the sternum by the sternohyoid muscles, the remains of the thymus gland, the left innominate and right inferior thyroid veins which cross its root, and sometimes the inferior cervical cardiac branch of the right pneumogastric. Behind, it lies on the trachea, which it crosses obliquely. On the right side is the right innominate vein, right pneumogastric nerve, and the pleura; and on the left side, the remains of the thymus gland, the origin of the left carotid artery, the left inferior thyroid vein and the trachea.

1. Trans. Phila. Path. Soc., vol. i, p. 42; vol. v, p. 103; vol. vii, June, 1904, p. 190.

2. For a masterful and complete description of the anatomic relation of the aorta and its branches, together with a full account of anomalous conditions, see Kruse's article in Henle's Anatomy, vol. iii, p. 203.

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The innominate artery does not usually give off any branches, but occasionally a small branch, the middle thyroid, is given off from this vessel. It also sometimes gives off a thymic or bronchial branch.

When the bifurcation of the innominate varies from the point above mentioned, it sometimes ascends a considerable distance above the sternal end of the clavicle; less frequently it divides below it. In the former class of cases its length may exceed two inches, and in the latter be reduced to an inch or less. When the aorta branches over to the right side, the innominate is directed to the left side of the neck instead of the right.³

PHYSICAL SIGNS AND SYMPTOMS.

The position of these aneurisms is, perhaps, their most striking clinical feature. Corresponding to the position and axis of the innominate artery, these growths are situated at the root of the neck, more on the right side than on the left, and frequently extending above the right clavicle and suprasternal notch. They point behind the right sternoclavicular articulation, to the inner side of the sternocleidomastoid muscle, often dislocating the sternal end of the clavicle where their pulsation can be distinctly felt. For an aneurism of the aorta to reach so high, it must have attained great size, or else there must be an anomalous position of the arch itself. In either event there is wanting another distinctive sign of aneurism of the innominate, namely, an angle of re-entry on the external and inferior aspect of the growth, in or above the second interspace. This angle of re-entry, to which attention has not been previously called, separates aneurism of the innominate artery from those of the ascending or transverse arch which so frequently point in the second interspace to the right. When the aneurism is so large as to involve the arch itself, this angle of re-entry is not an available sign. It is not common, however, for these growths to attain such size as to involve the arch in their growth, unless they originally spring therefrom. They usually are not larger than a lemon, though they may be as large as an orange and reach to the cricoid cartilage, or even attain still greater dimensions as in a case reported to the Philadelphia Pathological Society by Dr. Robertson,⁴ in which the aneurism was as large as a fetal head.

These aneurisms vary in size from time to time, increasing and diminishing quite remarkably. They nearly always dislocate, to a greater or less extent, the sternal end of the right clavicle, which is elevated by each pulsation of the tumor. They are more superficially placed than aneurisms of the arch, and consequently the evidence of their aneurismal nature is, as a rule, readily demonstrated. They can always be palpated above the right sternoclavicular articulation and in the suprasternal notch. In this latter situation the expansile character of the pulsation, as well as a thrill, diastolic shock and bruit, may be easily appreciated; while often they are accompanied by a marked tracheal tug, being usually adherent to the trachea.

In fully one-half the reported cases the trachea was compressed, producing cough. This may be dry, brassy and frequent, or paroxysmal and associated with hoarseness and aphonia. In a majority of the cases there was a mucopurulent expectoration and sometimes traces of blood.

Dyspnea in nearly all cases is a marked symptom. It is usually for this, or pulsation and pain at the root of the neck, that these patients seek medical advice. The pain complained of may be dull and aching, and confined to the sac itself, or sharp and lancing like an angina pectoris, but referred entirely or almost wholly so to the right side of the neck and shoulder. These patients may be free from pain much of the time, and they frequently have very good days, when the size of the tumor is reduced and the dyspnea and pain have almost disappeared. Again, they may suffer greatly, the pain and dyspnea being made worse by emotion, bodily exertion or temporary ill health.

Edema, particularly affecting the right side of the face and neck, may be a symptom. The right side may be colder than the left, and rarely, numbness and even paralysis in the right arm supervenes from pressure. The right external jugular vein often stands out turgid and prominent, and a slightly darker hue is noted over the right side of the neck from venous stasis.

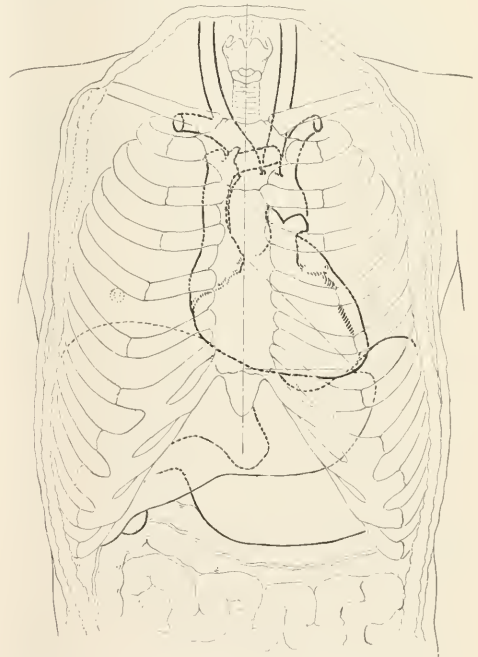


Fig. 1.—Chart showing relation of the arch of the aorta and the great vessels to the chest wall.

Dysphagia is not a frequent nor a marked symptom, having been noted in not more than a quarter of the cases. Curiously enough, as the aneurism increases in size, this symptom, if present at first, is apt to grow less or even disappear, because the tumor in its growth extends upward and outward, pushing the clavicle before it and freeing itself from the resistance offered by the sternum.

Inequality in the radial pulse is usually readily demonstrable, the right being the weaker. Pulsation in the subclavian, axillary, brachial, carotid and temporal arteries on the right is less marked than in the corresponding arteries on the left, or it may be altogether absent. The latter is particularly apt to be the case in

3. The above anatomic description is taken principally from Gray. The chart is original.

4. Trans. Phila. Path. Soc., N. S., vol. ii, p. 269; vol. xviii, p. 220.

the right temporal artery, which seems, in many cases, to be more affected than even the right radial. There may be noted in some cases a lengthened interval between the heart's systole and the stroke of the pulse in the right radial, which is very suggestive; and in my own case I noted a peculiar regurgitant quality in the right pulse at the wrist which was absent in the left. This difference was well shown in a sphygmogram, and was very suggestive. It might possibly be due to the position of the aneurismal sac, which, not being continuously distended with blood, may act in a measure like or be considered analogous to a diminutive heart with incompetent valves. If this quality of the pulse is present in aneurism of the arch, it is apt to be felt in both radials.



Fig. 2.—Philadelphia Hospital case. Aneurism of arch of the aorta.

The auscultatory signs over these aneurisms, except in their higher position, are not distinctive. There may be a systolic murmur of variable intensity transmitted into the vessels on the right side and accompanied by a thrill. More rarely a double murmur is heard, usually associated with disease of the aortic valves.

There are certain respiratory signs, to which I wish to call attention, which have not been heretofore described in this connection. These result briefly from the compression exerted by the aneurism on the apex of the right lung, and consist in an area of impaired resonance with increased tactile fremitus, and diminished or distant breath sounds, immediately adjoining the tumor;

while adjacent to this area of compressed lung is an area of hyper-resonance with diminished tactile fremitus due, no doubt, to vesicular relaxation.

DIFFERENTIAL DIAGNOSIS.

Some of the more striking differences between aneurism of the innominate artery and aneurism of the arch may thus be briefly summarized: In nearly all cases of aneurism of the innominate there is a more or less pronounced external tumor on account of the more superficial position of the growth. The higher position of this tumor in innominate aneurism is significant, reaching into or above the suprasternal notch and behind or above the sternal end of the right clavicle. The latter is usually dislocated and pulsates with each beat of the heart. The larynx or trachea is more apt to be dislocated or compressed in aneurism of the innominate than in aneurism of the arch, but the esophagus is not so often compressed in the former as in the latter condition. Venous congestion, if present, is more apt to be general in aneurism of the arch, while involving the right side in innominate aneurism. The dyspnea is greater and the alterations in voice apt to be more marked in innominate aneurism.

The pain in aneurism of the arch is lower down, over the middle or lower sternum, and transmitted to the left or bilaterally like an angina pectoris. In innominate aneurism it is referred to a region higher up, corresponding to the aneurismal sac, and transmitted to the neck, shoulder and arm on the right side. Edema or impaired sensation, numbness or loss of power confined to the right arm is very suggestive of innominate aneurism. It is more apt to be general in aneurism of the arch. Pressure symptoms from involvement of the right sympathetic or right recurrent laryngeal nerves, while not rarely present in innominate aneurism, are not in themselves distinctive.

Rarely both signs and symptoms are remarkably indefinite, especially where the growth is small, or occasionally when the aneurism springs from the arch, as in a case reported to the London Pathological Society by Christopher Heath,⁵ in which the "inner end of the right clavicle was thrust forward and the interclavicular notch obscured and the aneurism had perforated the sternum close to the sternoclavicular joint." In the belief that it was an aneurism of the innominate artery, the right subclavian and right common carotid were ligated. The aneurism subsequently ruptured and the innominate artery was found healthy; the sac of the aneurism sprang from the ascending arch of the aorta.

When these aneurisms involve the arch, or in those rare instances where both the arch and the subclavian artery is involved,⁶ the clinical picture of uncomplicated innominate aneurism is not presented.

In conclusion, it may be said that a delayed and weakened beat in the right radial, absence of pulsation in the right temporal, a turgid external jugular, in association with paroxysmal attacks of dyspnea and pain at the root of the neck, or referred to the right side, are all very suggestive of innominate aneurism. The two signs to which I would like to call special attention, and which, so far as I am aware, have not been described before in this connection, are the regurgitant quality in the right radial pulse and the angle of re-entry in the second interspace. The presence of these

5. Trans. London Path. Soc., vol. xxi, p. 132; vol. xxv, p. 117.
6. Trans. London Path. Soc., vol. xlii, 80.

in association with the signs of aneurism in the supra-sternal notch and behind the right sternoclavicular articulation are pathognomonic of innominate aneurism.

PROGNOSIS AND TREATMENT.

As a rule, unless relieved by operative measures, these aneurisms sooner or later rupture. A very rare occurrence is spontaneous organization of the clot.⁷

Operative measures are not unattended by danger,

particularly valuable on account of the dangers attending operation *per se*, while later statistics seem to show that it has been attended by recovery and cure in more than three-quarters of the cases.

The operation consists in distal ligation of the right common carotid and subclavian, one or both, either consecutively, if it should prove necessary, or at the same time. This procedure was first suggested orally by Brasdor of Paris, but the operation itself was never performed by him, so that it has come to be associated with the name of Wardrop of London, who performed it in several cases of innominate aneurism.



Fig. 3.—Episcopal Hospital case. Aneurism of the arch of the aorta.



Fig. 4.—Pennsylvania Hospital case. Aneurism of the arch of the aorta.

which has been much reduced since the introduction of asepsis and modern surgical methods. It is always well to try palliative treatment at first, consisting in measures directed to reduce blood pressure and favor coagulability of the blood, aided by distal pressure. The earlier statistics of distal ligation for these growths are not

In uncomplicated cases it has proved highly successful, the sac becoming speedily obliterated by organized clot. When the aneurism is more extensive and involves the arch of the aorta, this operation is not unattended by danger from the extension of the coagulum into the lumen of the aorta, thus blocking off the circulation. This accident happened in a case reported to

7. Trans. London Path. Soc., vol. ix, pp. 95, 167.

the London Pathological Society, death ensuing on the sixth day after the operation.

In regard to the literature, reference must be made to Holland's Monograph⁹ on "Aneurism of the Arteria Innominata," in which he collected a series of 46 cases from a review of the literature to date. Since that time several statistical papers have appeared on the subject, notably that of Wyeth,¹⁰ in 1881, and of Rosenstern,¹¹ in 1886. Winslow¹² followed in 1893 with an extensive paper dealing with the symptomatology of these growths and their operative treatment. He made use of Wyeth's and Rosenstern's statistics, and collected in all 83 cases, 10 of which were included in Holland's paper, which seems to have escaped him.

I found 11 cases in the Transactions of the London Pathological Society, 4 in the Philadelphia Society, 2 in the New York Society, and 2 additional cases referred to by Ashhurst¹³ in his Surgery, and not included in any of the above series. Hirschman¹⁴ of Detroit also reports a case. The above cases, with my own series of 8, make a total of 147 cases.

Except in isolated instances, no attempt was made to review the pathologic and surgical literature in German, French and Italian, as this seemed to little purpose. The collection of a more or less complete list of the reported cases would have been interesting, but not necessary to my purpose of deducing from the clinical notes, the symptoms and physical signs. The above series of cases was already sufficiently large and detailed both for that purpose, and also to give in a general way some idea of the frequency of these aneurisms.¹⁵

NECROSIS OF THE BONES OF THE FACE.*

STEWART L. MCCURDY, M.D.

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PITTSBURG, PA.

Pathologic changes about the tissues of the face resulting in death of bone are most common. It is quite usual for the dentist to remove portions of bone during the management of pyorrhea alveolaris and other suppurative conditions about the teeth. A cardinal symptom suggestive of beginning destruction of bone is swelling that pits on pressure, or what is known as edema. When this is found either on the alveolar process or tibia, a careful study of associated symptoms should be made, since it is on the proper and early management of such cases that the subsequent history depends.

When the existence of a periostitis is fully deter-

mined a free incision should be made down to the bone, for just so soon as the colony of bacteria that is causing the trouble is reached and disconcerted, their activity ceases and repair begins. When, however, myriads of bacteria are permitted to go on and multiply and destroy living cells, destruction is relatively great. The early treatment would appear to be applications of iodine and heat or ice, to be followed by incision in two or three days when no improvement is obtained from these remedies.

Syphilis as an etiologic factor should always be thought of, for in these cases radical operation should never be made, but instead, specific medication should be instituted.

To further emphasize the course of treatment and results in these conditions, a few typical cases are appended:

CASE 1.—H. H., male, aged 30, presented himself with a mouth converted into a pus basin. This putrescent condition had existed for many months. He had had a chancre four years before, but this history had apparently been overlooked, for specific medication had not been administered. An examination revealed a denuded left mandible from symphysis to condyle.

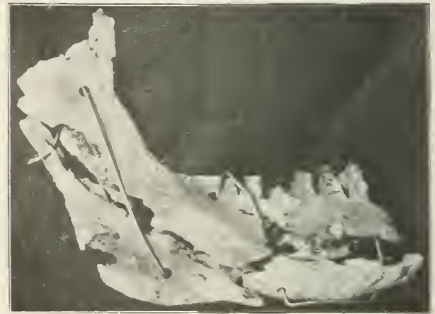


FIG. 1.—Outside of half of bone removed.

Operation.—There was nothing to be done but to operate. The first step required the removal of the entire left body. It was with some difficulty that the tissues were dissected back from the bone so as to permit its removal. Owing to the advanced process of decay the body was broken in three pieces. The angle and ramus were found also to be detached, but were included in the tissues, so that they could not be removed until a dissection was made from the position of the last molar upward, toward the coronoid process. This was done through the mouth with a pair of Cryer upper universal tooth forceps; the ramus was removed without great difficulty, the bone coming away in two fragments. It included the entire body, with the ramus coronoid process, sigmoid notch and the neck of the condyle, the condyle alone remaining on the left side. That portion of the symphysis not included in the specimen had disintegrated and was removed by curettement (Fig. 1).

Results.—Hemorrhage was extensive but this was controlled by packing, which was allowed to remain for forty-eight hours. Careful packing was required for several weeks, so as to keep the remaining half of the bone in as near a normal position as possible until reproduction of new bone has so far advanced as to bridge the chasm from the remaining condyle to the symphysis.

The ultimate result may be seen by studying Figure 2. Articulation between the teeth in the remaining half of the mandible and those in the corresponding maxilla is as near perfect as is possible. The wound itself repaired without incident under specific medication.

8. Trans. London Path. Soc., vol. xix, p. 93.

9. T. S. Holland: Dublin Quarterly Jour. Med. Sc., February and May, 1852.

10. Amer. Jour. Med. Science, January, 1881.

11. Rosenstern: Archives of Klin. Chirurg., 1886, p. 49.

12. Winslow: Annals of Surgery, May, 1891; a series of 83 cases, 10 of which were included in Holland's.

13. Ashhurst: Surgery, sixth edition, 1876; 2 cases of interest.

14. Hirschman: Report of a case.—THE JOURNAL A. M. A., Aug. 16, 1902.

15. Other references which may be consulted are as follows: Wardrop: "Aneurism." Christ: "Diseases and Injuries of Blood Vessels." The inaugural dissertations of M. Klings, 1828; M. Poyers', No. 100, 1839; M. Beisteguis', No. 195, 1841; M. Lesage de La Haye, No. 38, 1848; Sorensen: "On aneurysm in Dictionnaire de Medicine, vol. xxxviii, p. 466." Amer. Jour. Med. Science, July, 1847, 1856. Trans. New York Path. Soc., vol. i, p. 144, 155. M. Roberts: "Sur les Aneurysms de la region sus-claviculaire, 1842." M. Dubreuil: "Observations et Reflexions sur les Aneurysms de la Portion Ascendante et de la Crosse de l'aorte, 1841." Rush: Theoretisch-praktisches Handbuch der chirurgie, vol. ii, 1857.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

This case illustrated that many extensive incisions are made through the tissues of the face for operations on the mandible and bones of the face that could be done through the mouth. Figure 3 shows that no deformity of the face is present either from unnecessary incisions through the face or from loss of bone.



Figure 2.



Figure 3.

CASE 2.—G. W., aged 40, had a history of chancre eight years before the beginning of the present trouble, with an intermission of perfect health. The exciting cause of the present trouble was a suppurative peridontitis.

Operation.—I examined him and decided on an operation on the following day. After carefully dissecting back the flaps

of soft tissue, including the periosteum, requiring incisions in two or three directions, the left maxilla was removed. This included the antrum and lateral nasal wall. Further curettements removed fragments representing practically the entire right bone below the floor of the orbit, making the cavity for merely occupied by the right maxilla continuous with the right nasal cavity and the mouth. The hemorrhage was quite extensive, but was controlled with gauze packing.

Results.—Under specific medication the wound entirely repaired in three months. Packing was necessary all this time.



Figure 4.

and took the place of the roof of the mouth so well that there was little defect of speech; indeed, so little that his family never knew that he had undergone an operation. The operation was done through the mouth. The patient left the hospital on the fourth day. An artificial denture restored the voice perfectly, and, but for the nasal secretions falling into the

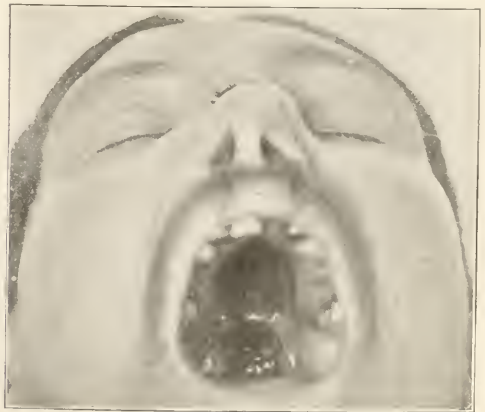


Figure 5.

mouth, he suffers no inconvenience. Medication was continued for one year. Figure 4 shows the case after complete recovery.

CASE 3.—H. M., aged 29, had a chancre eight years ago without usual history and no tertiary symptoms until two years ago, when he had beginning destructive disease of the nasal septum, which gradually extended to the nasal bones and roof of

the mouth. In spite of what it is reasonable to suppose was good treatment, the destruction continued and would, no doubt, have destroyed the entire maxilla had not treatment been faithfully carried out. The destruction ceased and repair of the ulcerative surfaces was complete in one year. The case presented a most extensive destruction. The bones in the roof of the mouth and nasal cavity were so destroyed as to freely expose the base of the skull. The ethmoid cells were destroyed well up to the cribriform plate. At no time, however, were there any cerebral symptoms (Fig. 5). A vulcanite prosthetic appliance attached to a set of teeth enabled the man to talk well.

CASE 4.—A woman, aged 50, had a severe supposed toothache in her left lower third molar. A competent dentist made an examination and decided to extract. This was done, but was not followed by relief from pain. The case came to me three weeks later, the patient suffering most intensely. A thorough examination with a probe showed that the external surface of the mandible from the second molar to the angle, and for a space of a square inch, was completely denuded of periosteum. The disease had also extended over the process to the internal surface of the bone, about half way down. The suffering, while quite severe at all times, was more intense at night. I had treated a so-called tubercular bone disease in another member of this family that made a most satisfactory improvement under systemic medication, so it was concluded that a systemic taint was the principal factor in the case under treatment. After opening up, through the mouth, the entire diseased areas were removed and the portion of the process that was denuded on both sides chilled away; the sinuses were curetted and flushed with pure tincture of iodine and packed. Mixed treatment was pushed vigorously and the wound dressed daily. Some small fragments of bone were removed during the following month. Pain disappeared in about one week after the operation. The wound healed in two months, and there has been no recurrence. The medication was continued, however, for eight months.

DISCUSSION.

DR. EUGENE S. TALBOT, Chicago—Has Dr. McCurdy noticed in his cases that the maxillary bones and the bones of the face and nose are more often involved in syphilis than other bones of the body, and if so, can he give a reason?

DR. M. L. RHEIN, New York City—I have heard that in one dental society it is the duty of a dentist never to attend a syphilitic case. Of course, we as stomatologists can not for one moment do anything but condemn any such outrageous doctrine as this. Dr. McCurdy has spoken about the non-surgical interference, but there are cases in which minor surgery becomes necessary for the perfect restoration of the health of the mouth, and this very question of sterilization of the mouth means a removal of the debris. This necessarily becomes surgical work, and it is in this position that the stomatologist so often places himself in a position not only of endangering himself by infection, but others, if sterilization is not thoroughly carried out. In all suspected cases my practice has been to use carefully on the patient, not only a mouth wash prior to operation, but also a spray of bichlorid of mercury. I do not believe that anything short of this agent is at all available in these cases. From memory I would say that in the last year I have had at least 20 cases with well-defined syphilitic history.

DR. McCURDY—In answer to Dr. Talbot, I think that in diseased conditions and operations about the teeth there are more chances for mixed infection to occur because the majority of people do not take proper care of their teeth. I observe this especially because my practice includes general as well as oral surgical cases. Students in infirmary work at college frequently refuse to operate on cases with facial eruptions, and especially those with tertiary syphilis, because they fear that they may become infected.

DR. RHEIN—The cases I referred to were in the secondary stage, where the treatment was about ended. I only want to draw the line of distinction.

DR. McCURDY—This matter has been definitely settled. In the third stage of syphilis it is impossible to become inoculated unless the destructive stage begins before the second stage ends. As you understand, there is, as a rule, an intermission of perfect health between the second and third stage, and it would be a rare condition for the second stage to extend over into the tertiary or destructive stage. For this reason the operator has very little chance of becoming inoculated in operating on destructive bone diseases of syphilitic origin, even when rubber gloves are used.

PROSTATIC OBSTRUCTION TO URINATION.

WHEN TO OPERATE AND HOW TO OPERATE.*

PARKER SYMS, M.D.

NEW YORK.

After fifty years of age one man in every nine is the subject of pronounced prostatic hypertrophy. About 20 per cent. of these show symptoms more or less marked.

Hypertrophy of the prostate, producing obstruction to urination, is the cause of the greatest suffering which men are called on to bear. In a typical case where cystitis is established the agonies endured by the patient are often beyond description. It is a fact to be recognized that prostatic obstruction of the severer type is surely, though often slowly, a fatal disease. Fortunately, the attention which surgeons have given to this subject in the last few years has resulted in the evolution of its treatment, so that to-day we can offer to these sufferers a safe and sure plan of treatment which results not only in the relief of the painful condition, but in its actual cure and in permanent correction of the anatomic condition which was the cause of the symptoms.

In this paper I shall not enter into consideration of the etiology of prostatic hypertrophy, nor shall I touch on the pathic conditions more than is necessary to explain their practical importance, and also to show the rationale of the treatment which has been found to be the best.

SYMPTOMS.

When obstruction to the outflow of urine by an enlarged prostate has reached a certain stage, changes take place in the structures of the bladder and in its function which lead up to the period when the patient's real suffering and danger become pronounced. During the earlier period, when there is mere impediment to the outflow of urine, compensatory hypertrophy of the bladder muscle takes place, which for a time may apparently overcome or counterbalance the obstruction to the outflow. Later the hypertrophied muscle degenerates and atony supervenes, giving place to dilatation of the bladder in many cases. It is then that the bladder becomes unable to completely empty itself, and a certain amount of urine is retained in the bladder, that is to say, a certain amount of residual urine, and this becomes one of the chief aids to infection which is liable to take place in every case. Of course, the presence of residual urine does not always depend on atony or dilatation of the bladder, but it will be found in any bladder when the obstruction to the outflow is sufficient to impede the effectual emptying of the bladder. In certain cases there is rather sudden complete obstruction to the outflow of urine as the first indication of this trouble. In many cases the obstruction and the impediment are manifested slowly, so that there is a retarded and, therefore, a pro-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Dr. DeForest Willard, Charles A. Powers and J. E. Moore.

longed act of urination. As the emptying of the bladder becomes more and more impeded, the act is necessarily oft repeated, and we have that very prominent symptom of prostatic obstruction, namely, frequency. I wish here to speak not too fully of the symptoms, but to describe what are, in my opinion, the indications calling for surgical relief, and later to describe what is, in my opinion, the best means of affording this relief to the patient.

DIAGNOSIS.

The diagnosis of prostatic obstruction should be made in the simplest possible manner. In a patient fifty years or more of age any pronounced change in the act of urination should lead one to suspect prostatic obstruction. A carefully taken history of the case will put one entirely in possession of the subjective conditions, and no examination should be made beyond palpation of the prostate through the rectum and the very

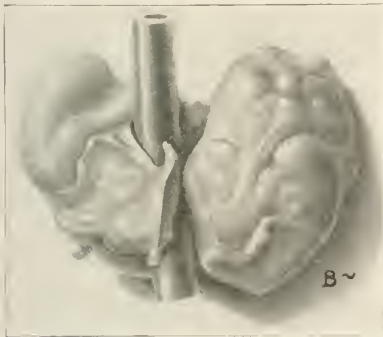


Fig. 1.—Actual size. Showing lateral lobe enlargement.

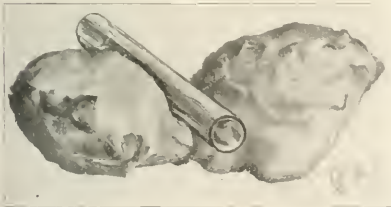


Fig. 2.—Actual size. Showing lateral lobe enlargement with median bar.

careful introduction of a flexible catheter into the bladder, after the patient has urinated, for the purpose of determining the amount of residual urine and the quality of the same.

CYSTOSCOPE.

I can not speak too strongly against the employment of the cystoscope in these cases. I regard a cystoscopic examination of a prostatic patient who is suffering from more or less severe cystitis as a thoroughly unwarranted procedure, and as far more dangerous than a properly performed removal of the prostate through the perineum.

As an example of this I would quote a patient who was examined by the cystoscope, and as a result lay at death's door for fourteen weeks. Last fall his prostate was removed, affording him complete relief from his

prostatic obstruction. He was up and walking about at the end of forty-eight hours and was never in a condition of danger.

METAL CATHETERS.

Again, I can not speak too strongly against the employment of metal catheters either for examination or for the purpose of withdrawing urine from these patients. More lives have been sacrificed to the silver catheter in cases of prostatic hypertrophy than can be computed. It is an instrument which never should be used. Before operation, the introduction of a metal instrument into one of these bladders is dangerous. When one can not succeed in introducing a soft catheter a Mercier catheter should be used, and if this can not be introduced without undue difficulty, it would be safer to do a perineal section on the patient at once rather than to subject him to prolonged manipulation which, if unsuccessful, would result in more or less damage, and to a risk of extravasation and all its disastrous consequences.

All that is needed in these cases is a sufficient working diagnosis, and the surgeon should abstain from attempting to make a too minute diagnosis by an unneces-



Fig. 3.—Actual size. Three lobe and isthmus type.

sarily extensive examination: for instance, if it be determined that a patient has prostatic obstruction which is doing damage to the bladder, or which has resulted in marked cystitis, and if stone be suspected, it is unwise to introduce even a searcher to accurately determine its presence or absence, for we already have sufficient indication for operation, and if there be a stone it can be readily found at the time of operation and at once removed by the aid of crushing, if it be large, or simply with forceps, if it be small.

WHEN TO OPERATE.

Frequency.—When a patient is suffering from obstruction which necessitates very frequent urination to a degree which entails exhaustion, he requires relief.

Catheter.—When the obstruction requires the habitual use of the catheter the patient is safer to have a radical operation performed than to enter on or to continue in the so-called catheter life.

Cystitis.—When the patient suffers from repeated attacks of acute cystitis, or when he suffers from a marked degree of chronic cystitis, he will be safer if radically operated on.

Stone. When bladder stone is caused by prostatic obstruction, I feel that the patient should have a radical prostatic operation performed, because if mere crushing of the stone is resorted to, stone will reform unless the obstruction to the outflow of urine is removed, and because the radical operation, to be later described, is so safe that it adds little or nothing to the risk which a patient runs before the danger of the anesthetic.

Hemorrhage.—When frequently repeated hemorrhage



Fig. 4.—Actual size. Lateral and median lobe enlargement.

is part of the history of prostatic obstruction, the radical operation should be performed, for the condition giving rise to hemorrhage may in that way be removed before the patient's strength has been badly depleted.

Pain.—If pain is a prominent symptom of prostatic obstruction, leading to an undermining of the patient's health from its consequent exhaustion, he should be relieved by radical operation.

To sum up, the indications for operation are: Frequency, pain, cystitis, hemorrhages, catheter life, stone, residual urine (extreme), dilated bladder, contracted bladder.

HOW NOT TO OPERATE.

Bottini Operation.—I have always inveighed against the Bottini operation, and I have been charged as improperly inveighing against this operation because I have not had experience in it. I gladly accept this charge because I feel that the Bottini operation can be condemned on its own demerits without any necessity arising for each surgeon to subject his patient to a procedure which is so contrary to well-established surgical principles. There is no law of surgery more clearly defined and more fully recognized than that which is applied to the treatment of laceration or rupture of the deep urethra. For this condition there is but one recognized mode of treatment, and that is immediate perineal section down to the site of the laceration, with drainage of the bladder. The Bottini operation is one which produces laceration of the deep urethra, and except as modified by Chetwood, does not meet this clearly de-

finer indication of external drainage. It has been claimed by its advocates that though it were often merely a palliative operation and frequently failed to effect a cure, that simply because it is not a cutting operation it is safer than one of the radical procedures. This is contrary to theory and contrary to fact, for every advocate of the Bottini method has shown a large mortality in his recorded cases.

Suprapubic Route.—I have always inveighed against the suprapubic route for operations on the prostate. The reasons for this are manifest and manifold. The prostate lies beneath and in front of the bladder, actually in the perineum; it does not lie above the bladder and it does not lie within the bladder, and to reach it by the suprapubic route is as irrational as it would be to operate on the tonsil by going through the occiput.

Suprapubic Prostatectomy.—I have always maintained that suprapubic prostatectomy entails an unnecessary danger to the patient, and statistics bear me out in this fact. Convalescence is tedious and protracted, infection of the prevesical space is of frequent occurrence, the uphill drainage of the bladder can not be compared with the perineal drainage in the line of gravitation, and prostatectomy performed through the upper route necessitates a double wounding of the bladder: that is to say, through its upper wall and through its lower or posterior wall. It leaves a thoroughly unsurgical wound, while prostatectomy performed



Fig. 5.—Actual size. Extreme lateral lobe enlargement.

by the perineal route, if properly done, does not involve the bladder at all; the bladder is uninjured, the drainage of the bladder and the drainage of the prostatic sheath are separate and distinct, convalescence is short and safe, the patients may be up on their feet at periods varying from one to five days after the operation, the least number of tissues are involved in the operation, with the smallest amount of mutilation. If properly performed, the operation is so simple and so safe that it may well be regulated to the realm of minor surgery.

HOW TO OPERATE.

A few years ago we all regarded prostatectomy as a dangerous procedure, and one which should not be undertaken unless there were grave indications for its employment, but to-day statistics have shown that in the hands of skilled and experienced operators perineal prostatectomy has been rendered so safe that it may be considered as the procedure which entails the least danger.



Fig. 6.—(a) Parker Syms prostate tractor collapsed. (b) Prostate tractor dilated to 2½ inches.

Perineal Route.—I have always maintained that operation should be done entirely through the perineum, and further experience, as well as the experience of surgeons at large, both those who hold this view and those who oppose it, has only tended to confirm me in this view.

I feel that the proper method of removing a prostate is the one which can be done the most expeditiously and

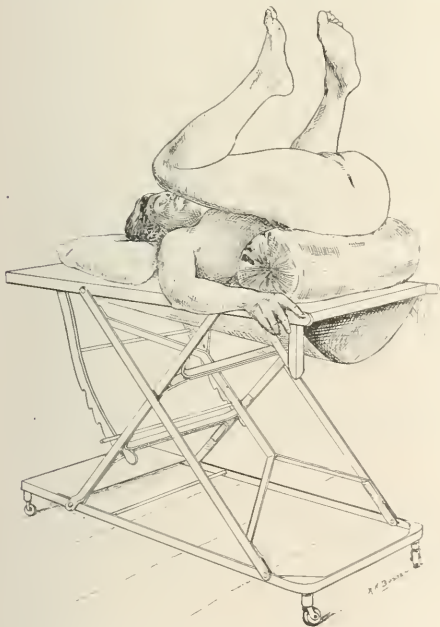


Fig. 7.—Extreme lithotomy position with hips raised. This is a great aid in bringing the prostate within reach.

at the same time involve the smallest amount of cutting and mutilation of parts, and the one that entails the least risk to the patient. I am persuaded that perineal prostatectomy performed through a small median perineal incision is the one that meets these requirements better than any other. The French operation described by Albarran, Proust and others, and which has been presented to us in a modified form by Young of Balti-

more, involves an unnecessarily elaborate dissection of the perineum which requires an unnecessary amount of time and entails an unnecessary amount of hemorrhage. Every hypertrophied prostate can be removed through a simple straight median incision of the perineum; the cut may be made by practically one sweep of the knife down to the membranous urethra, which should be opened on the lithotomy staff; the rest of the operation is done simply by stretching and pushing the tissues with the finger, and enucleation of the prostate may be rapidly and easily accomplished by the single finger of the operator. Goodfellow of San Francisco accomplishes this with the greatest success without the aid of any retractor.

I have found a great aid to this operation in the rubber retractor (Fig. 6) which I first presented to the profession at the session of the American Medical Association in 1900, and which continued experience has prompted me to again tender to you with increased confidence. I feel that this instrument is in many ways superior to the metal retractor of the French, which, how-



Fig. 8.—Showing simple median incision in perineum. There is no dissection and but a single sweep of the knife.

ever, as modified by Young, is a very good instrument. My rubber retractor is soft and yielding, is harmless to the interior of the bladder, is absolutely out of the way of the operator, and is an excellent hemostatic, closing the space and stopping the oozing as soon as a lobe of the prostate has been removed. Since I presented this method of operating to the American Medical Association in 1900, I have hardly modified it, but increased experience has taught me that I can accomplish the object in a very brief time, and can work through a smaller incision than formerly. I have also found that the after-treatment can be materially modified to the advantage of the patient, as the period of convalescence has been made much shorter and much more comfortable than was the case with the earlier operation.

The method of operation is as follows: The patient, anesthetized with chloroform or ether, or with spinal cocainization, is placed on a short inclined plane, so as to be in a very extreme lithotomy position (Fig. 7). A Syms staff is introduced in the bladder and a single incision is made, opening the perineum down to the

membranous urethra (Fig. 8), the knife is passed into the groove of the staff and the membranous urethra opened throughout its length (Fig. 9). A probe or curved director is passed to the groove of the sound and thence into the bladder as a guide; then the staff is removed and the index finger is pushed into and through the prostatic urethra, fully dilating it into the neck of the bladder. The bladder is then thoroughly irrigated

line of cleavage be found, this may be rapidly and almost bloodlessly accomplished. As soon as the prostate is removed, a large perineal drainage tube is introduced into the bladder through the prostatic urethra, and the wound and the space from which the prostate was removed are packed with iodoform gauze. This packing is made tight and firm in proportion to the amount of oozing encountered. The wound is temporarily sutured over the gauze and the operation is complete. Patients are usually in bed within half an hour from the time the operation is commenced. Concerning preservation of the ejaculatory ducts, we would say that certain prostates produce their obstruction entirely on account of anatomic changes which take place in the isthmus or so-called middle lobe. In the majority of

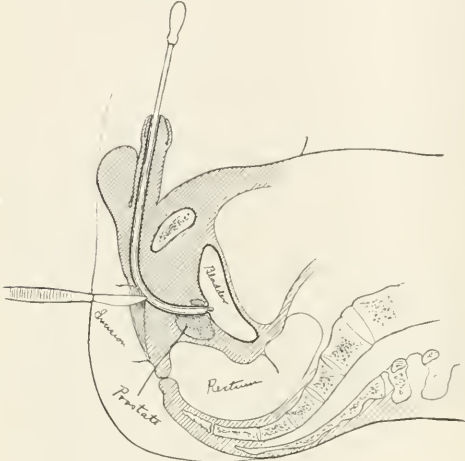


Fig. 9.—Shows knife entering the lithotomy staff preparatory to the division of the membranous urethra.



Fig. 11. Tractor in situ. Incision in sheath of prostate is shown, ready for enucleation.

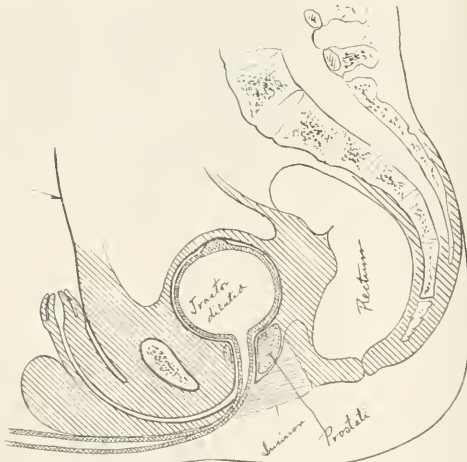


Fig. 10.—Shows tractor dilated within the bladder pulling the prostate toward the surface.

with sterile water, the rubber retractor is introduced into the bladder and fully dilated and clamped (Fig 10). Sufficient traction is now made on it, the wound is dilated with the finger, the tissues being pushed posteriorly and to one side so that the sheath of the prostate is exposed (Fig. 11), and a free vertical opening is made with scissors. The prostate is then rapidly enucleated by the index finger. If the proper

cases the obstruction is due to the lateral lobes which distort or compress the bladder orifice. In certain cases it would be impossible to remove the obstruction without removing the portion of prostate which contains the ejaculatory ducts, but in no cases is it necessary to remove any material portion from this region. As to the ultimate preservation of these ducts, and as to the ultimate preservation of the sexual function, we say that this whole question must be more or less problematic. In a number of cases epididymitis has ensued as a post-operative complication, usually occurring when healing was nearly complete, sometimes occurring after complete healing. This would certainly show that infection had taken place from the urethra through the natural channels to the epididymis, and, therefore, that these ducts must have remained patent. In elderly patients, and, in fact, in the majority of prostatitis, it

would be difficult to arrive at a satisfactory conclusion regarding the preservation of the sexual function.

Most of my recent patients have been up and about at the end of forty-eight hours, the gauze packing having been removed twelve to twenty-four hours after the operation, and the drainage tube usually at the end of forty-eight hours. From then on I consider the patient better out of bed than in. The normal bladder function has been speedily reproduced in all of these later cases.

As to mortality, I have now operated on 34 cases. I did the first 23 without a death; I lost the twenty-fourth and twenty-sixth cases. They were each very feeble old men, who apparently died as the result of the anesthetic. Hemorrhage was not present in either case, nor was there any infection nor suppression of urine; they simply went rapidly to pieces and died. These are the only two deaths, so that I have thus far lost two patients out of thirty-four. Goodfellow operates in the same simple manner. He has been longer in the field than any of us, and I believe he can report over seventy cases without a death, showing that perineal prostatectomy performed by a simple medium incision is certainly a very safe procedure.

NOTE.—The discussion on the papers of Drs. Syms, Goodfellow and Fuller will follow the last two papers next week.

HYDRASTIS.

SOME OF ITS THERAPEUTIC USES.*

W. BLAIR STEWART, A.M., M.D.
ATLANTIC CITY, N. J.

Many years ago, no one can say how many, the Indian tribes that roved over what is now our United States well knew the physical properties, the curative and medicinal virtues of a beautiful yellow, juicy, perennial root that grew in the rich shady woodland east of the Rocky Mountains. This root, when beaten up alone or with a little water, yielded a beautiful yellow fluid that would dye their clothing varying shades of yellow, according to concentration and mixture with other plant juices. They also knew that an infusion of this yellow root would cure many cases of ophthalmia and chronic leg ulcers. Indeed, the Cherokees were reported to cure cancers by it, but our present knowledge of the drug and disease practically disproves this idea. Like many of our medicinal preparations, what was then used empirically is now known practically to us as *hydrastis canadensis*.

Hydrastis canadensis has been used in almost every form from the infusion, powdered root, tincture, and active principles to the proprietary preparations, the composition of which is unknown to the profession and to be necessarily avoided if we would prescribe intelligently. Briefly stated, we have berberin and hydrastin as the two active principles, and from the latter we obtain hydrastinin. The fluid extract, tincture and glycerinum are the official preparations most used. *Hydrastis* is best recognized by its peculiar narcotic bitter taste and yellow color. The fluid extract probably represents the purest and most reliable preparation, and none but assayed preparations should be used. Many impure forms of *hydrastis* are on the market, but will not give the results that can be obtained from the pure drug.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

PHYSIOLOGIC ACTION.

Hydrastis seems to be most active on mucous membrane, particularly so on diseased mucous membrane. Its first effect is to stimulate glandular activity by virtue of its bitter taste and its slight local irritation of the gland moutais. When they are diseased and oversecretive in their action, it will restore tone, decrease the mucous secretion, and rapidly assist in restoring their physiologic processes. It improves the innervation to the gland, and by virtue of its systemic effects reduces the blood supply by contraction of the tissues surrounding the arterioles of the part. It is mildly antiseptic in type, and temporarily prevents the development of some of the lower forms of germ activity. It is slightly astringent, but should not strictly be classed as such. It acts mildly on a torpid liver, and stimulates a freer secretion of bile, and in large doses causes free watery evacuations of the bowels. By virtue of its action on contractile muscular tissue, it will often produce abortion in the pregnant uterus if not used with discretion. *Hydrastinin* is most active in this direction, but the pure drug must be used with care in pregnancy. With these few notes on some of its physiologic activities, it is easy to apply *hydrastis* in the treatment of diseased conditions.

THERAPEUTIC USES.

It has been my privilege to watch the action of *hydrastis* (the fluid extract) on many cases of chronic catarrhal conditions of the stomach and bowels, and particularly those forms of catarrh due to the effects of alcohol. The fluid extract was given alone and in combination. It is best to begin with one or two drops in water every two to four hours, and increase gradually to ten or fifteen drops at each dose according to the results. In those cases where a large quantity of mucus is vomited and expectorated and there is anorexia, there was a gradual reduction in symptoms in almost every case if a strict course of dietetics was enforced. One case of alcoholic catarrh and almost drug addiction occurs to me as worthy of report in this connection:

Patient.—Man, aged about 45, ordinarily sober and not addicted to the regular use of liquors.

History.—Digestion is normal until he overtaxes himself by prolonged mental work and worry. Under these conditions it was his custom to use that much-advertised and overestimated alcoholic catarrh remedy known as "Peruna." (It is mentioned only to be condemned.) This always excited his latent desire for drink and he used as much as one bottle in each twenty-four hours for about two days, when he developed the worst form of delirium tremens, accompanied by great mucous gastric catarrh, vomiting and inability to control himself.

Treatment.—The preliminary treatment was a hypodermic injection of three-quarters of a grain of morphin sulphate and atropin sulphate gr. 1 150 and in two or three hours 10 grains of calomel and soda, followed in six hours by Hunyadi Janos and effervescent Vichy. When the opiate effect began to wear away he was given:

R.	Ext. <i>hydrastis</i> can. fld.	m. iis	18
	Bismuthi subgallatis	gr. iis	18
	Glycerini acidi carbonici	m. ss	03
	Spiritus chloroformi	m. iv	24
	Elix. lactopeptin. q. s.	ʒi	4

M.

This dose was repeated every one-half to two hours. In addition he was given strychnia sulph. gr. 1 60 every two hours. His stimulant was cut off absolutely. In the first attack in which he called me no *hydrastis* was used and hypodermics had to be frequently repeated with very poor effect. At the suggestion of a fellow-practitioner *hydrastis* was used as above with the most remarkable results.

Result.—The mucus vomiting was reduced at the first dose and the desire for stimulant seemed to be controlled—in fact, stimulants were abhorred. If the hydrastis were withdrawn too soon the old appetite returned. Whenever he feels the least inclination for a drink or a return of the catarrhal condition he resumes his mixture of hydrastis with immediate benefit.

This is only one case in a number where it works well, but every person will not respond so quickly. If pushed and persisted in results may be expected in many cases, particularly the old catarrhal cases. It is quite noticeable that if pushed in large doses the bowels move very often for a few days, but this condition soon subsides for one of comparative regularity.

Many patients will come complaining of a poor appetite, slight nausea, sometimes vomiting catarrhal mucus and subacute indigestion. A proper counsel on diet and hygienic rules is of first importance; then give from one to six drops of fluid extract of hydrastis in water one hour before each meal and at bedtime. If there is no organic impairment of the mucous membrane decided results will follow. If a case of enterocolitis refuses to yield to ordinary treatment try small doses of hydrastis or hydrastinin at frequent intervals until results are obtained. It can be combined with other remedies.

For local use the glyceritum hydrastis is probably the best preparation. It is productive of excellent results in vaginitis and some forms of leucorrhœal discharges, but not in the real acute stages. It acts best in subacute or chronic conditions. Chronic or prolonged specific urethritis will benefit greatly by diluted solutions in injection or by direct application. A spray of the glyceritum hydrastis in three or four parts of water greatly reduces chronic nasal catarrh if systematically used. In fact, it is a remedy that, while not infallible, is too much neglected, and should not be overlooked for the newer materia medica. Most authorities recommend much larger doses of the various preparations than have been indicated in this paper, but my experience shows better results with small doses at frequent intervals. Large doses are liable to produce nausea, vomiting, abdominal discomfort or diarrhœa.

Hydrastininæ hydrochloras in doses of from one-fourth to one grain is an excellent remedy to control menorrhagia, but is slow in its first effects. It has a more prolonged effect than ergot. It is also recommended in epistaxis, hemoptysis, hematemesis and hematuria. It is a remedy that promises much for the future, and as reports of its use are published positive facts may be deduced. Do not use it in pregnant women except with the greatest caution, as it is liable to induce abortion.

Some prefer the use of hydrastin as representing the effective virtue of the drug. The impure hydrastin may do so, but the chemically pure hydrastin will not give the same effects as those obtained from the fluid extract. Pure hydrastin is given in doses of from one-eighth to one-third grain. While hydrastis is among the oldest remedies, it is probably too little used, too little understood, and is neglected. If this paper will serve to give an incentive to its further investigation and report it will accomplish the object of its production.

DISCUSSION.

DR. W. R. WHITE, Providence, R. I.—A number of years ago, when I was intern at the Rhode Island Hospital, an older physician, for whose opinion I had profound respect, told me that he was sure that hydrastis as a remedy was not sufficiently

appreciated by the profession. He said that in his own observation it had a certain influence on the mucous membrane that no other remedy had. I recalled what Dr. Wiggin had said when I listened to the recommendation of its use by Dr. Stewart. I would like to hear his experience with it in colitis and in subacute catarrhal conditions of the large intestine. I would also suggest its local use by injection in these cases. It is very valuable in the diseases of children. Of course its bitterness is an obstacle to its administration to young children. Can this be overcome by a suitable vehicle for administration?

DR. WILLIAM F. WAUGH, Chicago—*The Chemist and Druggist* called attention to the very inferior quality of the hydrastis that was coming to market. Owing to its collection by ignorant persons the drug supplied was almost entirely destitute of active principle. The editorial comment was that "this does not interest the manufacturers of galenics." This was an English paper and apparently no joke was intended. Hydrastin is a contractor of blood vessels and especially the small vessels, while berberin contracts the connective tissue. Where there is a relaxed condition of the uterine supports, it is interesting to observe its effects on the tissues; they remain contracted so that after several weeks instrumental support would not be needed. Dilated stomachs also will be contracted by the same remedy. This property also explains its value in proctitis and colitis. In very many mucous conditions we find relaxation of connective tissue for which we have a remedy in berberin.

DR. CLEMENT B. LOWE, Philadelphia—This is a case where we do not get the same results from an active principle as from the drug itself. Hydrastis has two principles, hydrastin and berberin; hydrastin is always white, its crystals are colorless, as also its salts. Berberin is yellow and its presence gives color to the e-lectic preparation hydrastin, which consists both of hydrastin and berberin. Dr. Stewart says that he got better results from a good extract of the drug than he got from hydrastin. The purer the hydrastin the less it represents the fluid extract. This is an illustration which takes the ground from under the feet of those who claim that we can always get as good results from the active principles as from the drug itself. Morphin does not take the place of opium in practice, because there are a number of other active principles present in the drug that have decided physiologic effects.

DR. HEINRICH STERN, New York City—I wish to call attention to the cumulative effect of hydrastis canadensis. I have not seen an account of this in the works on materia medica and pharmacology which I have consulted. My observations are based on a very large number of cases of manifold pathology for which hydrastis canadensis, in the form of the fluid extract, had been prescribed. The elimination of hydrastis is quite rapid as a general rule, the kidney being the chief excreting organ. In case the latter is chronically affected, especially in cases of chronic interstitial nephritis, the elimination of hydrastis does not occur in the normal ratio and it accumulates to a greater or less extent in the organism. In cases of chronic parenchymatous nephritis its elimination is not materially interfered with, but other medicines, for instance rheum, tend to accumulate when the kidney is of the large white variety. The symptoms of hydrastis accumulation in contracted kidney are headache, vertigo, blurred vision, nausea, constipation, insensibility of terminal nerve filaments and convulsive disorders. I have come to the conclusion that every individual exhibiting a pronounced idiosyncrasy for hydrastis possesses contracted kidneys, even if this is but in the very first incipient stages. In this respect it may serve as a valuable diagnostic remedy. I consider it even diagnostic in cases where kidney epithelia in large amounts, casts and albumin are for long periods not detectable in the urine. The usual doses of ten and more drops of the fluid extract are much too large in the general run of cases, especially when treatment is started. It is not for us to determine how much of a medicine a patient can stand before toxic symptoms develop, but how little of it will relieve his pathologic symptoms. I usually

start the patient on from two to three drops of the fluid extract, increasing it slowly if the desired results are not obtained in this dose. I hardly ever administer more than five drops three or four times a day.

DR. W. B. STEWART—In the treatment of diseases of the stomach the administration of hydrastis, or the alkaloidal forms of it, has probably more of a contractile effect on the connective tissue, and particularly on the relaxed glands of these parts. I have had no experience with the local application, but can see no reason why, in case of ulcer of the rectum for instance, it should not have a good effect. It certainly acts well in catarrhal conditions of other parts, and it would do no harm to try it. Another question was about the administration of hydrastis. The bitterness is covered up to a certain extent by verba santa and similar preparations, but if you combine it with much of these to make it palatable, you will get more harm from the excipients than you will get good from the hydrastis. I generally prefer to give it in capsule. In the case of very young children capsules would be entirely impracticable. When listening to Dr. Waugh, who is my old teacher at college, I recalled a statement by him in 1883 to the class, when lecturing on catarrhal conditions. He said: "Remember, gentlemen, in catarrhal conditions, hydrastis is the sheet anchor." In reply to Dr. Lowe I would state that I have not used the impure preparation of hydrastin, but in all cases have used the chemically pure alkaloid, and was very glad to hear Dr. Stern state that there are cumulative effects, and that in interstitial nephritis there is special danger of cumulative action, which adds to our stock of knowledge of this drug. I agree with the recommendation to use small doses at first and gradually increase them, watching the effect. If you do not get good effects you may suspect some trouble in the kidney. Has Dr. Boardman Reed had any experience in the use of hydrastin in diseases of the stomach?

DR. BOARDMAN REED, Philadelphia—I have had no personal experience with hydrastis in treating diseases of the stomach. When I pursued my special studies of stomach diseases in Germany they did not use it there for this purpose, and my attention was not directed to it. In my former general practice I found hydrastinin very satisfactory in treating uterine hemorrhage. In other conditions I have used hydrastis in small doses without any decided results. In testing any such remedy in stomach cases test meals should be given from time to time and the contents examined to determine the effects. In the future, when I see cases of gastric catarrh that are difficult to control, I shall bear hydrastis in mind and make trials of it under exact conditions. If gastric catarrh can be greatly relieved by small doses of hydrastis, it will be a very good thing to know.

HOW TO PRODUCE MILK FOR INFANT

FEEDING.*

EDWARD F. BRUSH, M.D.
MOUNT VERNON, N. Y.

Many infants must be nourished artificially. The reasons for this are plain. Sometimes the mother is overworked, insufficiently nourished, harassed by a vicious husband and many other children, often incompetent by her own unfortunate temper or a vicious appetite and indulgence or a vagrant desire for amusements, sometimes by an inability to secrete milk. The business of properly nourishing an infant is a serious one, and to be properly accomplished must be attended to with an intense sense of duty. The mother must be healthy, love her child, and not nurse it when she is seriously disturbed, either mentally or physically.

I was called to see an infant in a severe convulsion.

I found that the mother was very solicitous and affectionate. She had been so careful of her child that she did not even allow it to have a drink of water, feeling confident that she herself could fulfill all these requirements. So I said, "Have you any trouble in the family?" She answered, "No." "Well," said I, "surely if you have told me the truth about your feeding the baby, you are not truthful about everything being right in the house." Then, in a fit of crying, she said: "My husband's brother has been here disputing two days about a mortgage." So I said: "Stop nursing your baby until the mortgage business is settled." She did so, and the child recovered promptly. After the brother went away, the mother resumed nursing her child, and there was no further trouble to my knowledge.

It would be a long study to ascertain what effect butter and cheese from diseased cows, improperly fed, housed or cared for, has on the human being consuming these articles of diet. These foods are mixed with many other articles, and it would be difficult to say which was the cause when one's food disagrees with them, but I think with a bottle-fed baby using only milk and water, a search for the source of offense when the baby's stomach or bowels are affected, is very simple.

It is easier to control cows than women. Human mothers are often emotional, excitable, indiscreet, sometimes hysterical, and not always able to control themselves. A dairyman understanding that these conditions can affect milk, must also understand the necessity of controlling his cows. When a cow is in heat or otherwise gets disturbed or hurt, the milk can be thrown away and the excited cow can be kept from influencing the other members of the herd. From years of experience and observation, I feel safe in affirming that the accountable party to the individual in the cradle is the man who is responsible for the production of the milk when the foot that rocks the cradle is not the mater who furnishes the nourishment for the baby. And, therefore, dairymen who are supplying milk for infants' food are assuming a terrible responsibility. There are thousands of infants dying yearly from stomach and intestinal troubles who are fed on the milk sent to the cities and villages by dairymen surrounding the urban and interurban communities, and I am sure that the milkmen supplying these artificially fed infants are responsible for a large percentage of the deaths, and that these infants are killed by carelessness on the part of the dairymen supplying them with their daily food.

In the year 1882 I had charge of the country home of the New York Infant Asylum, and during that year I had 518 inmates, with only 26 deaths, for the entire year. Of these deaths, 5 were artificially fed infants, and 13 were breast fed; the others were weaned. There was not a single case of acute intestinal disturbance. I think that this percentage, a fraction above 5 per cent. of a death rate in an infant institution, is remarkable, and the low mortality was simply due to the fact that I had charge of the cows furnishing the milk for the artificially fed. It seems to me that we will never reach the proper stage of producing milk for infants until we separate the infant food dairy from the commercial dairy. The agricultural colleges and journals devoted to dairying interests are teaching how to raise an abundance of milk at the cheapest possible outlay on the part of the dairymen. The percentage of fats

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClaughan and John C. Cook.

and solids in good milk used for infant feeding is a very insignificant item, while in the cheese and butter factories the fats and solids are the only real value of the milk, and on these percentages the dairyman properly gets his returns. There are many factors at the present time working against the production of proper cow's milk for infant feeding, and the first is breeding.

That the bovine race is notoriously prone to tuberculosis and other forms of chronic disease is admitted, and the better the breed from the dairyman's point of view the more numerously are they afflicted by chronic diseases; therefore, the first and most important consideration, in reforming the methods of supplying milk for infant's food should begin with breeding.

The cow supplying milk for infants' food should be bred from rugged animals not closely related; she should be quiet in disposition, perfectly sound in health, comparatively well nourished, that is, neither excessively fat nor emaciated, and this variety of cow could not possibly be a large yielder of milk.

There has been for generations a tendency to breed the dairy cow to a wrong standard to get good milk for babies. The scrofulous form in all dairy animals is usually an abundant milker, and so from a commercial aspect she is the best cow. And for this reason she is the ideal standard for many breeders; hence the intense in and in breeding, which is necessary to produce this form, and we see in the Jersey herds this mistaken food form of the ideal butter cow. We all know how many of the fancy herds have been condemned by the health authorities, all of them yielding excessively fatty milk. I believe the first reform in infant feeding must begin with another cow.

We must separate the commercial butter and cheese cow from the animal supplying the baby's food. Dairy herds must be established for baby's milk especially; in fact, these will, of necessity, make a separate class of dairymen and dairy cattle with entirely separate methods of feeding, breeding and handling the milk. When these proper conditions are established, the dairy for butter and cheese and the dairy producing milk for food will be separate institutions, and the state control of fat and solid percentages will not be insisted on for the milk food supply.

The cow is man's forager and nurse, and if he attends to her properly she is the best of all his food producers; but she will surely furnish poison for him as easily as good food if he himself does not understand how to prevent her from doing so. She sometimes eats poisonous weeds with impunity to herself. It is said on good authority that the milking cow can eat poisonous weeds that would kill her if she was not giving milk, but the poison reaches the milk consumer, whether it is her own calf or somebody's baby.

I have in mind an animal I have been watching for some years. She is a Jersey, very handsome, fawn colored, large eyes, delicate limbs, a typical aristocratic Jersey cow. Three years ago at springtime a baby sickened and died while getting milk from this cow. I examined the cow very carefully at the time, but could find nothing definite ailing her except that she was a nervous and excitable animal. She was sold, and about a year later, in the spring, another baby getting her milk died, and there was considerable ugly talk about this affair, so the second owner sold her. Last spring she had a calf, and the calf sickened while sucking in the springtime. This owner asked me to examine the cow. I could find no definite disease, but told him

the history of the cow and advised him to kill her. He said he would, but I see her now nearly every day on the lawn, and the owner tells me that he makes butter from her rich milk. This is undoubtedly a good butter cow. She is a splendid lawn decoration, and for folks who do not want her milk for children she is all right. Her present owner has no children, and I do not believe now that there is any danger of any child getting her milk.

I believe the wealthy amateur dairyman does as much harm, if not more, than the careless, poor owner of dairy cows. Dirt that is not pathogenic is far less killing than milk from perturbed or nervous cows. The periodical injection of tuberculin must be disturbing. The effort to maintain a herd of aristocratic, highly bred Jerseys may do very well for a butter herd, but I am sure they are dangerous to supply milk to feed babies.

MODIFIED MILK.

A baby is a good milk analyzer, and when there is nothing added to the milk it gets its method of analysis is sure and simple. If the baby dies from intestinal disturbance when it has no other food than milk and sterilized water, the man furnishing the milk should be held responsible, but when physicians imagine that they can take milk fresh from the milk train and by some novel method of modifying make it equal to mother's milk, then no one can tell whether the trouble originated in the laboratory or from milk sugar, or any of the other causes that may arise with old milk and other old things.

While physicians are trying to construct plans to make bad milk good and persuade parents that sterilizing, peptonizing, pancreatizing, modifying with cream from equally bad milk and indefinite milk sugar, or making gruel, either from barley or other cereals, with the idea that this is the best that can be done, they will still have the problem unsolved, of how to nourish the baby who can not get good milk from his own mother's breast.

A few weeks ago a physician telephoned me that the milk I was sending to him went wrong. On inquiry I ascertained that he was adding milk sugar and lime water. I told him to stop the addition, and he was surprised to hear me say that milk could be fed without modifying. After three weeks his wife telephoned me asking if she could not add sugar. She said the baby was thriving, bowels normal, but she still had the idea that something must be added. No man living to-day can prepare good food for infants from bad milk. He may modify it as he pleases, but the baby will not receive it kindly. Still, on insistence, he often takes it and dies. I know that milk can not be improved, even by the most learned chemist that ever lived.

Good cow's milk will nourish an infant without intervention of the chemist, while bad milk will kill in spite of the man who knows how to modify milk according to the most approved method.

CARE OF THE COWS.

A properly bred cow should not have her first calf until after she is 2 years old. She should always be fed in the stable while giving milk, summer and winter; she should have clean stable and careful currying; her abode should be thoroughly ventilated during summer by exhaust fans, and in winter with properly constructed ventilators. Cows must receive a perfectly balanced ration, that is, a sufficient quantity of nitrogen-

ized and non-nitrogenized food, to balance the amount of the same element that they excrete in the milk and use up for their own nutrition. The grain and oats should be ground fresh daily. Good clean hay, bright oat straw, and properly housed ensilage during the winter months, and in the summer time green fodder, freshly cut and mixed with the hay and grain. None of the waste material from breweries, starch factories, cider mills, beet-sugar refuse, should be given; in fact, the only by-products that are good food for cows are wheat-bran, linseed meal cake, or cottonseed oil meal.

It is a curious fact that the greater part of dairy diet known as cow feed is the refuse from factories that can be put to no other use.

Milking.—Certainly the care of milk and the time that elapses from between its extraction from the cow and its introduction to the stomach are very necessary considerations. The care and attention to milking is also important. The milker should be a good-natured man. When a milker is kind and has a crooning way with the cow, there is a wonderful difference in the milk.

I have seen milk disagree with babies because of the presence of a cross man in the stable. When the cow is afraid of the man who milks her, the mental nervousness affects the milk perniciously. I have seen milk disturbed by the milker having long finger-nails, and thus hurting the dugs. Also, I have noticed a milker using his thumb double, thus using the hard joint to press the teat, causing pain and disturbing the quality of the milk. It is very important that the men milking cows should not have hard, callous or deformed hands, but clean soft hands and a gentle manner. I never allow my men to wet the teats or udder, simply brush the udder and belly clean before milking. I have seen many a chapping of the teats, especially in the winter time, from the wetting and washing before milking. The first squirt from each dug should be caught in a small pail and thrown away. In almost every dairy one will find many cows with either warts, small ulcers or other sores on the dugs of the milking cows. Many of them must be painful to the cow while being milked, and some of them are specific, i. e., cow-pox, or some form of disease from the milker's infected hand.*

CONCLUSION.

Dairymen should be held responsible for the stomach and intestinal condition of otherwise healthy infants fed on milk that they furnish, providing that nothing is added, except sterilized water, cane sugar or cream that comes from the cows under their control. Certainly, the milk must be carefully guarded, kept cold, below 50 F., and away from contaminating influences, or the addition of milk sugar, lime water, pepsin, pancreates or any other articles except as above specified.

The surest test that milk is good food for the baby is the baby itself. The percentages of fat, the proportions of proteids, and all the other chemical data amount to nothing, if the baby is thriving the milk is good.

Swimming as Part of a School Curriculum.—The *Medical Press* urges the desirability of making swimming a compulsory part of all school training, and deprecates the fact that many children are absolutely devoid of any knowledge of this most useful attainment. It advises, in the interests of the physical development of the people, and as a wise prophylactic measure for the safeguarding of human lives, that swimming be made a compulsory element in every public school education.

THE INITIAL CONTAMINATION OF MILK*

RICHARD COLE NEWTON, M.D.

MONTECLAIR, N. J.

There has been considerable advance in the study of lactology since the time when the old lady desired just enough milk in her tea to make it "taste a little bit cowy." And while there is still very much to be learned, there is no question that in both lay and professional circles the interest in milk as a food and as a means of contagion steadily increases. Among other influences, the great activity of the manufacturers and vendors of proprietary baby foods, it would seem, must have led people to inquire more strictly into the great question of how infants really ought to be fed, and the very gratifying decrease in the mortality of artificially nourished infants demonstrates the great utility of the steps already taken to properly nourish them, and, at the same time, to avoid communicating disease to them in their food.

It is not necessary to enumerate the names of a large number of physicians and scientists, many of them still young men and women, who have conferred an incalculable benefit on humanity by their labors in this

It has hitherto been supposed that milk while in the cow's udder is sterile, and that the bacterial content of market milk could be reduced to zero if infection of the milk after it leaves the udder could be prevented.

Conn and others, however, have been unable to produce sterile milk, although every possible precaution has been taken in milking and in handling the milk.

Conn¹ describes a process by which he produced what he calls aseptic milk, as follows: "The cow's tail was tied to the leg on the farther side, and the flank and side and the udder were then washed with a 3 per cent. solution of boracic acid and wiped with a sterilized cloth; the milker then washed his hands with the boracic-acid solution and wiped them on a sterilized cloth. About half the milk was milked out and the udder and surrounding parts were again washed in boracic acid and wiped with a sterilized cloth. Once more the milker washed his hands, and then drew the remaining milk into a sterilized covered pail through four thicknesses of sterilized cheesecloth and a layer of absorbent cotton. This milk we call aseptic milk." Of nine samples of this milk, when freshly drawn, the average bacterial content was 342 per cubic centimeter.

If the precautions just enumerated will not produce sterile milk, it would seem as though its production is impracticable. Nothing further apparently could have been done, unless it were to actually shave the cow. Freeman² says: "We have no dairy routine that is at the present time practicable that will give us milk free from bacteria"

Admitting, then, that sterile market milk can not be produced, let us look into some of the advantages which will accrue if milk can be marketed that shall be on the average practically as free from bacteria as the nine samples produced by Professor Conn.

From time immemorial milk has been subjected to a process of straining sooner or later after the conclusion of the milking, and for many years metallic strainers made of wire netting or perforated tin have been used.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

1. Fifteenth Annual Report, Storrs Agricultural Experiment Station, 1901, p. 119, 1902, p. 53, 1903, p. 35.

2. Albany Med. Annals, March, 1904, pp. 279, 280.

It has been demonstrated, however, that milk strained through such strainers undergoes little improvement, except that it is freed from pieces of hay, straw, hair and such large objects, but its keeping qualities or its bacterial content are not improved. Generally speaking, however, much visible dirt is left in milk strained in the ordinary way. Of this dirt a large portion is cow dung, and how important this source of contamination of milk is, the following quotation from Harrington will show: "A very small amount of fecal filth per quart of milk makes a very great increase in the number of bacteria per cubic centimeter." Thus it has been shown that with one-tenth grain of stable dirt per quart, one may expect about three and one-third millions of bacteria per cubic centimeter; with one-third grain the number rises to more than 7,000,000, and with a little more than a half grain it rises to nearly 13,000,000.

The average bacterial content of sewage is stated to be from 1,000,000 to 4,000,000 per cubic centimeter, hence we observe that a contamination of one-tenth grain of manure, an almost invisible quantity to the unaided eye, per quart of milk gives a bacterial content equal to that of ordinary sewage.

But this appalling statement is no more startling than another made by the same author, that from quantitative determinations of the amount of stable dirt in many samples of milk it has been estimated that Berlin drinks every day in the milk supply of the city no less than 300 pounds of cow manure, and what is true of Berlin must be true of New York and other cities, so that in the metropolis of the United States probably 500 or 600 pounds of cow manure are drunk every day with the milk.

Pure milk has no odor and a very delicate taste, so that the so-called "cow taste" and smell of ordinary milk are caused by cow manure, and this is too painfully apparent to a discriminating nose and palate in any but the cleanest milk.

That cow manure is very soluble in warm milk, so that a considerable portion of that finding its way into the milk is quickly dissolved and can not be removed by subsequent straining, Conn and others have proved. Belcher³ speaks of this property of milk, and says that no reliance can be placed on the strainer's ability to make up for previous careless handling of the milk.

Conn carried out a series of experiments to ascertain the effect of straining milk, at the conclusion of the process of milking, on its bacterial content, and found that in twenty samples there was little difference between strained and unstrained milk in the number of bacteria nor in the time of curdling.

He says: "It is something of a surprise that no larger benefit is shown (from straining) for as has been indicated by previous experiments, the amount of dirt which is removed by the straining is about 40 per cent." "It has been found by Weil⁴ that filtering milk through filters frequently increases the apparent number of bacteria present. This author, however, concluded that the cause of the apparent increase was that the filter was not sterilized and contained bacteria, which were washed through by the filtering. This does not apply to our experiments, inasmuch as the filter being simply cheesecloth was thoroughly sterilized before each experiment."

Another writer⁵ says: "The liquid impurities (of milk) can not be detected by the microscope. No pasteurizing process can cure or cover up the evil results of nastiness in milking. The particles of manure conveyed to the milk the digestive ferments from the bowels of the cow. They set up that class of fermentation that gives to milk a slimy physical condition and decidedly unpleasant odor."

This odor is so apparent to a susceptible nose that one large milk-dealing establishment employs a man who accepts or rejects the milk offered by the various producers, judging it solely by its odor.

The thorough aeration of cow's milk so commonly prescribed to remove its alleged natural odor would be entirely unnecessary if the manure could be kept out of the milk. In fact, a large part of the battle for clean and wholesome milk would be won if the initial contamination could be prevented. I refer to the avoidable contamination from sources external to the cow's udder.

The importance of preventing the initial contamination of the milk from dust and germs in the atmosphere does not seem to be generally appreciated. It is true that various devices have at times been adopted to accomplish this purpose, and some of them are still in vogue. Metal strainers have, however, been largely discarded, and justly so, since milking through them, as we have seen, tends to increase the bacterial content. Milking through absorbent cotton is effective, but is a troublesome method and requires for its successful use a rather complicated milk pail, with a number of pieces which makes the apparatus hard to keep sterile and rather too intricate, perhaps, for the average dairyman to manage.

In one of the best known of modern dairies, after experimenting with various devices and finding that the ordinary wire milk strainer was worse than none, the milk is now drawn into an open pail and strained after the process is completed, in the old-fashioned way. No doubt the managers of this dairy, whose name is synonymous with clean and scientific dairying, are now looking for a satisfactory device which shall arrest the air-borne and other impurities which are carried into the milk pail by the process of milking. Naturally, various attempts have been made to milk through strainers and even into bottles. One dairyman thought that he could strain the milk through its own froth, collected on a wire or other strainer. Covered pails of various sorts have from time to time been introduced, but have not yet come into general use.

Dr. Freeman⁶ advocates an ordinary eight- or ten-quart pail, with a hood over the top so that perpendicular droppings, dust and contamination from the cow's body, the milker's clothes, breath and so on shall be excluded.

Professor Conn,⁷ after pointing out that milk drawn by a milking machine has been experimentally proved to be rather more contaminated by bacteria than milk drawn in the ordinary way, describes a pail with a cover and with gauze or cheesecloth stretched over a small opening in the cover. This pail answers its purposes very well. By its use Professor Conn and his colleagues at the Storrs Experiment Station were able to exclude 66 per cent. of the initial contamination of milk by dirt, with very great improvement in its character and

5. Bulletin 134, Michigan State Agricultural College Experiment Station, June, 1896, p. 21.

6. Albany Medical Annals, March, 1904, p. 282.

7. Bacteria in Milk and Its Products, p. 52 et seq.

3. Clean Milk, p. 102.

4. Milch Ztg., p. 739.

keeping qualities, as will be described presently. The pail is an ordinary milk pail, with a well-fitting cover with a handle. In one side of this cover is sunk a circular cup or funnel-shaped rim surrounding an orifice about four inches in diameter, and into this can be fitted a funnel-shaped bottomless cup several inches high. One or more thicknesses of sterile cheesecloth are stretched across the opening of the cover and held in place by the upper cup being firmly driven into the lower.

The strainer of a second pail is somewhat less complicated in construction. The pail itself is shaped like an ordinary chamber slop-pail, with a cover, one-half of the upper portion of which has been cut away. The sterile cloth diaphragm is stretched across the top of the pail and the cover fitted snugly over it. A spout in the side of the pail, fitted with a metallic strainer, enables the milker to empty the pail without taking off the cover or disturbing the diaphragm—a doubtful advantage.

A cover consisting of one piece is easy to handle, to sterilize and to keep sterile. In one of these pails there is the objection advanced by Dr. Freeman⁶ that the opening looks perpendicularly upward and is, therefore, more liable to catch the droppings from the atmosphere and those which come off from the cow's body and from the milker's hands, clothes, breath, etc., and which are the initial contamination of the milk. Furthermore, there is always some spattering in milking, and the droplets of milk scattered around on the edges of the pail and the milker's hands and the cow's udder become contaminated and some of them will be subsequently washed into the pail; the spout in the side of the pail with the strainer over the end will surely catch some bacteria from outside, and will tempt a careless milker to empty his pail without renewing his diaphragm of sterile cheesecloth at the conclusion of each milking, as he should do.

A pail has recently been devised, and is now used in several dairies. This pail is made out of a single piece of steel, and has no seams to catch and hold bacteria or minute particles of curd or other fermenting substance. It is the size of an ordinary milk pail, and has a close-fitting, dome-shaped cover, also made of one piece of steel, with a circular orifice in the top $3\frac{1}{2}$ inches in diameter, which is the size of the plates on which the milk bacteria are grown. Two thicknesses of sterile cheesecloth are stretched over the top of the pail and the cover fitted on. The hole in the top of the cover is nearly six inches above the cloth diaphragm. This almost completely prevents spattering, which is bound to occur when the sterile cloth is stretched over a wire sieve or when the cloth is part of the cover itself and on a level with the top of the pail.

Owing to the comparatively small size of the opening in the cover and the slanting position in which the pail is held during milking, the perpendicular droppings into the pail during the process are largely prevented, whether they come from the milker's breath or hands, or the cow's body or the surrounding atmosphere.

There are only three pieces to the entire mechanism—the pail, the cover and the sterile cheesecloth—and each of them is of the simplest possible construction.

As to the efficiency of covered pails, there may be some room for discussion, and inasmuch as the matter is of such paramount importance, it may be well to follow it out somewhat in detail.

As already stated, Professor Conn found that when he used a covered pail and milked through four thicknesses of sterile cheesecloth and a layer of absorbent cotton, he reduced the number of bacteria in the milk to 342 per cubic centimeter in one set of experiments and 267 in another. And he also found that when the numbers of bacteria in fresh milk vary from 2,000 to 40,000 per cubic centimeter, and are from both external and internal sources of contamination, no parallel can be drawn between the number of bacteria present at any later stage and the number present at the outset. This does not hold true when the numbers are still further reduced. By aseptic milking, the bacteria have been reduced to about 300 per cubic centimeter, and this has a very striking effect on the numbers present in the milk at later stages, whether it has been preserved at 50 F. or 70 F.

These observations led Professor Conn to the important discovery that the bacteria which get into milk from other sources than the milk ducts grow more readily under ordinary conditions and ordinary temperatures than do those that come from the milk ducts.

In other words, by cutting off the supply of manure, dust, etc., which ordinarily defiles milk, we get a much better-keeping milk, because the rapidly growing bacteria which are brought in with the stable dirt and dust are excluded. It is also fair to assume that the pathogenic bacteria which might come from the milker's breath or his hands will also be excluded by the covered pail.

A number of analyses of milk drawn into a covered pail give an average bacterial count for nine samples (Table A) taken during September and December, 1904, of 628 per c.c., and of 70 analyses made later (Table E), the average was 449, which is not much higher than that of Professor Conn's aseptic milk, already cited, produced as we have seen with the utmost possible pains and being taken from the latter half of the milking, whereas the counts in the last-named experiments were made from the samples taken out of the market milk and milked under the same conditions as the rest of the milk in a regular milking room.

Of the milk twenty-four hours old, the showing is remarkable. Of fifty-three observations made during four months (Table B), the average bacterial content was 447 per cubic centimeter.

The temperature had been maintained at 45 F., whereas in Professor Conn's Table 10 the average bacterial content in eight samples of aseptic milk kept twenty-four hours at 50 degrees was 5,991. It seems only fair, however, to omit one sample from Professor Conn's table, which showed the extraordinary count of 45,416 per cubic centimeter. The table with this omission gives an average of 358, which is somewhat smaller than those just given, but showing remarkably little variation from the latter when we consider the differences observed in producing the milk already spoken of. Gratifying as the above showing is, it is not the most remarkable result obtained by using the covered pail nor the one of the greatest interest to milk consumers and producers alike.

Stocking, the assistant bacteriologist to the Storrs Experiment Station, says: "It has already been pointed out that these tests were made in a dairy where the conditions of cleanliness were good. The amount of filth, such as dirt, hair, etc., that is frequently removed by a separator from milk of ordinary dairies as delivered in cities, is appalling. It would be interesting to test the

efficiency of the covered pail in dairies where the sanitary conditions are not so good as they were in these tests."

A series of such tests have been, in fact, carried out (Tables C and E), in which fresh milk and milk twenty-four hours old were "counted." This milk had been produced "in old dusty barns with no precautions whatever, except that the covered pail with the sterile cheesecloth diaphragm was used, and the cloth was changed for every two cows." From these experiments, we get the remarkable showing that the average bacterial content of 74 samples of fresh milk drawn into the closed pail in a dusty barn (Table E) was 3,041; and of twenty-one samples of milk twenty-four hours old which had been drawn under the same conditions (Table C) kept at 45 F., the average count was 193.

Comparing these figures with those in Tables D and E, in which the "counts" are given of milk drawn into old-fashioned open pails in old dusty barns, of the fresh milk the average bacterial count was 2,269 and 3,041, second series. Of the milk twenty-four hours old, the average was 5,712. As stated in the note to Table D, the weather at the time of these observations was very cold and unfavorable to the growth of bacteria or the differences might have been considerably larger.

If these experiments, a summary of which will be found in Tables E and F, shall be confirmed by others, and I might say that they have already been measurably confirmed by two sets of experiments made entirely independently of each other, a great step will have been taken toward the production on any farm of a safe, wholesome, well-keeping milk, fully up to the standard of the "certified" and "standard milks" now on the market.

The poor farmer, with his three or four cows, will no longer labor under insurmountable obstacles when competing with the elaborate and richly stocked dairies.

Dr. Herold of the Newark Board of Health relates an instance in which a farmer, merely by tying a piece of clean cloth on an ordinary pail with a string, was able to produce better and cleaner milk than any one in the neighborhood of certain large summer hotels. Any farmer can buy an Arnold sterilizer, a few bolts of cheesecloth and one or more covered pails, and by using a sufficient amount of ice, can send milk to market with a bacterial content of less than 30,000 per cubic centimeter. No soap of any kind should be used in washing the cheesecloth, which should be boiled with ordinary soda or some alkaline powder.

If any one doubts the efficiency of the sterile cheesecloth diaphragm, let him observe the quantity of dirt which will collect on it from one milking, even in the cleanest milking room; and if the milk contains mucus, pus, blood or stringy matter the quantity of detritus filtered out will be appalling.

If the careful and painstaking experiments just cited are not entirely fallacious, the conclusion is obvious that a general dairy law that no milk shall be offered for sale with a bacterial content above 30,000 per cubic centimeter, would be justifiable and comparatively easy of enforcement.

As already mentioned, if milk is drawn into the covered pail the use of aeration is superfluous, for the so-called cow taste and odor are not present and do not have to be gotten rid of. Thus dangerous and troublesome manipulation and agitation of the milk, not to mention prolonged exposure to the atmosphere, are avoided. In one dairy milk drawn into one of these

pails in a clean milking room, is put immediately into bottles, and these are put in ice water, and in a fraction of a minute the necessary reduction of temperature is begun. These bottles are sealed up with an inner and an outer seal, and a guarantee is placed between the seals that the bacterial content of the milk shall not exceed 5,500 per cubic centimeter when delivered.

Any other dairy can be conducted on similar lines, and can achieve as good results as those already detailed.

As said above, the production of certified milk is no longer beyond the reach of any poor farmer or small dairyman. The consideration that the simple devices described in this paper are likely to revolutionize modern dairying and ought to be of incalculable benefit to humanity, affords, I believe, sufficient excuse for having taken up the time of the Section in describing them.

It is curious that the exhaustive work of Swithinbank and Newman,⁸ published last October, says nothing about covered milk pails, although the bacteriologic work therein described is highly confirmatory of much of that done at the Storrs Experiment Station. It must be borne in mind, however, that all really great improvements in human industries are in the direction of simplicity and common sense, and that is the direction in which the covered milk pail points.

TABLE A.

Bacterial Count of Fresh Certified Milk.—The analyses were made by taking samples from bottling machine and planting them immediately after milking. This milk was produced under best conditions, new milking barn, etc.

Sept. 9, 4 samples.....	75	Dec. 11	915
Sept. 9	170	Dec. 12	100
Sept. 9	735	Dec. 14	900
Sept. 9	919	Dec. 15	1,825
Dec. 10	955		
		Average	628

TABLE B.

Certified Milk.—Bacterial count of milk 24 hours old, produced in new milking barn kept under 45 F.

Sept. 1	1,970	Sept. 14	897
Sept. 2	335	Sept. 15	155
Sept. 3	3,119	Sept. 17	975
Sept. 4	285	Sept. 18	755
Sept. 5	2,325	Sept. 21	1,280
Sept. 6	750	Sept. 22	140
Sept. 7	255	Sept. 23	210
Sept. 8	100	Sept. 24	141
Sept. 9 .....	...	Sept. 25	76
Sept. 10	455	Sept. 28	265
Sept. 11	429	Sept. 30	853
Sept. 12	320		
		Average	730
Dec. 1	170	Dec. 9	130
Dec. 2	247	Dec. 11	447
Dec. 3	370	Dec. 13	1,062
Dec. 4	593	Dec. 14	593
Dec. 6	150	Dec. 15	1,078
Dec. 7	209	Dec. 16	810
Dec. 8	847		
		Average	41

This is our best milk, milked in milking barn; cow carefully groomed, etc., and the covered milk pail used.

Oct. 1	302	Oct. 30	77
Oct. 14	560	Oct. 31	588
Oct. 29	90		
		Average	323
Nov. 1	1,455	Nov. 14	400
Nov. 3	197	Nov. 15	200
Nov. 4	240	Nov. 16	122
Nov. 5	65	Nov. 17	188
Nov. 6	45	Nov. 18	169
Nov. 10	138	Nov. 30	155
Nov. 11	130		
Nov. 13	215	Average	267

Average count certified milk made in new barn, under utmost sanitary precaution:

Sept., 1903	730 bacteria per c.c. milk.
Oct., 1903	323 bacteria per c.c. milk.
Nov., 1903	267 bacteria per c.c. milk.
Dec., 1903	469 bacteria per c.c. milk.

Average for four months, 447 bacteria per c.c. milk.

TABLE C.

Count of bacteria in milk twenty-four hours old (dusty cow barn) with no precaution whatever, excepting that the covered milk pail (with the sterile cheesecloth diaphragm) was used and the cloth was changed every two cows:

Sept. 7	4,970	Dec. 3	1,693
Sept. 8	417	Dec. 4	522
Sept. 9	772	Dec. 6	255
		Dec. 7	265
Oct. 29	172	Dec. 8	495
Oct. 30	127	Dec. 9	262
Oct. 31	695	Dec. 11	710
		Dec. 13	1,225
Nov. 18	425	Dec. 14	589
Nov. 30	395	Dec. 15	1,027
		Dec. 16	852
Dec. 1	385		
Dec. 2	463	Average	793

Two samples of this same milk were tested when "fresh" and gave results as follows:

Dec. 14	575	Dec. 15	930
		Average	752

TABLE D.

Counts of bacteria in milk milked in old-fashioned "open pail" in old dusty barn and with no special sanitary precautions. The milk tested was, some of it, bottled and cooled immediately after milking and tested when twenty-four hours old. Other samples were tested "fresh." These averages are very low for milk produced under above conditions. The weather was very cold and unfavorable to the growth of bacteria. Also, these samples were tested under most favorable conditions, i. e., when "fresh" and after proper cooling, the bottled milk being kept below 45 F. for twenty-four hours.

FRESH MILK.	MILK 24 HOURS OLD.		
Dec. 2	675	Dec. 3	6,525
Dec. 3	2,725	Dec. 4	7,000
Dec. 4	2,285	Dec. 6	16,895
Dec. 7	7,175	Dec. 9	3,465
Dec. 8	570	Dec. 10	1,825
Dec. 9	2,075	Dec. 13	6,750
Dec. 11	1,755	Dec. 14	1,223
Dec. 12	715	Dec. 16	2,485
Dec. 15	2,835		
Dec. 17	1,900	Average	5,772
Average	2,269		

TABLE E.

Milkings in Sanitary Stables.	The Closed Pail.	Old-Fashioned Open Pail.
Bacteria per c.c.	449	3,569
Highest count made in any single analysis	(Avg. 70 anal.) 1,525	(Avg. 58 anal.) 16,895
Lowest count made in any single analysis	5	290

The number of bacteria in milk from the closed pail is 12 1/2 per cent. of the number in the open pail. Therefore, the closed pail keeps out 87 1/2 per cent.

Milkings in Old Barns.	The Closed Pail.	Old Fashioned Pail.
Bacteria per c.c.	3,041	11,129
Highest count made in any one analysis...	9,000	100,800
Lowest count made in any one analysis...	330	350

The percentage kept out by covered pail was, therefore, 73.

TABLE F.

TOTAL AVERAGES.

Average "fresh certified" milk, average of 70 analyses	449
Average bottled certified milk, 24 hours old, 45 F.	447
Average milk produced in sanitary stables in old-fashioned open pail, 56 analyses	3,569
Average fresh milk produced in old barns with North's pail, average 74 analyses	3,041
Average bottled milk, old barn as above, 24 hours old, 45 F.	793
Average fresh milk produced in old barn, open pail, average of 59 analyses	11,120
Average bottled milk produced in old barn, 24 hours at 45 F.	5,772

TABULATED RESULTS—AVERAGE BACTERIA PER C.C.

	Fresh Milk.	Bottled Milk kept 24 Hrs. at 45° F.
Milked in the covered pail in sanitary milking barn	628-1st Series 49-2d Series	447
Milked in the covered pail in old style dusty barn	3,041-2d Series 732-1st Series	793
Milked in old style open pail in old style dusty barn	11,120-2d Series 2,369-1st Series	5,772

DISCUSSION

ON PAPERS BY DRs. BRUSH AND NEWTON.

DR. J. P. CROZER GRIFFITH, Philadelphia, said that sterilization and pasteurization, good as they are, are not the things we want. The one thing is to get pure milk. Sterilization and pasteurization may kill the germs present in the milk, but they do not destroy the poisonous products already introduced. We sterilize or pasteurize the milk only when we can not do anything better. We have been accustomed to believe that a really pure milk can only be produced at a greatly increased cost. When we consider the very small amount of money that the farmer receives for his milk, it can scarcely be expected that he will take great pains with it. The ordinary milk that reaches a large city goes through several hands before it gets to the consumer, and the farmer receives a very small amount as his share. If Dr. Newton's records can be proved to hold good, as seems to be the case, then there is no reason why we should not impose a decidedly smaller bacterial limit than is now done. This subject has been frequently discussed in Philadelphia, and Dr. Griffith believes that eventually a certain bacterial count will be decided on. The milk commission of the Philadelphia Pediatric Society is now supervising a number of dairies which agree to furnish milk with a bacterial count of not over 10,000 to the c.c., and for this milk they receive certificates. Of course, the milk is investigated in other respects as well, and the dairies are systematically visited by the veterinarian of the milk committee.

DR. F. L. SMITH, Bridgeport, Conn., said that his first year's practice was in the country, and he learned much about milk and its effect on children. A baby that was fed on cow's milk developed cholera infantum. On investigation it was found that the cows supplying the milk had broken into a cornfield and made a hearty meal of fresh corn. Jersey cows are more easily affected by what they eat than any other breed. On his father's farm the cows were once turned into an orchard. They fed freely on the decomposed apples that had been left there, and five became so drunk that they could not stand up. Imagine the effect of that condition on the milk. Some cows were fed on oat straw that contained a little wild mustard, and as a result mustard could be smelled in the milk and tasted in the butter. Turnip tips or turnips, if fed to cows, will impart a strong taste of turnips to the milk. We might, to advantage, use our influence on the farmers and see if we can not educate them in some way, so that they will be taught to produce a better product for us from the infant-feeding standpoint.

DR. LOUIS C. AGER, Brooklyn, N. Y., stated that the milk commission in Brooklyn has been grappling with this question in various ways and in trying to eliminate every possible source of contamination the most recent move is in the direction of having the milk bottled at the farm and not at the creamery. It is a self-evident fact that each handling of the milk makes a difference, and they have found that by using the milk from certain farms, and having it bottled and sealed there, the bacterial count is lowered. This proves the statement made by Dr. Newton that expensive apparatus is not necessary in order to secure comparatively pure milk. If the farm is clean, and those who handle the milk are clean, and the milk is bottled early, we get pretty clean milk.

DR. W. B. ULRICH, Chester, Pa., emphasized Dr. Smith's suggestion as to the importance of teaching mothers how to feed their children. If the profession would pay as much attention to the quantity of the food as to the quality, infants would be better protected. Physicians lose sight of the fact that the purest milk or food will make a child sick if it is overfed. Dr. Ulrich looks on overfeeding as the most fruitful source of digestive disturbance and malnutrition.

DR. THOMAS S. SOUTHWORTH, New York City, disagreed with Dr. Brush in regard to his condemnation of milk sugar and sees no reason why we could not sterilize a milk sugar solution as well as one of cane sugar. Dr. Southworth thinks that we understand the gross chemistry of milk, but the finer point, the nicer adjustment of the milk to the child, has not yet been

worked out. We have passed the day when we considered that we could make cow's milk the equivalent of breast milk. Breast milk is a fluid that is formed by the human mother for the human child, while cow's milk is formed for the calf. That fact should not be lost sight of, and when a child is removed from the breast and artificially fed, it is no longer as Nature intended it, and it is not too strong a statement if we say that the condition is a pathologic one. Dr. Southworth thinks that it is inconceivable that the growth of millions of bacteria in each cubic centimeter of milk should not consume important nutritious elements in the milk, but if we have to deal with old milk, or milk that has been polluted, we must do something to check the vast increase of the bacteria, and that is done by pasteurization. If the milk is pure to start with, pasteurization is unnecessary and undesirable, because it checks the development of lactic acid forming germs and to that extent opens the way to the putrefactive bacteria, which are held in check by the lactic acid.

DR. W. D. SCHWARTZ, Portland, Ind., considers that the danger incident to using large pint bottles with about three feet of rubber tubing attached for nursing bottles should not be lost sight of. Just so long as those bottles and long tubes are manufactured and sold under the name of nursing bottles, just so long will lazy mothers buy them and feed their babies from them. He thinks that the less delay there is in getting the milk from the cow to the infant, the better.

DR. JOHN L. MORSE, Boston, thinks that there is no doubt that the purity of the milk is of the first importance in infant feeding. This fact, however, does not diminish the value of the modification of milk. We can not make a good food for babies out of bad milk, but most babies will not thrive on cow's milk, unmodified, even if it is pure. Milk sugar is a different thing, chemically, from cane sugar, and yeast does not ferment milk sugar.

DR. LOUIS FISCHER, New York City, said that in his experience the further we get away from breast milk, the more trouble we encounter. Hence, his advice is to stick to breast milk. If it is deficient in quantity, supply the balance by using cow's milk. Properly modified raw milk should be advised. Sterilization, because of its well-known bad effects on the milk itself, should be avoided, as prolonged use induces rickets. The raw milk is received from the dairy in a clean state, and the principles of asepsis should be applied to the cow itself, its udder, the milk pail and everything and everybody that comes in contact with the milk before it reaches the consumer. When milk has once been contaminated the pathogenic bacteria or saprophytes may be killed, but the toxins are not destroyed. Dr. Fischer stated that raw milk possesses certain nutritive properties, and the chemical changes induced by even an ordinary temperature of 160 or 170 certainly destroys something that is required for the living baby. More attention should be paid to the little details that pertain to the cleanliness of the stable, the cow and the milker's hands.

DR. SAMUEL MCC. HAMILL, Philadelphia, stated that one of the largest dairies in Philadelphia keeps a very careful account of the cost of the product, and the average cost per quart for delivery in the city is 7½ cents. These figures were obtained by a very capable man, and in communicating with him he made the statement that the average price of milk was much lower than it should be. The average farmer never takes into consideration the price of his cow, the wear and tear, the equipment, etc., and simply figures the cost of labor and transportation. In Philadelphia the hospitals are now using the very worst milk supplied in Philadelphia, and at a recent meeting of the hospital association it was advocated to establish a bacterial standard of 250,000 per c. Dr. Hamill was anxious to have it reduced to 100,000, and thinks that it is just as easy to reach one as the other. Where an initial contamination takes place it is very difficult to limit the number of bacteria.

DR. J. H. CLAIBORNE, New York City, said that when he was very young, like all the rest of us, he was addicted to milk, but since he has been old enough to appreciate the senses of smell and taste he has had an intolerable disgust for milk, which persists to this day. When he came to New York, where

the milk is purer than in the part of the country where he was brought up, he first appreciated the cause of his disgust. He corroborated what Dr. Smith said of the effect of cow's food on the milk. On the farm there was one particular field where wild onions were very abundant, and when the cows had pastured there no one could drink the milk.

DR. R. B. GILBERT, Louisville, said that the milk from certain dairies is nothing better than a culture medium and he fails to understand why they do not make use of it in the laboratory instead of bouillon. It is well known that mental anxiety in the mother affects the quality of the milk, and the same is no doubt true of the cow, as, for example, when she is deprived of her calf. In the artificial feeding of infants with cow's milk he has for the past three years adopted the simple procedure of sending the child out to the country where good milk can be obtained from clean and healthy cows. The milk is milked directly into a wide-mouthed pint bottle, and after the nurse has ascertained that its specific gravity is satisfactory, it is fed to the baby immediately, while it still holds its animal heat. Dr. Gilbert has seen wonderful results from this method in cases of scorbutus. The infant should not be over-fed. One or two ounces of milk every three hours is enough, and no milk should be given after 8 o'clock at night; nothing after that excepting sterilized clean water.

DR. C. F. WAHNER, Fort Madison, Iowa, suggested that the more important facts be put in suitable shape and published in the lay press, so that the mothers of this country can become acquainted with them. The laity and many of the profession do not read medical journals. We must educate them through the daily papers. He is not in favor of publishing the papers of individual physicians, as that would favor advertising, but would publish a reasonable abstract of the transactions of a certain Section on a given symposium, such as infant feeding, tuberculosis, etc., so that the public will get it right and not as they now do, in a reporter's garbled and sensational write-up.

DR. EDWARD F. BRUSH said that the position he takes regarding milk for infant feeding differs somewhat from the prevailing fashion. For many years he has had a large herd of dairy cows, and also for many years the care of a number of infants, in institutions and homes, and some of his own. With this experience he has been able to bring together the two prominent factors, and the paper he read is the result of his experience. If he were to choose between a dairy in charge of a cross or brutal man, whose habits were perfectly clean, and another herd, in care of a dirty man, kind and merciful, he would prefer the milk from the latter (if there were no contagious disease in either). Certainly the plan of having the milk perfectly clean is one of the advances excellently presented, but sterilization and pasteurization, which we all thought were going to solve the entire problem, is only one of the phases. Clean milk is only one of the many necessary results to perfect milk. We may be able to get certified milk from a farmer whose child is sick with diphtheria or some of the other contagious diseases of childhood. Young children and infants should never be permitted on a farm from which milk is supplied for infant feeding. Some years ago Dr. Brush made a special investigation of the milk-sugar phase of infant feeding. In his experiments he made a weak solution of milk sugar, added yeast, and kept this solution in a warm temperature for four months and, at the end of that time, found that the so-called milk sugar was unchanged; thus it seems that this commercial compound can not be destroyed by fermentation. He fed it to guinea-pigs and recovered a large quantity of it from their urine. Milk sugar of commerce is largely made in Switzerland and is one of the by-products of the cheese factory. After the milk and the more or less purid rennet has been added, the resulting whey is allowed to evaporate in the open air, and when it becomes thick enough, is put into bags. It is poured in these receptacles with a lot of pine sticks, and when it has become perfectly dry these sticks are taken out covered with crystals, and this is the milk sugar of commerce. Dr. Brush affirms that no living man can guess what is obtained from this process, and it is reasonable to say that milk sugar is about as inert as ground cork, if it

does not contain pathogenic germs or dangerous ptomaines. If a child can get perfectly good milk, he does not advocate the use of sugar at all in infant feeding, except when the baby is constipated, and then cane sugar is altogether the best, because we know what we are using. When babies get only the milk he sends them, and are disturbed in their stomachs or bowels, he feels that he is responsible, and never fails to find the trouble, either in his cows or dairy help. Dr. Brush believes that milk good enough to give the baby is worth not less than 15 cents nor more than 20 cents a quart, because the man who distributes it must exercise such vigilance that there will be no rise of temperature from the finishing of the cooling process on the farm, that is, 60 degrees F., and no addition of any older milk.

Dr. R. C. NEWTON believes that there is no doubt about the exquisite sensitiveness of milk to various sources of contamination. It has been shown that the presence of a single fly in a milk pail will enormously increase the number of bacteria. The lactic acid bacteria are not in the milk when it is drawn, but come in probably from the air. The lactic acid bacteria hold in check the putrefactive bacteria, and to that extent their presence is actually beneficial. Conn makes the statement that the most important problems in connection with the chemistry and bacteriology of milk are still unsolved, and that their solution will probably be found in the study of what we now consider the unimportant bacteria. It has been shown that white mice fed on sterilized milk died within twenty days. Sterilization evidently destroys something the nature of which we do not fully understand, but which is necessary to life and growth. That child will thrive best that is nursed by a mother whose milk is mixed with love. In Dr. Brush's dairy love is evidently an important factor. Every one of his cows is treated just like a lady, which is the only way to treat her; more especially, she should be kept scrupulously clean, like a lady. Milking directly into bottles, to which method Dr. Gilbert referred, has been tried and has failed, because milk differs so much in composition according to the stage of the milking. The first few squirts of milk should be rejected because they always contain bacteria. The first third of the milk is little better than skimmed milk, because the cream has risen to the top of the udder, probably just as it does in a milk-pan after it has been drawn. The best plan yet devised is to milk into a covered pail, and to transfer the milk directly into sterilized bottles, which are immediately cooled. Thus we get the minimum of agitation and of exposure to the air, two great desiderata in handling milk.

THE USE OF NITROGLYCERIN IN THE TREATMENT OF ERYSIPELAS.

J. W. WHERRY, M.D.

Assistant Physician Clarinda State Hospital.

CLARINDA, IOWA.

While many diseases have a more or less specific treatment, which, with slight variation to meet individual peculiarities, will apply to nearly all cases, erysipelas has remained in the uncertain class for which many drugs are used, but for which few, if any, prove very effective.

It is very doubtful if any good results need be expected from local applications, although many methods are recommended. In treating facial erysipelas in this institution each physician has his own favorite topical application which he uses on all occasions. No two of these applications are alike, and the surprising thing about it is that all get equally good results—that is, the same results, in all probability, that they would get without any local treatment. Any application is indicated that will soften the skin and relieve the tension, thus adding to the patient's comfort.

This criticism of local applications will not apply, however, to internal treatment. I believe that the course

and symptoms of erysipelas can be very markedly modified by drugs properly used. For several years I used the various drugs recommended in publications on this subject, and, while I obtained variable results, there was always a conviction that the same results would have followed without treatment.

Last spring I had an opportunity to do some experimental work in the treatment of erysipelas, and the unusual and almost unexpected results obtained from the use of nitroglycerin lead me to give the facts to the profession for consideration and verification.

In three of the cases the erysipelas originated on the face; in the fourth case it had its origin near the ankle. Abbreviated records follow:

CASE 1.—Woman, aged 57. March 3, 1904. Patient admitted to ward with facial erysipelas. Inflammation originated in left ala nasi and spread rapidly. Temperature 103.4 degrees, pulse 104. Ordered calomel, grs. 3, given in 1-gr. doses every half-hour, and nitroglycerin, gr. 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

March 4, 1904. Inflammation involved entire left side of face and right cheek. Left eye closed. Temperature 99.6 degrees, pulse 90. Nitroglycerin, gr. 1/100, every four hours.

March 5, 1904. Entire right side of face involved. Inflammation disappearing from left side. Temperature 99 degrees, pulse 90. Patient eating well and appears comfortable. Nitroglycerin given every four hours during the day; none given at night.

March 6, 1904. Inflammation has disappeared from left side of face and scarcely perceptible on right side. Temperature normal, pulse 78.

March 7, 1904. Inflammation has disappeared. Temperature normal, pulse 74.

CASE 2.—Woman, aged 72. March 10, 1904. Patient admitted to ward with erysipelas of left leg having its origin in a slight abrasion about four inches above the ankle. Portion involved is about four by six inches in extent. Temperature 102 degrees, pulse 101. Patient very much prostrated. Ordered calomel, grs. 2, giving one grain every half-hour, and nitroglycerin, gr. 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

March 11, 1904. Inflammation extended to and involving the ankle. Temperature 99 degrees, pulse 94. Much less prostration. Nitroglycerin continued.

March 12, 1904. Inflammation has disappeared. Temperature normal, pulse 82. Appetite good. Medicine discontinued. Made good recovery.

CASE 3.—Woman, aged 49. April 4, 1904. Patient admitted to ward with erysipelas involving two-thirds of the face. Temperature 103 degrees, pulse 110. Calomel, grs. 3, was ordered given in divided doses, and nitroglycerin, gr. 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

April 5, 1904. Entire face involved. Temperature 99.4 degrees, pulse 96. No prostration, appetite good. Nitroglycerin continued.

April 6, 1904. Inflammation limited to the face and slowly clearing up. Temperature 99 degrees, pulse 90. Nitroglycerin, gr. 1/100, every four hours during the day; none given at night.

April 8, 1904. Inflammation has practically disappeared excepting on right ear. Temperature 98.8 degrees, pulse 82.

April 10, 1904. Patient made a good recovery.

CASE 4.—Woman, aged 65. April 6, 1904. Patient admitted to ward with erysipelas involving the nose, left eye and left cheek. Temperature 101.6 degrees, pulse 94. Ordered calomel, grs. 3, in divided doses, and nitroglycerin, 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

April 7, 1904. Inflammation clearing up on nose, but involves the left ear. Temperature 99 degrees, pulse 88 and intermittent. Appetite good.

April 9, 1904. Erysipelas has disappeared except on left

ear. Temperature 98.8 degrees, pulse 80. Nitroglycerin every four hours during the day only.

April 11, 1904. Inflammation has disappeared. Temperature normal, pulse 74, full and regular.

Two years ago this same patient had an attack of facial erysipelas which not only involved the whole face, but spread to the neck and gradually extended down the back, stopping only at the buttocks. The remedies relied on at that time were quinin and the tincture of the chlorid of iron.

I ascribe no virtue to the ichthylol and zinc oxid ointment used locally except its soothing effect on the skin, and in one instance it did not even produce this effect, for the patient would rub it off as fast as it was put on. All these cases presented several features in common as the result of this internal treatment, viz., a reduction of temperature, moist skin, good appetite, steady pulse after the first day, absence of prostration, general feeling of comfort and a fairly rapid disappearance of the inflammatory process.

In view of the above facts I believe I am safe in concluding, either that nitroglycerin is a *sine qua non* in erysipelas, or that I had a marvelous and phenomenal run of good luck. To be sure, four cases are insufficient to establish a positive conclusion, but as the results were so uniform in every case where nitroglycerin was used I feel that I can conscientiously recommend it to the profession without further comment.

New Appliances.

A SANITARY POCKET CUSPIDOR.

J. W. TRASK, M.D.
CHICAGO.

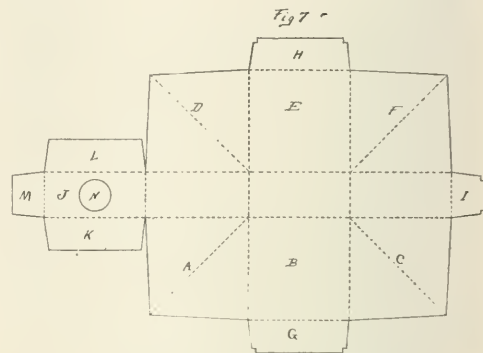
The cup I am about to describe was gotten up especially for use at the United States Public Health and Marine-Hospital Service Sanatorium for Consumptives at Fort Stanton, New Mexico. Many styles of cups had been in use at different times, but none was found very satisfactory. The hand cups were serviceable at the bedside, but the patients found them too clumsy for carrying about. They seemed to dislike the idea of always carrying a cup in the hand. The pocket flasks in use held so little that but a limited number of patients were able to use them and in addition they were continually getting out of order. Nor was there to be found on the market a cup or flask that seemed to meet the requirements any better than those already in use. What was needed was a cup that would go into the pocket and at the same time hold a large amount of sputum, a cup with a destructible filler which, when filled, could be pulled out and burned; a cup cheap in cost and with no small parts such as clamps, springs and hinges to become broken or lost. With these points in mind the following cup was devised:

The cup consists of a metal case, Figure 1—those in use were made of tin—into which a paper filler fits. The sputum is contained in the filler and does not come into contact with the metal. The cup consists of a body and a mouthpiece. The outside dimensions of the body are 3¼ inches high, 3¼ inches wide and 1½ inches thick. The cup is as large as it can be made and still slip into an ordinary coat pocket. It was made this size so that it might contain the largest possible amount of sputum for a pocket cup and thus be used by a larger number of patients, by those expectorating large amounts as well as by those raising less. Smaller sizes could, of course, be made for use by those expectorating but little. The cup is made up of three pieces, the bottom, Figure 2, into which the paper filler, Figure 8, fits, the top, Figure 3, which telescopes over the bottom and its contained filler to within half an inch of the extreme base, and of a cap, Figure 4, which fits over the neck projecting from the top.

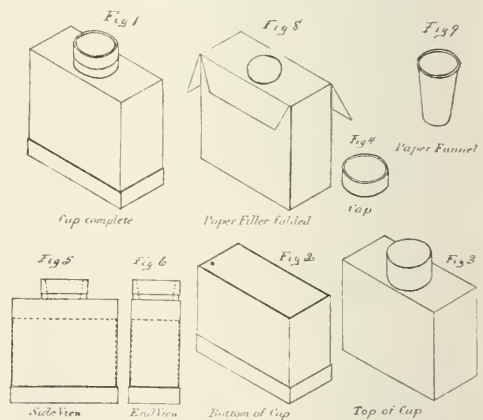
The bottom of the cup, Figure 2, is 2½ inches deep, 3¼ inches long and 1½ inches thick at base. There is a half-inch wide strip of tin soldered around the base, so that the top will slip down to it and no farther, and so that when the cup is together the outside will be smooth.

The top, Figure 3, is 2¾ inches high, 3¼ inches long and 1½ inches thick. It telescopes over the bottom down to the strip of tin. From the top of it extends a neck, which is tapered on its inner surface. This is best shown in sectional drawings, Figures 5 and 6. The top fits well over the bottom and the two are held firmly together by the adhesion of their metallic surfaces.

The cap, Figure 4, is a simple affair and fits over the neck of the top.



Paper Filler extended Dotted lines folding lines



Sputum Cup (About one fourth size)

The paper filler consists of a filler proper and a paper funnel. The filler consists of a piece of water-proof paper cut and stamped as shown in Figure 7. It folds at the dotted lines. The corner squares A and C fold in and up against the side B. The corner squares D and F fold in and up against the side E. The flaps G, H and I then fold down, and flap I clinches flaps G and H at the small notches in their corners, thus holding the folded corner squares A, C, D and F up against the sides B and E. The filler is then inserted into the metallic bottom and the flap J is folded over the top of the filler and the side flaps K, L and M, which are an inch wide, are folded over the dotted lines as shown in Figure 8, and extend down inside of the cup bottom for one-fourth of an inch, thus holding the paper filler top in place. The filler folded is shown in Figure 8. N is a circular hole in the top of the filler.

The paper funnel, Figure 9, has the shape of the frustum of a hollow cone. It fits into the inside of the neck of the metallic top and its smaller end, which is its lower part when inserted, passes down into the paper filler through the circular hole X, into which it fits snugly. It has a flange at the top which flares over the top of the neck of the cup.

The patient carries the cup in the pocket. To use it he removes the metal cap and expectorates into the paper funnel, through which the sputum passes down into the paper filler proper. When the cup is filled, or better, partly filled, the metal cap is removed, the paper funnel removed and burned, the top of the cup is then removed and the filler extracted and burned, and a new filler and funnel inserted.

This cup will not become soiled with ordinary usage any more than will a patient's clothing or articles handled by him, such as coins, pocket knives and tools, and it can be much more easily washed or boiled, or both, than any of these. Then, too, one of its very important features, considering its efficiency, is its extreme cheapness of manufacture.

A description of this cup is offered in the belief that it possesses many valuable features not contained in any cup now manufactured.

I desire to thank Surgeon-General Walter Wyman and Dr. P. M. Carrington for placing at my disposal the facilities of the sanatorium for the making of models, and the latter also for suggestions regarding same.

A NEW TENACULUM FORCEPS.

OLIVER C. SMITH, M.D.
HARTFORD, CONN.

While in Paris last summer, I saw an instrument made by Collin, which struck me at once as being an excellent substitute for the pressure forceps, where this is used to grasp and hold the margins of delicate tissues, as the peritoneum, the pleura, the incised walls of viscera, the bladder, stomach, intestines, etc. The instrument was a delicately made straight tenaculum forceps, similar to the Croenlein forceps, with five interdigitating teeth; two on one jaw, three on the other, and provided with French lock and ratchet clasp.



I brought some of them home, but found on using that the teeth projected and scratched the tissues. This led me to modify the instrument by providing it with two diverging teeth, $1\frac{3}{4}$ mm. in length on the upper jaw, and with a flat ovoid platform with two perforations on the under jaw. I also gave the instrument a slight curve with the concavity on the under side, which allows it to lie more closely to the abdomen or chest, thereby being less in one's way.

The advantages claimed for these forceps are:

First: The avoidance of crushing the tissues. The appearance of the margins of serous, mucous or muscular tissue after a few moments' application of the ordinary pressure forceps is that of bruised, bloodless and flattened tissue, which certainly invites sloughing and offers a tempting field for infection. This crushing is what we desire when we pinch a blood vessel, and does no harm when grasping tissue which is later to

be excised, such as the margins of a hernial sac, but not so when dealing with tissues that are to be placed in apposition for union.

This injury of the tissues is almost entirely avoided by the use of the marginal tenaculum forceps, which makes two harmless punctures.

Second: The lower and projecting jaw of the instrument, being blunt, can not possibly injure an intestine, so that it can be carried fearlessly to the bottom of an abdominal incision to bring up the peritoneum.

Third: As before mentioned, the slight curve of the instrument makes it less in the operator's way.

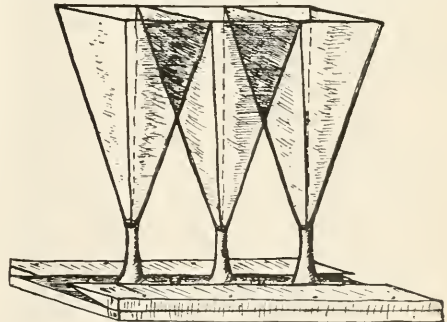
Fourth: It holds the margins of any tissue securely; it does not tear out with considerable traction, and can be allowed to remain on during the entire operation without danger of injuring the structures.

The muscle is compressed to a wafer-like thickness, the color is entirely expressed, and the tissue is made transparent where it has been held by the hemostats, while two tiny punctures mark the spot held by the tenaculum forceps. After several months of almost daily use I can safely testify to the decided merit of this instrument.

IMPROVED URINE TEST GLASSES AND HOLDER.

E. G. BALLENGER, M.D.
ATLANTA, GA.

The value of having the urine passed in two or three glasses, with or without washing the anterior urethra, is too well known to need emphasis. The glasses recommended allow the urine to be collected in several portions without being spilled; the importance of this is evident to every physician making many examinations daily, where offices or dispensaries soon have the urinous odor so offensive both to physician and patient. Those who come needing urinary examinations for shreds, pus, etc., frequently do not have micturition well under their control, and when the stream is once started it is stopped



with some difficulty and pain, or not at all until the bladder is emptied, and so the two-glass or three-glass test is obtained at the expense of a "broken technic" with the urine spilled.

This is obviated by the use of the glasses recommended, which are of a pyramidal shape and on a small base, to be passed into a grooved block to hold them together (See illustration). Their rims being square, allow close apposition and the patient can change the urinary stream from one glass to another without stopping or spilling it. Either two or three glasses may be used as desired, and the urine examined without transferring it to a cylindrical glass, as is necessary with Gerson's, which has a flat bottom instead of a pointed one, and, so far as I am aware, is the only other one obtainable. Another advantage of the glasses recommended is the flat surface, which does not magnify and distort the shreds, etc.

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SYPHILITIC AORTITIS AND ANEURISM.

The probability of there being some relationship between syphilis and aneurism has long been recognized. In 1886 Flint wrote in his *Practice of Medicine* (sixth edition): "As bearing on the diagnosis, it may be here stated that aortic aneurism is a rare event under 40 years of age, and that syphilis is often a remote cause." Since then we have learned that aortic aneurism under 40 is not an especially rare event, relatively speaking, and that syphilis may maintain a much closer relation to aortic aneurism than that of a remote cause. Among the various facts that have served to direct and fasten attention to the relationship between syphilis and aneurism may be mentioned especially the occurrence of aortic aneurism in notorious syphilitics at a relatively early age—25 to 45—which, of course, does not harmonize perfectly with the generally accepted views as to the rôle of ordinary arteriosclerosis in the production of aneurism.

Already in 1875 F. H. Welch noted severe aortic disease in 60.7 per cent. and aneurism in 32 per cent. of 56 cases of fatal syphilis; and a high frequency of syphilis among patients with aortic aneurism has been brought out in numerous statistical studies. The percentage varies greatly in the different series, being as high as 85 per cent. in Heller's and as low as 18.75 per cent. in von Hansemann's. In most series, however, the percentage exceeds 50; generally the figures are based on the facts secured as to a history of syphilis in the patient. Lichtenstern based his calculations on postmortem findings, and gives a percentage of 39. It will be noted that this average percentage greatly exceeds the average percentage of syphilis in all classes of people in this and European countries.

Von Hansemann insisted that a more trustworthy idea as to the relation between syphilis and aneurism could be gotten by learning how many syphilitics became victims of aneurism. His own figures—3.43 per cent. of 350 syphilitics—he regarded as very small, but Heller, the champion of syphilitic aneurism, points out that after death only a small percentage of those once infected with syphilis present definite syphilitic lesions. In 400 syphilitics Heller found aneurism in 3 per cent., cerebral syphilis in 2 per cent., cardiac syphilis in 2 per cent., pulmonary syphilis in 1 per cent. In 8,669 post-mortems Emmerich found aneurism only in 0.5 per cent., and in 745 tuberculous Heller found only 0.13 per cent. to have aneurism. Hence von Hansemann's

reversed statistics also show a probable relation between lues and aneurism.

While clinical experience and statistics unquestionably point to a close relationship between syphilis and aortic aneurism, the crucial point whether syphilis may cause aortic changes that stand in direct causal connection with aneurism can be solved only by the help of pathologic anatomy. Here certain difficulties confront us. The syphilitic nature of many chronic inflammatory and sclerotic processes has long been urged, but in many cases this view has met with doubt and more or less opposition, largely because it was not possible to prove unequivocally the syphilitic nature of the lesions in question. This has been and probably will continue to be, at least to some extent, the case with syphilis as the basis of acute aneurism. In most cases aneurisms are studied anatomically so late in their development that the specifically characteristic features possibly present in the fundamental lesion of the aortic wall long since have passed away. The results of recent investigations show, however, that much may be learned by thorough study of material everywhere readily available. Indeed, in view of recent developments, there seems to be little doubt but that our knowledge concerning the influence of syphilis in aortic disease and aortic aneurism has been materially delayed because the question was not seriously and systematically considered either by clinicians or pathologists. Every day pathologists looked at sclerotic and degenerated aortas without seeing any reason to in any way modify the usual off-hand diagnosis of arteriosclerosis or endarteritis chronica deformans, the manifold forms of which undoubtedly include various processes of distinct etiology.

Years ago a peculiar form of mesoarteritis was recognized (Wagner, 1866; Helmstedter, 1873), which Heiberger in 1877 was the first to interpret as syphilitic; he based his interpretation on the presence of miliary gummas. Shortly afterward, but entirely independently, Laveran in France reached the same result. Subsequently this mesoarteritis was studied more fully by Heller and his pupils, who speak of it as syphilitic aortitis, by Straub, and most recently by Chiari and also by Benda. This mesoarteritis is essentially a productive process, located principally in the ascending aorta. When uncomplicated by other forms of sclerosis the intima shows no increase in thickness, but furrows, small depressions and pits that correspond to scars in the media, which also may contain foci of granulation tissue. Occasionally occur areas of necrosis with giant cells, partly of the type of the Langhans' cells, partly of the type of the foreign body giant cell. The adventitia is usually involved, and productive endovasculitis is practically always present here as well as in the media. Chiari came to the conclusion that the mesoarteritis may be caused by syphilis, because he found it in one-half of the syphilitics and general paralytics examined. Straub claims to have noted this form of

aortitis in 82 per cent. of 84 general paralytics. Aneurisms were present in many cases in both these series. While the rôle of other infections can not be wholly excluded in the genesis of this fibrous form of meso-aortitis, especially as the lesion in its later stages does not present any absolutely diagnostic morphologic appearances, yet it seems that pathologists in general are willing to accept it as syphilitic in the majority of the cases, even though it may be impossible to trace its evolution from definite gummatous productions. Benda, however, has had the good fortune to obtain cases giving the complete picture of aortic gummas—miliary as well as macroscopic—passing into sclerosis or fibrous meso-aortitis. The larger gummas were situated on the border of the adventitia and the media; they were irregular in size and in shape, and consisted of a yellow material in the midst of a scar. Benda also found gummas of this kind in the margins of aneurisms; only four or five of such instances having been recorded previously, the most recent by Fabris. Whether productive meso-aortitis always represents cicatricial termination of aortic gummas, gross or microscopic, as Benda seems to think is the case, can probably not be determined from the material now at hand, as already indicated, but there is no longer any doubt that syphilis of the aorta, just as syphilis of the heart, may be the basis of aneurisms. Much work requiring the co-operation of clinician and pathologist must be done before all the facts may be learned in regard to syphilitic aneurism of the aorta as distinguished from other forms of aortic aneurism, which, of course, also may occur in syphilitics. Pathologists must study diseased aortas more carefully than in the past and also walls of aneurisms, especially when the latter are multiple. When it was learned that potassium iodid occasionally cures aneurisms, it was first thought that this was due to its antilucetic effect, but before long the coagulative influence of the iodid was accepted as giving the more plausible explanation. May it not be possible, after all, that in certain cases specific treatment promotes removal of gummas in the walls of aneurisms? Certainly the present trend of belief in regard to aneurism and syphilis will stimulate to most careful antisyphilitic treatment in all cases of suspected aortic disease in the young and the syphilitic.¹

WINTER BEDDING AND INFECTION.

The advent of cold weather, almost every year, is marked by a series of outbreaks of epidemic diseases, for which no definite cause can be found. All the cases in a locality may be traced to one or two original ones, but the origin of these primary cases, as a rule, is unknown. The Chicago Board of Health has suggested one source of contagion which deserves careful investigation. As the cold weather commences, bedding that

has been put away during the summer is brought out for use again. It is at least a curious coincidence that contagious diseases, such as measles, scarlet fever, whooping cough, and even the more serious, smallpox, are apt to become epidemic at this time of the year.

The Chicago Board of Health has found during the present year some thirty separate smallpox infection centers, the cause for which would seem to be the infected bedding and the clothing of the undetected cases that occurred late last winter and in the spring. To quote the report: "Because these cases were undetected, no disinfection of their bedding and clothing was secured; with the advent of warm weather, blankets, underwear, etc., were packed away until the abnormally cool weather of the first few days of October brought them into use in artificially heated and poorly ventilated rooms, favorable to the active growth and diffusion of the contagion." The report then goes on to state that it is impossible otherwise to explain the recent outbreak. The families were unknown to each other and did not exchange visits. None of the smallpox patients had been away from the city recently, and they had nothing in common except the development of the disease coincident with the cool weather, which necessitated the use of last winter's heavy clothing.

It is well known that the *materies morbi* of such diseases as measles and scarlet fever, especially the latter, may remain virulent in fomites for long periods, and there are at times surprising proofs of this fact. After a year, clothing that had been in contact with a scarlet fever patient has been known to produce the disease in others, though carefully packed away in camphor or tobacco in the meantime. Letters sent from an infected house, before the disease was recognized as scarlet fever, have been known to convey the disease long distances, proving infective many weeks after they had been sent.

The possibility of infections from this source suggests the necessity for at least domestic disinfection of such articles before they are used in a subsequent winter. Unfortunately, quilts are so made that the ordinary washing and boiling process is out of the question, and blankets shrink and lose their appearance and softness unless very carefully handled; thus household articles that greatly need occasional boiling are not cleansed in any way.

Such bed clothing as will not wash should be submitted at least once a year to the disinfecting influence of dry heat, or to the vapor of some powerful antiseptic, like formaldehyd. If this is not done, such articles are likely to become receptacles for such forms of virulent micro-organisms, as *Staphylococcus aureus*, in some of the organic material in which they are placed, a favorable culture medium for which they may, in the dark, warm closets usually packed away in them, and which resemble nothing so much as a "nest" for bacteria. A little disinfection of such articles at the beginning of the winter season would do so much

1. The literature on syphilitic aortitis in relation to aneurism may be found in connection with Chiari's and Benda's reports in *Ver. d. deutsch. path. Gesellschaft*, 1904, vi.

confirmatory evidence of this fact that next spring people will realize the necessity for disinfection of bed clothing before putting it away for the summer.

TUBERCULOSIS OF THE PLACENTA.

Many of the problems connected with the transmission of tuberculosis have been restudied as a result of the papers of Koch and von Behring. The former discussed the relation between human and bovine tuberculosis, the latter, the milk transmission of the disease, and both departed so radically from accepted beliefs that their declarations have led to attacks on many cognate aspects of the problem. The paper of von Behring necessitated, among other things, a belief in the old view of von Baumgarten that tubercle bacilli may remain latent in the body for years and subsequently give rise to tuberculosis. This view primarily arose from the fact that the supporters of the inheritance of the germ theory were constantly confronted with the small number of cases of congenital tuberculosis, which rendered a belief in the latency of the germ a logical necessity for them. Notwithstanding the fact that so few cases of congenital tuberculosis have been reported, there have always been those who held that a direct transmission of the germ from mother to child is probably much more frequent than is generally supposed, and among these observers Birch-Hirschfeld and his pupils, and particularly Schmorl, have been prominent.

In a recent paper Schmorl and Geipel¹ once more assert that transmission of the tubercle bacillus from mother to child is much more common than is generally supposed, this belief being based on the results obtained by the study of twenty placenta obtained from women in various stages of tuberculosis. The authors mention the two possible ways of obtaining evidence of hereditary transmission of tubercle bacilli, namely, examination of the fetus, and examination of the placenta. For obvious reasons the examination of the fetus is not possible, and, furthermore, Schmorl has shown that where the placenta is tuberculous the bacilli are always transmitted to the fetus, which would be expected from the modern view that the placenta is essentially a fetal organ. The authors, therefore, decided to study placental tuberculosis, of which condition up to the present only ten cases have been reported, and of these seven have been recorded by Schmorl or his pupils.

The present report of Schmorl and Geipel covers twenty cases. Of these, eleven were cases of advanced pulmonary tuberculosis, four cases of moderately advanced pulmonary tuberculosis, and three cases of the early stage. There was one case of acute miliary tuberculosis, and one case of tuberculous meningitis. In eighteen of these cases delivery took place at or near the normal time, and in eight of these there was positive evidence of tuberculosis of the placenta. The remaining three were delivered at the seventh and eighth months, respectively, and in the seven

months' placenta tuberculosis was present. Of the nine placenta showing tuberculosis, five came from cases with advanced pulmonary tuberculosis, one each from cases of early and moderately advanced pulmonary tuberculosis and one each from cases of acute miliary tuberculosis and tuberculous meningitis.

The pathologic features of these cases are of interest, and show how easily tuberculous lesions in the placenta may be overlooked. In only three of the nine tuberculous placenta was it possible to make a naked-eye diagnosis of the lesion, though in these three cases it was very apparent. In the other cases the microscope had to be depended on, and the difficulty with which the lesions were detected in some instances is shown by the fact that two thousand sections of some of the placenta were examined before the lesion was found. Schmorl describes at length the forms which the infection takes, but it is only necessary here to briefly state them. Generally the tubercles develop on the surface of the villi or in the intervillous spaces; in the early stages they may not present the typical lesions of tuberculosis, but these are, as a rule, to be found as the lesion progresses. Rarer forms are those in which the tubercles first develop inside the villi, in the layer of canalized fibrin or in the ectodermic layer of the chorion. The histologic evidence points to the fact that any part of the placenta may be attacked, and that the lesion may occur months before the birth of the child. This latter observation disproves the theory, which has been advanced by some observers, that where tubercle bacilli are found in the fetus they probably are transmitted during labor or on the death of the mother as a result of traumatic changes in the placenta due to the uterine contractions which occur at these times. The source of infection in the great majority of cases is undoubtedly the blood of the mother, though it is possible that in a few instances a local tuberculosis of the uterus is present and that the germs are transmitted from this.

These cases seem to show that tuberculosis of the placenta is far from being uncommon, that infection may occur not only in the late stages of pulmonary tuberculosis or in acute miliary tuberculosis, but also in incipient pulmonary tuberculosis, and that infection of the placenta means infection to the child. It seems unlikely that the child develops tuberculosis in all instances; indeed, Schmorl and Geipel think that if only a few bacilli are transmitted they are in all probability destroyed. If many are transmitted the child probably develops tuberculosis, generally during the first few years of life, the authors think. They do not deny the possibility of the bacilli remaining latent for years, as von Baumgarten claims they do, but they think such an event improbable. These studies are important. It must be remembered that nearly all the reports of cases of placental tuberculosis have been made by Schmorl and his students, and while they are reliable observers, their work should be confirmed before all their conclusions are accepted.

1. *Münchener m. Z.*

THE FUNCTION OF THE THYROID AND THE PARATHYROIDS.

It is well known that total extirpation of the thyroid, as for the relief of goiter, is followed by a peculiar symptom-complex which is called cachexia strumipriva. The symptoms resemble those of myxedema, in which disease there is a great increase of connective tissue in and beneath the skin. The skin becomes thick and dry and the hair falls off. The features are swollen and heavy and the movements clumsy and trembling. The mental powers also gradually deteriorate, and the patient becomes slow and stupid and finally imbecile. In carnivorous animals, as cats and dogs, more acute symptoms are seen after total removal of the thyroid, and the animal usually dies within the first month after the operation. The first symptoms generally are tetanic spasms and more or less severe convulsions. These convulsions may appear as early as the end of the first day, and may last for weeks, but do not always end in death.

We see, therefore, that three very different results may follow the removal of the thyroid in different animals: 1, Cachexia strumipriva; 2, tetanic convulsions leading to rapid death; and 3, tetanic convulsions, from which the animal recovers. The questions have now been raised as to what is the exact function of this gland, and how it is possible that its removal may be followed by such very different symptoms in different animals. The last question has been answered by several investigators by assuming that the parathyroids have a definite function, distinct from that of the thyroid, and that the removal of the thyroid alone gives rise to a chronic disease known as cachexia strumipriva, while the removal of the parathyroids, either with or without the thyroid, gives rise to the acute symptoms which may or may not end in death. It might be assumed, then, that in the operation for goiter the parathyroids were left in place, and no acute symptoms followed the operation, while in the thyroidectomies practiced on cats and dogs they are generally removed, and this explains the acute symptoms seen in these animals. This view is, however, no longer tenable, because it has been shown by Kishi¹ that extirpation of the thyroid in cats and dogs is followed by tetanic convulsions, even if all of the parathyroids are left behind.

Kishi made a careful study of the changes in the parathyroids after removal of the thyroid, and came to the conclusion that they are composed of embryonic thyroid tissue, which may, under special conditions (as after removal of the thyroid), be transformed into normal thyroid tissue. So long as the thyroid is normal, the parathyroids do not functionate, but when the former is diseased or removed, the latter take on the function of the thyroid, and in some instances replace it so completely that the animal does not die, but regains its normal health after a short illness, during which period

it may have frequent convulsions. This picture is frequently seen in dogs, while it is unusual in cats, because the latter require more thyroid tissue to maintain life than do dogs; and, therefore, cats nearly always die after total removal of this gland, even if the parathyroids are left behind. Dogs and monkeys more often recover after an acute illness of short duration. Kishi also made a careful study of the blood of animals after thyroidectomy, and found that the red corpuscles rapidly decrease in number, and may fall as low as 1,800,000, while the leucocytes increase in number up to 38,000. He also found degenerative changes in the vessel walls and in some of the organ cells around the blood vessels, and concluded that there is a toxic substance in the blood which, under normal conditions, is destroyed by the thyroid. Kishi further showed by quantitative studies of the constituents of the urine that there are marked nutritional disturbances. This toxic substance he believes to be of the nature of a nucleoprotein which arises from the nuclei of the cells of the meat that is ingested. The cells of the thyroid have the power of taking up the iodine that gets into the system with various articles of food, and they produce with it an iodine-containing globulin. This substance may have an attraction for the toxic nucleoprotein, and combines with it to form a substance which Kishi calls thyreotoxin. This thyreotoxin is now decomposed in the thyroid to form two harmless substances which constitute the colloidal substance of the thyroid. The colloidal substance slowly passes out of the follicles into the lymph spaces and blood vessels, but as it passes out the cells of the thyroid take out most of the iodine contained in it and again utilize it in producing the iodine-containing globulin.

This theory, which is based on a large number of experimental facts and postmortem findings, explains very well why thyroidectomy in carnivorous animals is followed by acute symptoms and often rapid death, while in man and the herbivorous animals it gives rise only to a chronic condition. Animals living on a meat diet ingest more nucleoprotein, which, according to this theory, gives rise to the toxic material responsible for the symptoms and which is destroyed by the thyroid under normal conditions. When the thyroid is removed from carnivorous animals the system is soon overwhelmed with this toxic material, and there are produced very acute symptoms, such as tetanic convulsions, and later death. In the herbivorous animals, however, only a small quantity of this poison is formed, and there is a very slow poisoning, which gives rise to the condition known as cachexia strumipriva.

THE SERUM-TREATMENT OF EXOPHTHALMIC GOITER.

That the secretion of the thyroid gland plays an important part in the maintenance of the metabolic equilibrium of the body would seem demonstrated by the effects resulting, on the one hand, from its pro-

1. Virchow's Archiv, 1904, vol. cxxvi, p. 260.

duction in excess, as, for example, in cases of exophthalmic goiter, and, on the other hand, from its deficiency, as in cases of myxedema and cretinism. The deficiency in secretion can be, in some measure at least, compensated for by the employment, in one form or other, of the gland or of preparations made from it. This has been done, and with no small degree of success, in cases of myxedema and cretinism especially. The only means at present known of combating an excess of the secretion consists in surgical removal of a portion of the gland, although some of the effects on the circulation can be counteracted by the employment of such agents as adrenal preparations, digitalis, strophanthus, ergot and the like.* Partial thyroidectomy is, however, not a simple operation, and its results are not always permanently satisfactory, while the other measures mentioned can not be relied on in the treatment of exophthalmic goiter. Accordingly, the suggestion has been made that a serum might be prepared that would be capable of neutralizing the untoward effects of the excessive activity of the thyroid gland under such circumstances.

Attempts have been made to produce cytotoxins having a specific action on the thyroid and parathyroid glands by the introduction of thyroid gland into lower animals and obtaining the blood-serum from the latter. Also the blood-serum and the milk from thyroidectomized animals have been employed with the same object.

Dr. George Murray,¹ whose name is identified with the successful treatment of myxedema and cretinism with thyroid preparations, proposes the use of serum in which the formation of antibodies has been induced by treating animals with gradually increasing doses of thyroid extract, a method that has also been pursued by Lepine. The latter fed a goat on gradually increasing amounts of thyroid gland from sheep or other goats on successive days, and obtained the blood-serum after the lapse of several months. Murray administered thyroid extract to rabbits by the mouth, and obtained the blood serum after about a month. This he was able to inject subcutaneously into a rabbit without ill effect, and accordingly he felt at liberty to employ it clinically. Two patients were thus treated, but the results were not conclusive. Nevertheless, it is considered possible that if larger animals were employed and larger doses of thyroid extract were given a serum might be obtained that could be used hypodermically in acute cases, or be administered by the mouth in chronic cases in which prolonged treatment would be required.

PROPOSED MIDWIFE ACT IN NEW ZEALAND.

The question of depopulation has stirred up the New Zealanders, and the premier of that country sees an important factor in the excessive infant mortality that exists at the present time. The reform he proposes

consists in the education of qualified midwives, none others being allowed to practice, the erection of maternity homes and foundling hospitals under state control or inspection and gratuitous nursing for the very poor supplied by the state. The nurses and midwives should be educated in hospitals under state supervision. Crèches and infant nursing hospitals are also to be provided.

THE CONVEYANCE OF SMALLPOX BY VAGRANTS.

The danger of transmission of smallpox and other diseases by the roving element of society, known as "tramps," is one which it is impossible wholly to prevent and difficult to restrict. The danger is a very real one in the experience of health officers. Emphasis is given to the need of proper restrictions by a report from Dr. Armstrong, health officer of Newcastle-on-Tyne, England, who investigated the subject by sending inquiries to 126 provincial health officers. Replies showed that smallpox was introduced by vagrants in 57 out of 111 districts (with a population of 20,000 and upward, where an epidemic had prevailed), and that in 25 of these 57 districts, spread of the infection occurred from vagrants. The importance of the matter has been appreciated by the London County Council, which has asked for a convention of the sanitary authorities of England and Wales to consider the subject and to endeavor to provide a remedy. We can not go back to the days of walled cities and passports, but there remains vital need for the restriction of the freedom of the tramp.

THE CURABILITY OF PULMONARY TUBERCULOSIS UNDER SANITARIUM TREATMENT.

Within the last few years numerous reliable statistics have been published bearing on the curability of pulmonary tuberculosis. In the majority of these it is to be noted that although the patients were traced, the ultimate condition of their lungs was not reported on by a physician, and, further, that the term "well" or "recovered" used in connection with such patients does not usually denote whether the patient is well enough to work at his ordinary vocation, or whether he is merely free from symptoms of the disease. In his recent report¹ of the last three years' work of the Friedrichsheim Sanitarium, Rumpf was able to follow nearly all his patients (over 97 per cent.) for from three to four years after their discharge, and was able to have the report of a physician as to their pulmonary condition. The real criterion of cure Rumpf considers to be the ability to perform daily work. Of the patients who entered the sanitarium in the first stage of the disease, it was found that 70 per cent. were able to work three to four years after discharge, while of those who entered in the third stage the percentage of deaths increased each year after discharge. The patients who commenced treatment in the second stage of the disease held a middle place, a fair number recovered, but not a few died. Summing up the results, Rumpf states that of those entering in the first stage, 70 per cent. are able

1. Lancet, Aug. 27, 1904, p. 553.

1. Münchener med. Wochenschrift, II, No. 33.

to work at the end of three or four years; of those entering in the second stage, 55 per cent.; of those entering in the third stage, 23 per cent. Such results place the prognosis of pulmonary tuberculosis in a rather more favorable light than many of the recent statistics would lead us to expect; they serve to emphasize the fact, which can not be too often stated, that the percentage of cures is in direct ratio to the number of early diagnoses.

UNUSUAL COMPLICATIONS OF MEASLES.

The micro-organism of measles is yet to be isolated and the effects of its biologic activity await demonstration. The symptoms of the disease are dependent largely on the localization of the morbid process to the mucous membrane of the respiratory tract, and complications of toxic origin are of rather uncommon occurrence, although a considerable number of cases in which cerebral and spinal disorders developed in the course or sequence of measles have been placed on record. For this reason the occurrence of polymyositis and polyneuritis in connection with measles would seem to be worthy of note. In a joint communication Dr. W. Jesen¹ reports a case of the former complication and Dr. E. Edens one of the latter. The first occurred in a woman, 32 years old, in whom the rash of measles appeared on the sixth day of an illness, and symptoms suggestive of articular and muscular rheumatism on the sixteenth day. When the patient came under observation, she presented edema of one foot and tenderness of the corresponding lower extremity. Active movements were restricted and attended with muscular pain. Later pain appeared also in the opposite lower extremity, together with edema and thickening and induration of the musculature, while the overlying skin became tense and glistening. The symptoms persisted for about a month and then subsided gradually, recovery eventually taking place. There was no doubt as to the diagnosis of measles, the mother of the patient after attending the latter also being attacked by the disease. The second case occurred in a girl, 16 years old, in whom symptoms of polyneuritis developed in the course of a severe attack of measles complicated by bronchopneumonia and otitis media. The two cases cited teach, in conformity with an abundant clinical experience, that the exanthemata are not to be ignored, but they must always, in mild as well as in severe cases, be considered as possible factors in the development of even serious complications.

Medical News.

CALIFORNIA.

Hospital Incorporated.—The Good Samaritan Hospital of San Francisco has been incorporated with a capital stock of \$100,000.

Personal.—Dr. Hiram N. Rucker, Merced, has been appointed superintendent of the Masonic Widows' and Orphans' Home, at Decoto, and assumed charge November 1.

Decision in Re Osteopaths.—The secretary of the State Board of Health states that an osteopath can not sign a death certificate and gives as his authority Attorney-General Webb, who

cited with his approval the decision of former Attorney-General Tiry L. Ford, who said:

I conclude that an osteopathist is not a physician within the meaning of Section 3084 of the Political Code, or the municipal corporation act, so called, hereinabove referred to, and that he can not, therefore, sign a death certificate as a physician as the word is used in the statutes.

ILLINOIS.

Board Awarded Medal.—The State Board of Health has been awarded a gold medal for its exhibit in the section of hygiene at the Louisiana Purchase Exposition.

Provides Hospital in Persia.—Mrs. Simon Reed, Lake Forest, has donated \$7,000 to the Presbyterian Board of Missions, to be used for the erection of a hospital at Oroomiah, Persia.

Diphtheria.—It is reported that there are 8 or 10 cases of diphtheria in East Peoria, and closure of the schools is proposed.—Diphtheria is prevalent near Shibley, and schools are being closed through fear of a general epidemic.

Personal.—Dr. Aurelius T. Bartlett, Virden, has moved to St. Louis.—Dr. Daniel Lichty, Rockford, has succeeded the late Dr. Edward P. Catlin as a member of the local board of pension examiners.—Dr. James D. Whitley, Petersburg, has resumed practice after a long and severe illness.

Smallpox Warning.—The State Board of Health has issued a circular to local health authorities throughout the state, calling attention to the prevalence of smallpox, the too common carelessness as to vaccination and other precautions; the present virulent nature of the disease and the necessity of taking immediate measures to safeguard the people of the state against the disease.

Chicago.

Home Again.—Dr. Nicholas Senn has returned from his trip around the world and has resumed practice.—Dr. and Mrs. Ferdinand C. Hotz have returned from Europe.—Dr. Thomas J. Jackson and family have returned from Europe.

A Low Mortality.—The deaths for the week ended October 29 numbered 412, equivalent to an annual death rate of 11.14 per 1,000. Consumption was the chief cause of death with 54; violence caused 39 deaths; acute intestinal diseases, 34; pneumonia and Bright's disease, each 32; heart diseases, 30; diphtheria, 10, and typhoid fever, 7.

Vaccination and Smallpox.—Upward of 270,000 vaccinations have been performed in the city since the first of the month—more than 40,000 by officers of the department and the remainder by private physicians. Twelve new cases of smallpox were discovered during the week, but no new center of infection; they are all traceable to the previous cases. Of the 12, only 2 had ever had vaccination even attempted; these two, 31 and 55 years of age respectively, exhibit old, imperfect scars made in childhood.

Drainage Canal and Typhoid.—A dozen years ago Chicago had the highest typhoid death rate of any large city in the civilized world. To-day its rate is among the lowest. During the four years 1889-1892 inclusive there were 4,747 deaths recorded from typhoid fever—an average rate of 10.86 in every 10,000 of population. In the four years since the opening of the Drainage Canal there have been 2,235 such deaths—an average of 3.09 in every 10,000 of population. These figures show a reduction of nearly three-quarters (74.8 per cent.) in the typhoid mortality rate.

INDIANA.

Typhoid at Carmel.—There have been 11 cases of typhoid fever in Carmel, all of school children in the public school. The school well is suspected.

Diphtheria in Institution.—There were 68 cases of diphtheria, with 3 deaths, the first week in October at the Miami County Orphans' Home at Mexico. The first cases were, as usual, diagnosed as tonsillitis.

Hidden Scarlet Fever.—The county health officer discovered 5 unreported cases of scarlet fever, October 25, in Woodruff Place, a suburb of Indianapolis. All the cases were attended by well-known physicians. It is probable that prosecutions will be made.

Impure Water.—The Indianapolis Water Company, which has often been openly accused of furnishing polluted water, threatens to ask for an injunction against the new United States Army post if the effluent from the septic tank and sewage filter beds is allowed to run into Fall Creek. This, we are informed, is likely to lose the post to Indianapolis.

1. Berliner klin. Woch., Aug. 8, 1904, p. 847. Abstract in THE JOURNAL, page 922.

The Terre Haute Epidemic.—In the smallpox epidemic at Terre Haute, which ended October 18, 114 cases were reported and 12 deaths. Most of the cases were very severe, and there were three cases of hemorrhagic smallpox, with three dying. Two deaths from hemorrhagic smallpox also occurred in a farmer's family in Warren County the last week in September.

Banquet in Honor of McCormack.—The societies which comprise the Thirteenth Council District gave a banquet at the Oliver Hotel, South Bend, October 20, in honor of Dr. J. N. McCormack, national organizer of the American Medical Association, at which Dr. James B. Greene, Mishawaka, responded to the toast of "The Pioneer Doctor"; Dr. Richard B. Dugdale, South Bend, to "The President of the County Medical Society and His Troubles"; Dr. William H. Thompson, Winamac, to "The General Practitioner"; Dr. John C. Fleming, Elkhart, responded for "Our Absent Sisters"; Dr. Charles A. Daugherty, South Bend, explained "Why Every Physician Should Be a Member of His County Medical Society"; Dr. James W. Milligan showed how "Others See Us"; Dr. Charles J. Loring, Rochester, responded for "The Country Doctor"; Dr. T. A. Burr, South Bend, described "The Clinician of To-Day and Yesterday," and Dr. McCormack gave some "Professional Reminiscences of Dixie." Dr. John B. Berteling, South Bend, was toastmaster.

KANSAS.

Epidemic at Wellington.—It is reported that there are 30 cases of typhoid fever and several of diphtheria in Wellington. The typhoid infection has been traced to ice cream served at a wedding feast.

Infectious Diseases.—During the last month there were in Topeka 31 cases each of diphtheria and scarlet fever, with 5 and 3 deaths respectively, 9 cases of smallpox, 2 of measles and 3 of chicken-pox, and 13 deaths from consumption.—Three district schools south of Emporia have been closed on account of epidemic diphtheria.

Extension of School for Feeble-Minded.—The State Board of Charities has confirmed the recommendations contained in the last report of Dr. C. S. Newlon, superintendent of the State School for Feeble-Minded Youths, which provide for a new four-story dormitory to cost \$40,000, an engine house, residence for superintendent, etc.

MARYLAND.

Personal.—Dr. L. Gillis Owings, Ellicott City, is at the University Hospital, Baltimore, suffering with typhoid fever.

Convicted for Abortion.—Dr. Joseph C. Orlandorff, tried at Upper Marlboro, on the charge of manslaughter in causing the death of Margaret Hall at his institute there by malpractice, was convicted October 27.

Protest Against Pardon.—The State Department has been flooded with protests against the pardon of Dr. George C. Worthington, a convicted abortionist, now serving his term in the penitentiary, and it is said in view of these protests the governor will not interfere.

State Board of Health Reports.—The annual reports of the State Board of Health for 1902 and 1903 are just issued, the delay being due to the fire last February. In the report for 1903 the secretary criticises some of the county officials for alleged indolence and indifference. St. Mary's and Garrett, he says, are the worst offenders in this regard, and but for their shortcomings Maryland would now be admitted to the group of registration states. More care in keeping birth and death records and better organization are strongly urged. The secretary recommends the establishment of an annual school or institute which all health officers shall be compelled to attend.

Baltimore.

Personal.—Dr. Charlotte S. Murdock sailed for Liverpool October 22.—Dr. John C. Schofield was painfully injured by being thrown from his buggy, October 20.

Medical Men Officers of War Society.—The Society of the War of 1812 elected the following among other officers, October 25: President, Dr. Albert K. Hadel; vice-president, Dr. James D. Iglehart; members of executive council, Drs. Charles E. Sadtler and Nicholas L. Dashiell.

MASSACHUSETTS.

Malden Isolation Hospital.—The council of Malden has recommended an appropriation of \$15,000 for the construction of a hospital for contagious diseases on the land of the poor farm, to accommodate 24 patients.

Diphtheria on the Increase.—There were 67 cases of diphtheria, 5 of which were fatal, reported to the Boston Board of Health for the week ended October 29. This is an increase of 60 per cent. and would be alarming except that most of the cases so far reported are mild.

Personal.—Dr. Robert A. Blood, Charlestown, formerly surgeon general, has moved to Brookline.—Dr. John B. Beebe, Great Barrington, has been appointed medical examiner of the fourth Berkshire district, vice Dr. Whitemell P. Small, resigned.—Dr. Roscoe D. Perley, Melrose, has been appointed medical examiner of Middlesex County, vice Dr. Ernest S. Jack, resigned.—Dr. John B. Tyler, Billerica, sails for home from Italy early this month.—Dr. Elisha S. Lewis, Springfield, sails for Europe early this month.

Free Issue of Vaccine Virus.—The Massachusetts State Board of Health has begun to issue free vaccine virus in accordance with the act of the legislature in 1903. This is produced and distributed in the same way as the diphtheria antitoxin, which has largely replaced the product of private manufacturers throughout the state. Both the antitoxin and vaccine virus are prepared under the close supervision of Prof. Theobald Smith, and the total expense is but a few thousand dollars per year. The lymph is issued in the glycerinated form in sealed tubes, and also in vials containing 25 or more doses, according to the desire of the physicians who use it. The circular sent out by the board urges the vaccination of all children before they are one year old and again at the age of 10, with careful inspection to determine success or failure. Careful observance of these rules with the easy access to free vaccine of the best quality, it is expected, will prevent the recurrence of the smallpox epidemics of the past few years.

MICHIGAN.

Personal.—Dr. Horace H. Phillips, Cassopolis, has been elected county physician of Cass County, to succeed himself.

Dr. Arthur D. Holmes and family, Detroit, returned October 22 after an absence of a year in Europe.

Postgraduate School for Detroit.—Plans are in progress to establish and maintain a postgraduate school of medicine and an additional hospital in Detroit. The following committee has been appointed to devise more definite plans: Drs. Lewis E. Maire, Frank D. Summers and Leo Breischler.

Another Anti-Vaccination Lie Nailed.—A circular issued by the State Board of Health says:

An item has been going the rounds of the press relative to the death of William Taylor, a child at Port Huron, alleging that "The parents believe that his death was caused by vaccination." But an official report to the secretary of the State Board of Health clearly proves that the alleged belief had no foundation in fact. The report says that a short time after vaccination the child was taken sick with bowel trouble and had no medical attendance, the parents being "Christian Scientists." After the death of the child the coroner called in a reputable physician and found the vaccinated arm, aside from a small scar, was exactly the same as the other, and showed no sign of having been inflamed. The physician and the coroner came to the conclusion that the child had died of "enterocolitis"—inflammation of the bowels. It appears that the parents belong to a sect whose members do not believe in vaccination, nor in calling a physician, and undoubtedly would have been pleased to have had the death recorded as due to vaccination, especially as otherwise there is a suspicion as to the effect of the lack of proper medical attendance for the relief of the inflammation of the bowels.

NEW JERSEY.

A Merited Honor.—Dr. Archibald Mercer, who recently retired after long service as an active member of the surgical staff of the City Hospital, was unanimously elected by the trustees surgeon emeritus of the hospital.

Physician Automoblists to Organize.—Physicians of New Jersey are planning a national organization of automobilists. A meeting will be held in Camden in January, when the Physicians' Automobile Club of New Jersey will hold its annual meeting.

Diphtheria in Salem.—Some of the public schools of Salem, Petersburg, Beasley's Point and Palermo have been closed on account of the prevalence of diphtheria. Camden is also suffering from a similar outbreak. The disease seems to be extremely virulent; 18 cases were reported in three days in Camden.

Physicians Ill.—Dr. Walter Steadman, Hoboken, who has been ill for three months with typhoid fever, is now convalescent.—Dr. Robert C. Riblans, Newark, has been seriously ill with septicæmia arising from an operation wound on the finger.—Dr. Rufus B. Whitehead, Elizabeth, who has been threatened with phthisis, has gone south for the winter.

Loving-Cup Presented.—The medical profession of Atlantic City, on October 17, presented Dr. Byrou Cook Pennington with a handsome silver loving-cup, suitably inscribed, in token of their appreciation of the sterling worth and faithful work of Dr. Pennington during his 24 years of practice in Atlantic City. Dr. Pennington sailed, October 22, for Bermuda, where he will spend the winter.

NEW YORK.

Personal.—Dr. Floyd S. Crego, Buffalo, is in Europe.—Dr. Montgomery Crockett leaves Buffalo for a year. He will first go to Asheville, N. C., and in the spring will go to Europe, remaining until the fall of 1905.

Another Drug Crusade.—The first step in a crusade which the New York State Medical Association has declared against druggists who sell impure drugs and traffic unlawfully in poisons, was taken when the agent of the association's attorney made a sampling tour among druggists. The samples will be sent to the health board for analysis and, if evidence of adulteration is found, the association will take drastic measures. The State Board of Pharmacy has inspectors out constantly endeavoring to obtain evidence of impure drugs.

Proposed Consumptive Sanitarium Impossible.—Despite the protest of the medical fraternity and philanthropists generally, the Goodsell-Bedell bill has been passed, prohibiting the establishment of a hospital for consumptives without the consent of the board of supervisors of the county, and of the town board of the town, in which the hospital or camp is sought to be located. A previous law provided that the consent of both the local and the state board of health must be obtained before such a hospital could be established. This will make it impossible, without further legislation, to establish the sanitarium for poor consumptives in an isolated part of Orange County which the health authorities of New York City had intended to be used for this purpose.

New York City.

Subway Contributes to Hospitals.—It was announced that the subway company would give to the hospitals of the city all the money collected from the sale of tickets on the opening day, October 27. It was ascertained that this sum would be in the neighborhood of \$5,600.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended October 22, 57 cases of measles, with 3 deaths; 317 cases of diphtheria, with 30 deaths; 123 cases of scarlet fever, with 7 deaths; 41 cases of chicken-pox; 337 cases of tuberculosis, with 143 deaths; 125 cases of typhoid fever, with 17 deaths, and 18 deaths from cerebrospinal meningitis.

Pneumonia Investigation.—At the request of this commission Dr. Darlington has prepared two large charts, which show the increase of pneumonia since 1870. The pneumonia charts show that the pneumonia deaths have increased nearly 50 per cent. in thirty-three years. The highest death rate was in 1892 and 1893, when there was an increase of from 75 per cent. to 85 per cent. over that of 1870, these being the years of the influenza epidemic. Another chart gives the comparison between the death rate from pneumonia and that from pulmonary tuberculosis from 1870 to 1893. For the first twenty years of this period tuberculosis was far more deadly. In 1891 the pneumonia rate exceeded that of tuberculosis and only once since then has the pneumonia rate been lower.

PENNSYLVANIA.

Personal.—Dr. Addison M. Rothrock, West Chester, has assumed his duties as resident physician of the Mount Alta Sanitarium for Consumptives.

Health Officers Close School.—On account of the existence of a great deal of contagious disease among the children attending St. Nicholas' German Catholic school, Wilkes-barre, the health officers have ordered the school closed for an indefinite period.

Philadelphia.

Personal.—Dr. Richard H. Harte has resigned his position as attending surgeon to the Episcopal Hospital. The vacancy on the surgical staff will be filled by the board of managers at its meeting, November 24.

Eminent Japanese Visitors.—A party of four distinguished professors from the Imperial University at Tokio visited Philadelphia, October 25. All are graduates of Berlin University. They were Dr. L. Sato, professor of surgery; Dr. K. Tamba, professor of pharmacy, and Profs. T. Yssisaka and A. Nissimura.

Uncinariasis.—The *Uncinariasis americana*, or hookworm, was discovered in a patient by Dr. M. H. Fussell in the University Hospital. The patient has been an inmate of the institution since August last. The true character of his ailment was totally obscure until the parasite was found. Dr. Fussell presented a paper on this subject and exhibited specimens at the last meeting of the College of Physicians.

Equips Medical Laboratories.—The University of Pennsylvania has just completed, at the cost of \$7,000, the equipment of the new medical laboratories. The laboratories were used for the first time, October 31. The donation provides the laboratory of pathologic histology, neuro-pathology and gynecologic pathology, with 50 microscopes each, also one dissecting microscope, 40 1 1/2 oil immersion lenses, 1 hydraulic press, 1 centrifuge, 1 thermostat, 1 spectroscope and 1 complete outfit for photomicrography. It also provides the 4 lecture rooms with projectoscopes, 2 for lantern slides and 2 for microscopic sections.

Health Report.—Diphtheria is widely prevalent throughout the city and is increasing with marked virulence, as 18 deaths resulted from the disease during the week, an increase of 10 over those of last week. The new cases numbered 98, an increase of 2 over the preceding week. The disease prevails generally throughout the city, and many schools have been compelled to close. The disease is also more or less prevalent throughout the state, and also in the near-by towns of New Jersey. The total death rate for the week shows an increase, numbering in all 407. This is an increase of 27 over those of last week, and a decrease of 59 over the corresponding period of last year. In all there were 244 cases of contagious disease, with 25 deaths reported, as compared with 233 cases and 22 deaths for the previous seven days.

TEXAS.

Personal.—Dr. Henry I. Hilliard, Marshall, was thrown from his buggy, October 11, and seriously injured.

Diphtheria Closes Schools.—Public schools at Mason, Ennis and Hallettsville have been closed on account of the prevalence of diphtheria.

Quarantine Removed.—On recommendation of the state health officer, the governor, on October 24, issued his annual quarantine proclamation raising the embargo against ports in tropical countries, recognized as infected during the summer months.

State Pasteur Institute Open.—The new Pasteur Institute, for the establishment of which an appropriation of \$5,000 was made by the last legislature, was opened at Austin for the reception of patients October 1. Dr. Benjamin M. Worsbam is in charge of the institute.

Openings of Colleges.—Dallas Medical College opened for its fifth annual session, September 20.—The fourteenth annual session of the Texas Medical College and Hospital, Galveston, was opened with an address by Prof. Alfred E. Thayer, October 3.—Fort Worth Medical College began its eleventh annual session October 3.

GENERAL NEWS.

Western Surgical Association.—The next annual meeting of the Western Surgical and Gynecological Association will be held in Milwaukee, Dec. 28-29, 1904.

Laryngologists at Pan-American Medical Congress.—Dr. G. Hudson Makuen is secretary of the section on laryngology and rhinology of this congress and asks those who wish to contribute papers to send titles to him at 252 South Sixteenth Street, Philadelphia.

American Public Health Association.—The thirty-second annual meeting of this body will be held at Havana, Cuba, Jan. 9-13, 1905, and, as noted in the Correspondence column, arrangements are made whereby one may attend the Pan-American Medical Congress and then go to Havana on the way back to the United States. The secretary of the health association is Dr. Charles O. Probst, Columbus, Ohio.

American Surgeons at the Seat of War.—The general staff has decided to send American surgeons as attachés to the Russian and Japanese armies provided the consent of these two nations can be secured. The military observers now in the field have reported so many interesting details regarding the medical departments of the two armies that it is evident to the general staff that there has been a revolution in the field hospital methods and they regard it as desirable that the American medical department should have an opportunity of profiting thereby.

A New Forgery Scheme.—The profession should be warned concerning a clever forger who has been cashing bad checks in Minneapolis. The man's scheme is novel and so far has proved successful. He writes a prescription and signs some well-known physician's name to it. This he takes to a drug store to be filled. In payment he tenders a check, usually for a small amount, and is usually given the change in cash. The man secured the blanks by telling a downtown druggist that he was a physician recently admitted to practice. His manners and appearance are good and few would take him for a crook. The Minneapolis police have been warned against a gang of forgers and confidence men that have recently left St. Louis and they think the present operator is one of these.

Medical Directory of New York, New Jersey and Connecticut.—The sixth edition of the Medical Directory of New York, New Jersey and Connecticut, compiled under the auspices of the New York State Medical Association, which has just been received, follows the same general order as the editions which preceded it, and is accordingly practical, neat and valuable. The total number of physicians noted in New York state is 11,746; in New Jersey, 2,176, and in Connecticut, 1,282. Polk's directory for 1904 gives the figures as New York state, 13,638; New Jersey, 2,360, and Connecticut, 1,434, and the Standard Directory for 1903-1904 states that there are 12,995 physicians in New York state; 2,245 in New Jersey, and 1,288 in Connecticut. Of the 11,746 physicians in New York state, 4,215 are credited to Manhattan and Bronx, 1,506 to Brooklyn, 121 to Queens, and 65 to Richmond, which makes a total for Greater New York of 5,907 and for the remainder of the state of 5,839.

FOREIGN.

Stabbed by an Insane Patient.—Dr. Vallon was stabbed in the back by an insane inmate in making his rounds at the Sainte-Anne asylum, Paris. The physician was paralyzed on one side at first, but seems to be recovering. The injury was inflicted with a kitchen knife which the patient had secured.

New Hygienic Measure at Rome.—The municipality of Rome has distributed cards to the various drug stores, each printed with the following:

The undersigned wishes to announce to the Board of Public Health that at No. of street, there exists cause for injuring the public health in overcrowding of sleeping rooms, filth, defects in the gas, pavements, cesspools, etc.; suspicion of adulteration of foods or beverages. N. B.—Underline the nuisance or defect complained of. No attention will be paid to unsigned communications.

The denouncer signs this card and returns it to the pharmacist, receiving a receipt therefore. It is turned over to the Board of Health and suitable measures are taken. The Italian medical journals regard this innovation as promising good results.

The First German Academy for Practical Medicine.—The first of the new German academies for practical medicine was formally inaugurated at Cologne October 10, with much ceremony. Bardenheuer was mainly instrumental in its organization, and he was decorated on the occasion. He has published a *Festschrift* in honor of the inauguration, with articles from his own pen and by his numerous pupils, including Sonnenschein, Graesser, Bayer and others. These new academies are designed to serve as centers for postgraduate study in places without a medical college and to train fledgling physicians and others wishing to take up some specialty. The profession at large regards this innovation with dubious approval.

Correspondence.

Fourth Pan-American Medical Congress.

NEW YORK CITY, Oct. 25, 1904.

To the Editor.—To attend the fourth Pan-American Medical Congress, which will be held in Panama, Jan. 2-6, 1905, will involve a most delightful midwinter trip. The delegates will leave this country by the Atlantic, Pacific and Gulf coasts the last week in December and will return by the same or other routes. The American Public Health Association will meet the following week in Havana, and those who desire to attend both meetings can do so. There are two routes for the physicians from Panama to Havana. The first is by way of Jamaica to Santiago de Cuba by boat and over-

land by rail to Havana. The second is by water from Panama to Vera Cruz and from there to Havana. The former will probably be the most pleasant.

From Havana, the return trip can be made directly north to New York by water or via Miami or Tampa, Fla., or New Orleans. The connections and dates of sailing are now being arranged.

The Panama government has appropriated \$25,000 for the scientific session and the entertainments. The afternoons will be devoted to the scientific sessions and the mornings and evenings to trips and social functions. So far as can be learned, the program in Panama will be a reception on the first day by President Amador of the Panama republic, and the formal opening session of the congress the same evening. On the second day an excursion to the canal in the morning, meeting of the various sections in the afternoon, and a banquet in the evening; on the third day an excursion down the bay to Taboga Island, where a Panama breakfast will be served, scientific sessions in the afternoon and a ball in the evening. On the fourth day an excursion to the United States Army barracks in the morning, section meetings in the afternoon and the formal closing session in the evening. On the fifth day an excursion to the plantation of the United Fruit Company, and in the afternoon those who go to Cuba will sail for Jamaica, while those who intend going to Cuba by way of Vera Cruz, or returning home by way of New Orleans or New York, will remain until the following Tuesday.

The secretaries of the sections of the congress for the United States are:

Dr. A. H. Doty, New York, Hygiene and Quarantine.
Dr. Judson Daland, Philadelphia, Medicine.
Dr. R. Maass, New Orleans, General Surgery.
Dr. H. Bert Ellis, Los Angeles, Eye.
Dr. Judson Makuen, Philadelphia, Throat.
Dr. Frederick Jack, Boston, Ear.
Dr. C. H. Hughes, St. Louis, Nervous Diseases.
Dr. Geo. Goodfellow, San Francisco, Military Surgery.
Dr. John Ridton, Chicago, Orthopedic Surgery.
Dr. D. W. Montgomery, San Francisco, Dermatology.
Dr. C. G. Kerley, New York, Pediatrics.
Dr. Noble F. Barnes, Washington, Therapeutics.
Dr. Walter Chase, Boston, Pathology.

Communications from physicians in the United States can be sent directly to these secretaries. Delegates intending to attend the congress, desirous of obtaining information, should communicate with the secretary of the international executive committee in the United States. DR. RAMON GUTIERAS,

75 West Fifty-fifth Street, New York City.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

VIBRATION THERAPY.

To the Editor.—I have lately been brought into contact with the promoters and their literature of the "Vibration Therapy" method of treatment. Their literature reads well, and if founded on scientific observations that can be substantiated, is worth attention. I know of no unbiased literature concerning this method—that is, papers written by those not interested commercially, in the exploiting of some particular appliance. Are there any reports or works on this subject by scientific or accredited authorities published that do not bear the earmarks of some commercial interest? Is the "vibration therapy" of sufficient value to the physician to warrant him in spending his time in studying it and the expense of installing the apparatus? Is it a better or more easily applicable form of treatment for certain conditions, such as lumbago, paralysis, neuralgia, neurasthenic conditions, nutritional disturbances, than other well-known remedies that are the universal property of the medical profession, or is it only a "fad," adapted to the purposes of a certain class of practitioners?

N. B. B.

ANSWER.—In Rockwell's work on Medical and Surgical Electricity, Chapter V, pages 635-641, is devoted to vibratory therapeutics. The following articles on this subject have appeared in medical journals: "Vibration Massage in the Treatment of Chronic Prostatitis," by Dr. Louis E. Schmidt, *St. Louis Courier of Medicine*, August, 1903; abstracted in *The Journal*, Sept. 12, 1903. "Mechanical Vibration, Its Theory and Application in the Treatment of Disease," by Maurice F. Pilgrim, *Boston Medical and Surg-*

ical Journal, Sept. 10, 1903 "Vibration Massage," by Werneck Machado, *Brasil Medico*, August, 1902. "A Consideration of the Scientific Application of Mechanical Vibratory Stimulation in the Treatment of Disease," by Maurice F. Pilgrim, *Medical Notes*, New York, Jan. 24, 1903. "Vibration Massage in the Expulsion of Kidney Stone," by G. Klemperer, *Therapie der Gegenwart*, Berlin, October, 1902; abstracted in *THE JOURNAL*, Dec. 6, 1902, page 1492. Vibration therapy, like massage, which it resembles, seems to have a definite place in the treatment of disease, but like some other methods, it has been used indiscriminately in many conditions for which it was very unsuited.

STATES THAT DO NOT REQUIRE EXAMINATION FOR LICENSE.

PHILADELPHIA, Oct. 15, 1904.

To the Editor:—What states do not require an examination for license to practice medicine? H. W.

ANSWER.—Colorado, Wyoming, Indian Territory, Nevada and New Mexico, issue licenses to practice medicine on registration of diploma. Colorado and Wyoming, however, do so only in the case of graduates holding diplomas from colleges having the standard laid down by their boards.

EUROPEAN MEDICAL SUMMARIES.

EL PASO, TEXAS, Oct. 29, 1904.

To the Editor:—1. Is there published in the English language something similar to "Progressive Medicine" or "International Clinics," but covering a field in one or more of the European countries? If so, give price, etc. 2. Is "Braithwaite's Retrospect" still published? E. J. M.

ANSWER.—1. No. 2. No.

Marriages.

JOSEPH GILBERT BEMIS, M.D., to Miss Sarah C. De Yoe, both of Chicago.

JOHN Z. PARKER, M.D., to Miss Mary Elizabeth Rea, both of Pattonsburg, Mo.

CHARLES LONG, M.D., to Miss Helen E. Miller, both of Toledo, Ohio, October 19.

C. T. HELMEY, M.D., to Miss Clara Hahn, both of Humboldt, S. D., October 15.

JOSEPH T. EDWARD, M.D., to Miss Alice Mary Reid, both of Chicago, October 25.

HARRIS G. MINTER, M.D., to Miss Alma Reddick, both of Jakin, Ga., October 19.

HERBERT E. LARROQUE, M.D., to Miss Mabel Britton, both of Baltimore, October 25.

S. LEE MAGNESS, M.D., to Miss Stella F. McConnell, both of Baltimore, October 20.

JOHN F. MACKAY, M.D., Odessa, Mo., to Miss Nellie McVeigh Hopkins of Breckenridge, Mo.

JAMES A. MANXON, M.D., Sherrard, Ill., to Miss Frances Edgar of Cable, Ill., October 19.

JOHN F. CROWLEY, M.D., La Salle, Ill., to Miss Margaret Hensler of Chicago, October 19.

J. HENRY MCNEEL, M.D., to Miss Lynnette Leininger, both of Foud du Lac, Wis., October 20.

Z. M. STORY, M.D., Thomson, Ga., to Miss Willie Spence Jones, of Gainesville, Ga., October 19.

WILLIAM W. MILLIGAN, M.D., to Miss Minerva M. Rankin, both of Burlington, Iowa, October 26.

EDWARD V. MILHOHLAND, M.D., to Miss Mary Katherine Clark, both of Baltimore, October 26.

AUGUST R. ANNEBERG, M.D., Templeton, Iowa, to Miss Bertha Kvits of Des Moines, Iowa, October 25.

WILLIAM EDWARD MACK, M.D., Paradise, Cal., to Mrs. Eva A. Chinn of Los Gatos, Cal., October 15.

ERNEST McCUE THRIFT, M.D., Madison, Va., to Miss Minnie Merle Giles at Raphine, Va., October 26.

THOMAS K. PROCTOR, M.D., to Mrs. Hallie H. Robertson, both of Sulphur Springs, Texas, September 15.

NEIL DUNCAN GRAHAM, M.D., of Washington, D. C., to Miss Elizabeth Farrow, at Baltimore, October 24.

WILLIAM R. BALL, M.D., Mitchell, S. D., to Miss Helen Beckwith Jones of Prospect, N. Y., September 21.

RICHARD BOOTH, M.D., Lynchburg, Va., to Miss Louise Harris Zimmerman, at Buena Vista, Va., October 26.

FRANK HILTON McLEOD, M.D., Florence, S. C., to Miss Caroline Goodwyn Nelson of Statesburg, S. C., October 5.

Deaths.

Samuel Warren Abbott, M.D. Harvard University Medical School, Boston, 1862, a member of the American Medical Association, American Public Health Association, American Statistical Association and Royal Statistical Society of Great Britain; for 18 years the efficient and painstaking secretary of the Massachusetts State Board of Health; an authority on vital statistics, author of "The Past and Present Condition of Public Hygiene and State Medicine in the United States," assistant surgeon in the Navy and in the First Massachusetts Volunteer Cavalry during the Civil War, coroner of Middlesex County



DR. SAMUEL W. ABBOTT.

from 1872 to 1877 and for seven years thereafter medical examiner for the same county, was found dead in bed at his home in Newton Highland, Mass., October 22, at the age of 67. Modest about his attainments and never seeking publicity, Dr. Abbott was recognized as being one of the most careful statisticians on medical matters in this country. His state reports have been regarded as models, and their style has been copied in many other states. He had the respect of the entire medical profession of the state. The *Boston Advertiser* pays the following editorial tribute to Dr. Abbott:

To most people around the state hence Dr. Abbott was merely a quiet, hard working secretary to the state board of health. To scientific authorities abroad his name was probably better known than that of any other American, with the possible exception of Dr. Weir Mitchell of Philadelphia. Dr. Abbott's name was signed to the Massachusetts reports, which are the highest possible authority of the kind on many subjects, such as typhoid epidemics, that interest scientists all over the world. It is worth remembering that when the much-heralded "copper treatment" for the Americans in the Panama Canal strip was to be tested it went to the Massachusetts board of health.

William Wotkins Seymour, M.D. Harvard University Medical School, Boston, 1878, a member of the American Medical Association, British Medical Association, American Association of Obstetricians and Gynecologists, New York State Medical Association and New York State Medical Society; professor of midwifery and gynecology in the University of Vermont for several years, trustee and chief surgeon of Samaritan Hospital, Troy, N. Y.; a pioneer investigator in gallstone disease and one of the first surgeons in the United States successfully to operate in this field; the translator of Kehr's classical treatise on "The Diagnosis of Gallstone Disease," died at his home in Troy, N. Y., October 18, after an illness of several weeks, from heart disease, aged 51.

Mordecai Price, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1869, died suddenly at his home in Philadelphia from apoplexy, October 29, aged 60. Dr. Price was one of the most eminent abdominal surgeons and gynecologists of Philadelphia and an operator of national reputation. He was born in Rockingham County, Virginia, in 1844, and came to Philadelphia when a boy. He was associated in his work with his brother, Dr. Joseph Price. He was a member of the Philadelphia County Society, the Medical Society

of the State of Pennsylvania and the American Medical Association. He was a frequent contributor to medical literature.

Samuel W. Woodhouse, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, surgeon and naturalist on the boundary survey expedition between the Creek and Cherokee Indians; surgeon of the topographical engineer corps on the Sitgreaves-Zuni expedition in New Mexico, in 1852, and to Central America in 1853; surgeon at Fort Delaware in 1854; surgeon to the Washington Grays, and surgeon on Cope's packets, famous in the early days of steamships, died suddenly at his home, Philadelphia, October 23, aged 83.

Albion K. P. Meserve, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1859, a member of the American Medical Association; formerly president of the Maine Medical Association and chairman of the Portland Board of Health; secretary of the State Board of Registration in Medicine; member of the National Confederation of State Examining and Licensing Boards, died at his home in Portland, September 15.

Christopher C. Cook, M.D. St. Joseph (Mo.) Medical College, a member of the American Medical Association and the Greeley County Medical Society; for more than thirty years a practitioner of Nebraska, and since 1895 a resident of Scotia, died at the home of his daughter in Kansas City, Mo., September 30, from tuberculosis of the intestines, after an illness of eight months, aged 59.

Daniel A. Thompson, M.D. Medical College of Indiana, Indianapolis, 1883, a member of the American Medical Association; professor of diseases of the eye in Medical College of Indiana; one of the best-known specialists on the eye in Indiana, died at his home in Indianapolis, October 22, from malarial fever and abscess of the liver, after an illness of three weeks.

Montefiore Levi Maduro, M.D. College of Physicians and Surgeons in the City of New York, 1895, visiting physician at Mt. Sinai Hospital, member of the American Medical Association and of the New York State Medical Association, died at his home in New York City, October 23, from the effect of injuries received in a bicycle accident in 1898.

William Caldwell Flowers, M.D. Harvard University Medical School, Boston, 1861, for eleven years acting assistant surgeon in the Army, a member of the Massachusetts Medical Society and the Middlesex Medical Association, died at his home in Cambridge, Mass., October 20, after a lingering illness, aged 72.

Van Telburg Hofman, M.D. Medical College of Virginia, Richmond, 1897, a member of the American Medical Association, after a quarrel with his wife, committed suicide by shooting himself through the head, at his home in Sumter, S. C., October 24, aged 38.

Frederick A. Adams, M.D. Jefferson Medical College, Philadelphia, 1867, for 40 years a practitioner of Pocomoke City, Md., died at the University Hospital, Baltimore, October 28, from blood poisoning contracted during an operation, aged 65.

Jesse B. Blocher, Jr., M.D. University of Louisville, 1902, of Blocher, Ind., coroner of Scott County, died suddenly from valvular heart disease, and his body was found in Smith's Ford of Fourteen-Mile Creek, October 23, aged 24.

Campbell Sheridan, M.D. Jefferson Medical College, Philadelphia, 1849, of Johnston, Pa., the oldest member of the Cambria County Medical Society, died at his home in Sheridan Station, Pa., October 18, aged 85.

Joseph P. Cessna, M.D., 1859, surgeon of a Michigan regiment during the Civil War, who retired from practice in 1882, died at his home in Canfield, Ohio, October 9, from kidney disease, after a long illness, aged 79.

Henry Lott McIlhenny, M.D. Missouri Medical College, St. Louis, 1884, of Kingman, Kan., was instantly killed in a train wreck on the Missouri Pacific Railway while en route to St. Louis, October 10, aged 47.

William Pannill, M.D. Texas Medical College and Hospital, Galveston, 1878, formerly physician to the Texas State Orphans' Home, died at his home in Corsicana, Texas, October 21, after a long illness.

Jacob Eugene Mohr, M.D. Jefferson Medical College, Philadelphia, 1888, formerly of Quakerstown, Pa., died from hemorrhage caused by tuberculosis, at his home in Las Vegas, N. M., October 19, aged 39.

George C. Schiem, M.D. Jefferson Medical College, Philadelphia, 1887, of Saginaw, Mich., died at the Johns Hopkins Hospital, Baltimore, October 20, from anemia, after an illness of two years, aged 41.

Alice P. Howes, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882, formerly of Detroit, died in the Eastern Michigan Asylum, October 11, after a long illness.

Frederick C. Hennessy, M.D. Bellevue Hospital Medical College, New York, 1897, died at his home in Madison, Ind., October 17, from heart disease after a long illness, aged 31.

James M. Jennings, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1884, of Tyrone, Ky., died at St. Joseph's Infirmary, Louisville, from intestinal obstruction.

Lewis Royer, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1845, died from apoplexy at his home in Trappe, Pa., October 27, aged 82.

Stephen H. Brittain, M.D. Cincinnati College of Medicine and Surgery, 1859, died at his home in Loogootee, Ind., October 21, after a long period of invalidism, aged 72.

Henry C. Dixon, M.D. Louisville Medical College, 1872, of Tunnelton, Ind., died at Fort Ritner, Ind., October 15, from paralysis, after a long illness, aged 61.

Lewis J. Corey, M.D. Medical College of Ohio, Cincinnati, 1875, died at his home in Van Buren, Ind., October 25, after a short illness from apoplexy, aged 54.

Noah L. Eastman, M.D. Albany (N. Y.) Medical College, 1886, died at his home in Albany, N. Y., October 21, after a long illness, from Bright's disease, aged 46.

W. Bruce Collins, M.D. Vanderbilt University Medical Department, Nashville, 1893, died from paresis at his home near Oakfield, Tenn., October 9, aged 40.

J. Murray Wilcox, M.D. New York, 1893, of Barstow, Cal., died from pulmonary hemorrhage at his parents' home in St. Louis, October 19, aged 32.

William J. Moore, M.D. Illinois, 1902, died in Woodlawn, Birmingham, Ala., October 14, from typhoid fever after an illness of two weeks, aged 28.

Oliver Soper, M.D. New York, 1877, died at his home in Upper Montclair, N. J., October 22, from apoplexy, after an illness of a few hours, aged 61.

James S. Cabanne, M.D. Jefferson Medical College, Philadelphia, 1866, died in the City Hospital, St. Louis, October 19, from apoplexy, aged 71.

George A. Bentley, M.D. Georgetown University Medical Department, Washington, died at his home in Washington, October 21, aged 64.

J. Randolph Latimore, M.D. University of Maryland School of Medicine, 1881, died at his home in McAdenville, N. C., October 18.

Eleanor Louise Rundio, M.D. New York, 1902, died at her home in New York City, October 24, from typhoid fever aged 26.

Mary Alice Avery, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1879, of Portland, Maine, died recently.

Lydia A. Strowbridge, M.D. New York, 1861, died from cancer, at her home in Cortland, N. Y., October 4, aged 74.

Daniel J. Stowe, M.D. Illinois, 1878, died at his home in Belvidere, Ill., and was buried October 21, aged 73.

Miscellany.

The Portland Session.—The members of the profession of Portland are evidently appreciating their responsibilities regarding the session of the American Medical Association next July, and realize fully that unless preparations are made Portland will be uncomfortably overcrowded during the week of the session. The *Medical Sentinel* for October says that while it has recognized from the first "the gigantic nature of the task which Portland has undertaken in entertaining the A. M. A. in 1905, and has constantly frankly stated and discussed all the difficulties which confront us, this has been solely for the purpose of emphasizing the fact that Portland was fully aware of the magnitude of the task, and of predicting confidently that her public spirit and enterprise would meet it and rise superior to it. One after another our prophecies have been justified, and each month sees another of the difficulties of the problem triumphantly solved. First was the securing of building or auditorium on the grounds of the ex-

position, but opening from the street outside. This has been secured and will seat at least 2,500 to 3,000 people, and negotiations are on foot for its arrangement so that it can be subdivided into meeting places for some of the sections. Other sections can be accommodated in other rooms about the grounds and in school buildings in the neighborhood, so that if desired it seems quite feasible to hold the entire session meetings on and about the grounds themselves. And now to solve another great crux in the problem comes the news that the same syndicate which constructed and managed the Inside Inn at the World's Fair at St. Louis has made application for similar concessions here to the Lewis and Clark Fair Board. And this was not the only string to Portland's bow, as it was, immediately on the announcement of this plan, given out by a body of her leading business men and capitalists, that they had looked over the situation thoroughly, and while they preferred to let the St. Louis syndicate erect the hotel if it would, yet if its terms did not meet with the approval of the fair board, they would themselves erect a similar structure with home capital. So that an Inside Inn, with at least a thousand rooms, and capacity for 1,500 guests, is absolutely assured. . . . From the comparative lateness in the summer of the date of the meeting a considerable majority of the wealthier citizens of Portland will have left for their vacations, so that a large number of elegant rooms and suites in private houses can be secured for those who desire them, and there need not be any fear on the part of those who intend to come to the American Medical Association next year but that there will be an abundance of comfortable accommodations, in the finest summer climate in the world."

State Boards of Registration.

COMING EXAMINATIONS.

Board of Registration in Medicine of Massachusetts, State House, Boston, November 8-9. Secretary, Edwin B. Harvey, M.D., Boston.
Nebraska State Board of Health, November 9-10, State House, Lincoln. Secretary, George H. Brash, M.D., Beatrice.
Connecticut State Board of Medical Examiners, November 8-9, City Hall, New Haven. Secretary, Charles A. Tuttle, M.D., New Haven.

Maine Board of Registration of Medicine, November 15, Augusta. Secretary, A. K. P. Meserve, M.D., Portland.

Progress in the Movement for Reciprocity in Licensure.—In 1902 the American Confederation of Reciprocoating Examining and Licensing Medical Boards, representing fourteen states and since increased to seventeen, formulated the following declaration of purposes and qualifications as a desirable working basis of reciprocity:

PURPOSES OF THE CONFEDERATION.

The object of this confederation shall be to establish reciprocal relations between the medical examining and licensing boards of the states, territories, districts and provinces of the United States, the purpose of which being that thoroughly worthy and well-qualified physicians and surgeons, who have been legally authorized to practice under the laws of one of said states, territories, districts or provinces, may be given legal authority and be admitted to practice in any state, territory, district or province represented in this confederation, without a repetition of the tests and qualification to which such practitioner has submitted.

QUALIFICATION 1.

A certificate of registration showing that an examination has been made by the proper board of any state, on which an average grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the state where reciprocal registration is sought, may be accepted, in lieu of examination, as evidence of qualification, provided that in case the scope of said examination was less than that prescribed by the state in which registration is sought, the applicant may be required to submit to a supplemental examination by the board thereof in such subjects as have not been covered.

QUALIFICATION 2.

A certificate of registration or license issued by the proper board of any state may be accepted as evidence of qualification for reciprocal registration in any other state, provided, that the holder of such certificate has been engaged in the reputable practice of medicine in such state at least one year; and also provided, that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the legal examination test in such state.

In proposing these qualifications the importance of practically uniform standards in the various reciprocating states was recognized, and steps were taken to secure them through the work of proper committees.

When these propositions came to be discussed in the boards represented in the confederation a natural fear soon developed that the charlatans of the country, who are probably little less dangerous to the public because able to pass an examination, and who are notoriously migrating characters, would systematically secure license in every state where it was made possible for them and, when exposed or convicted in one place, be prepared to move elsewhere and continue their nefarious practices.

As a seemingly effective safeguard against such abuse of the privilege of reciprocity by the unworthy, without hardship to those who have been in practice long enough to establish a professional character, at a meeting of the confederation held at St. Louis, Oct. 25, 1904, the committee on qualifications reported the following, and asked, on account of its great importance, that it lie over one year:

QUALIFICATION 3.

As evidence of moral and professional character after graduation and licensure, each applicant shall present, from his former home, to the state board in which registration is sought, satisfactory evidence that he has been, for at least one year, a member in good standing of the county, state and national medical organizations of the school or system of practice to which he belongs, and a certificate of recommendation issued to him by vote, at a regular meeting of the society in which his membership originated, that he is worthy of the benefits of registration anywhere, and such certificate shall be treated as a part of such application, and considered in connection with the other evidence presented.

In the discussion the report met with such favor as to indicate that it is only a question of time until the main features of the above three qualifications will form the basis for a real, practical and safe reciprocity between a majority of the states of the Union.

Schedule of Questions for Examination.—The following resolution was unanimously adopted by the Illinois State Board of Health Oct. 22, 1904:

RESOLVED, That all persons desiring to practice medicine and surgery in the State of Illinois shall, in addition to other requirements already imposed, be required to pass a written examination, consisting of one hundred questions, in the following subjects: Anatomy, including histology and embryology, 10 questions; general surgery, 10 questions; materia medica and therapeutics, 10 questions; medicine, 10 questions; obstetrics, 10 questions; pathology and bacteriology, 10 questions; chemistry, 5 questions; cytology and hygiene, 5 questions; physiology, 7 questions; neurology, 3 questions; gynecology, 6 questions; laryngology and rhinology, 2 questions; medical jurisprudence, 2 questions; physical diagnosis, 5 questions; ophthalmology and otology, 3 questions; pediatrics, 2 questions; and be it further

RESOLVED, That an average of at least 75 per cent. of correct answers shall be required from each candidate.

A similar schedule of questions for examination was unanimously adopted by the American Confederation of Reciprocoating Examining and Licensing Medical Boards at its meeting in St. Louis October 25 on the recommendation of the committee appointed at a previous meeting to decide on uniformity as to scope and character of examinations by state medical boards.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers and of establishment and discontinuance of military posts, U. S. Army, for the week ending Oct. 29, 1904:

Teff, W. H., asst.-surgeon, ordered to proceed from Fort Snelling, Minn., to Fort Lincoln, N. D., to accompany the Third Battalion Twenty-first Infantry, to Presidio of San Francisco.

Usher, P. H. C., asst.-surgeon, leave of absence extended fourteen days.

Widmanson, L. P., asst.-surgeon, granted leave of absence for fifteen days.

Metcalfe, N. F., asst. surgeon, reports his departure from U. S. General Hospital, Presidio of San Francisco, on leave of absence for one month.

Lyster, W. J. L., asst.-surgeon, leave of absence extended fifteen days.

Wadhams, G. H., asst.-surgeon, left transport *Logan* on one month's leave of absence.

Dewey, Frederick S., contract surgeon, granted leave of absence for fifteen days from Oklahoma City, Okla.

McCown, Thomas B., contract surgeon, granted sick leave for three months from the Philippine Division with permission to visit China and Japan.

Warwick, Clarence A., contract surgeon, granted leave of absence for two months from the Philippine Division, with permission to visit Cochinchina and Siam.

McMillan, Clemens W., contract surgeon, granted leave of ab-

senes for twenty days, to take effect after his arrival at Fort Myer, Va., to which he has been ordered from Fort Hamilton, N. Y. Hayes, Melville A., contractor surgeon, arrived at San Francisco, October 17, from the Philippines, for treatment at the General Hospital, San Francisco.

Navy Changes.

Changes in the Medical Corps, United States Navy, for the week ending Oct. 29, 1904:

Curtis, L. W., surgeon, ordered to the *Pensacola* and to additional duty at the Naval Training Station, San Francisco.
Asserson, F. A., P. A. surgeon, ordered to the Navy Yard, New York.

Officers issued by the Commander-in-Chief of Asiatic Fleet): Tolfee, H. M., asst.-surgeon, detached from the *Wilmingon* and ordered home. Pachmann, R. A., asst.-surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the *Wilmingon*.
Vickery, E. A., asst.-surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

Scott, S. L., asst.-surgeon, detached from the *Massachusetts* November 28 and ordered home; resignation accepted, to take effect December 1.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Oct. 26, 1904:

Brooks, S. D., surgeon, relieved from duty at Savannah, Ga. McIntosh, W. P., surgeon, granted leave of absence for twenty-five days from November 8.

Smith, A. C., P. A. surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of surgeon.
Schereschewsky, J. W., asst.-surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Wille, C. W., asst.-surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of P. A. surgeon.
Wilson, R. L., asst.-surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Trask, J. W., asst.-surgeon, granted leave of absence for one month from October 22.
Hanzrich, F. K., pharmacist, granted leave of absence for thirty days from September 26.

Gibson, F. L., pharmacist, granted leave of absence for thirty days from Dec. 2, 1904, and thirty days from Jan. 1, 1905.

RESIGNATION.

Mcckall, B. McV., A. A. surgeon, resigned, to take effect Oct. 10, 1904.

CASUALTY.

Purviance, George, asst.-surgeon general, died, result of accident at Philadelphia, Oct. 20, 1904.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ending Oct. 29, 1904:

SMALLPOX—UNITED STATES.

Illinois: Chicago, Oct. 15-22, 30 cases, 2 deaths.
Michigan: At 42 places, Oct. 8-15, present.
Missouri: St. Louis, Oct. 15-22, 30 cases, 6 deaths.
Ohio: Cincinnati, Oct. 7-21, 3 cases.
Pennsylvania: Oct. 15-22, Philadelphia, 1 death; Steelton, 1 case.
South Carolina: Greenville, Sept. 25-Oct. 1, 3 cases.
Wisconsin: Milwaukee, Oct. 8-22, 12 cases.

SMALLPOX—FOREIGN.

Brazil: Pernambuco, Sept. 1-15, 25 deaths; Rio de Janeiro, Sept. 18-Oct. 2, 655 cases, 247 deaths.
China: Shanghai, Sept. 3-10, 1 death.
France: Paris, Oct. 1-8, 8 cases.
Great Britain: Oct. 1-8, Edinburgh, 1 case; London, 1 case; Newcastle-on-Tyne, 8 cases; Nottingham, 1 case; South Shields, Sept. 18-24, 1 case.
India: Bombay, Sept. 20-27, 2 deaths.
Italy: Catania, Sept. 28-Oct. 6, 1 death; Palermo, Sept. 25-Oct. 8, 14 cases, 5 deaths.
Malta: Sept. 25-Oct. 1, 1 case.
Russia: Moscow, Sept. 25-Oct. 1, 7 cases, 2 deaths.
Spain: Barcelona, Oct. 1-10, 7 deaths.

YELLOW FEVER.

Costa Rica: Limon, Oct. 8-15, 1 case imported from Sequires.
China: Santiago, Oct. 24, 1 case imported from Puntasal.
Mexico: Oct. 1-2, Oaxaca, 3 cases, 2 deaths; Merida, 1 case, 1 death; Tehuantepec, Oct. 2-15, 4 cases, 2 deaths.

CHOLERA.

India: Bombay, Sept. 20-27, 9 deaths; Calcutta, Sept. 17-24, 2 deaths.
Turkey: Bagdad and vicinity, Aug. 20-Sept. 3, 585 cases, 405 deaths.

PLAGUE—INDIAN.

Philippine Islands: Manila, Sept. 3-10, 1 case, 1 death.

PLAGUE—FOREIGN.

Africa: Cape Colony, Sept. 10-17, 3 cases; Johannesburg, March 26-July 9, 156 cases, 95 deaths.
Brazil: Rio de Janeiro, Sept. 18-Oct. 2, 56 cases, 24 deaths.
China: Hongkong, Aug. 27-Sept. 10, 6 cases, 6 deaths.
India: Bombay, Sept. 20-27, 11 cases, 85 deaths; Calcutta, Sept. 17-24, 3 deaths; Karachi, Sept. 18-25, 11 cases, 7 deaths.
Japan: Formosa, Aug. 1-31, 34 cases, 28 deaths.
Strait Settlements: Singapore, Oct. 2, present.

Medical Organization.

Good Work in Oklahoma.—From the announcement of the next meeting of the Oklahoma State Medical Association, which takes place in Oklahoma City next Tuesday and Wednesday, we clip the following: "At the last meeting of the association it was unanimously decided to reorganize the association so as to have it conform to the plans of the American Medical Association. Accordingly the 'constitution and By-Laws prepared for State Associations' were adopted, and the territory divided into five council districts. The fact that every county in the territory, with the exception of Beaver, where it seemed impractical to organize a county society, has been organized, shows that the councilors have done their work well. The house of delegates and councilors will meet on the evening of November 8 to grant charters to county societies and to transact such other business as may come before them."

Society Proceedings.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, held in Cincinnati, Oct. 11-13, 1904.

(Continued from page 1327.)

Intestinal Surgery, with Remarks on Technic.

DR. JOHN YOUNG BROWN, St. Louis, said that there is a class of abdominal cases which may justly be considered acute, because the indications for immediate surgery are mandatory, and in which the mortality largely depends on the time of operation and the technic of the work. He discussed, first, penetrating gunshot and stab wounds of the abdomen; second, severe abdominal contusions associated with rupture of the intestines or other visceral injuries; third, strangulated hernia.

Gastroenterostomy.

DR. WILLIAM H. WATSON, Louisville, described the pathologic conditions indicating the necessity for stomach drainage. He said that pyloric divulsion has proven unsatisfactory, seldom gives permanent results, and sometimes commits a traumatism that increases the trouble. Pyloroplasty and its modifications have given better results, but the operation is seldom indicated and is practically obsolete. Gastroduodenostomy is theoretically ideal, and in properly selected cases gives excellent results, but it is often impractical because of adhesions or tumors, while gastroenterostomy may be performed as easily, as quickly, and with a mortality as low, and is applicable in nearly all cases. Roux' method of cutting the intestine across, implanting the distal end into the stomach, and the proximal end into the side of the distal end is theoretically ideal, and avoids regurgitant vomiting, but it is difficult and prolonged, and if universally accepted would have a mortality that would be prohibitory. Gastroenterostomy by the surface-to-surface anastomosis of the stomach and jejunum is applicable to the greatest number of cases, and may be performed in nearly any condition requiring stomach drainage. Anterior gastroenterostomy as an operation of election must soon become obsolete, and will finally be accepted only where an operation is necessary to give temporary relief, or where the posterior operation is contraindicated. The ideal operation of election must eliminate the intestinal loop, and this may be done by the posterior method, by attaching the jejunum very near its origin under the transverse mesocolon; the bowel incision may then be made longitudinally or transversely, but is usually made in a longitudinal direction. This method is preferable if the opening into the bowel can be made large enough to permit of continued unimpeded drainage. Posterior gastroenterostomy is now an accepted method with no higher mortality than the anterior method, with nearly an absence of regurgitant vomiting and other immediate complications, and with ultimate excellent results in drainage, the gastrojejunic opening seldom contracting enough to induce pathologic condition. The McGraw ligature in the anterior method gives good immediate results, but we can not judge correctly of the ultimate results in the patency of the gastrojejunic

opening, and the ligature has probably not been tested in the posterior method.

The Indications and Limitations of Various Operations on the Gall Bladder.

DR. CHARLES A. L. REED, Cincinnati, reviewed the various operations for the relief of surgical conditions of the gall tract, summarizing them under the heads of cholecystotomy, cholecystectomy, cholecystenterostomy and choledochotomy. He said that cholecystotomy ought not to be done in cases in which prolonged drainage is required, or in which there is a demonstrable permanent obstruction in the common duct, or in which such obstruction might develop. He insisted that the gall bladder be not removed without adequate cause, such as conditions of atrophy and malignant degeneration of the gall bladder and cases in which benign neoplasms cause practical obstruction of that viscus. He said that cholecystenterostomy should be the operation of choice in all cases in which the gall bladder and a desirable segment of the intestinal tract, preferably the duodenum, the ileum or the jejunum, in the order mentioned, should be approximated, and in which drainage is demanded for accumulations within the gall bladder of whatever character; for occlusion of the common duct or following operations on it; for cholecystitis in which the gall bladder can be safely left *in situ*, and in all chronic fistule of the gall bladder.

Ectopic Pregnancy.

DR. F. F. LAWRENCE, Columbus, Ohio, said that in ectopic pregnancy the death rate should be lower than in appendicitis, providing the surgeon got the cases before rupture. The diagnosis of tubal pregnancy before rupture should be made with as much or greater certainty than could a normal pregnancy before the third month. The fact that a tubal pregnancy is allowed to go on to rupture is a reproach to obstetric practice. In unruptured cases the tube can be more safely removed through abdominal incision. In ruptured cases it is often unwise to attempt to remove a patient to a hospital. The chances of infection in her home can be more readily overcome than the danger of increasing hemorrhage by handling. In all cases of extrauterine pregnancy, tubal disease, which is bilateral, seems well established. The danger of a catastrophe in case the unaffected tube is left is, therefore, great, unless that tube be safely obliterated. Absorbable ligature is not a safe material to use for obliteration. Silk of large size only should be used. The better practice is to remove both tubes, retaining the ovary, if possible.

The Transverse Fascial Incision for Operations in the Pelvis.

DR. EMLI RIES, Chicago, said that in order to gain reliable fascial protection for incisions for pelvic work it is desirable not to incise the fascia in the median line.

Suppuration of Nasal Accessory Sinuses.

DR. J. A. STUCKY, Lexington, Ky., pointed out the importance of early recognition of suppuration of nasal accessory sinuses. Frequent peculiar anatomic inter-relationship of the different sinuses renders the symptoms obscure and misleading. Suppurative products may exist in latent form and eventually result in systemic infection. The sequelae of chronic suppuration of any accessory sinuses are frequently due to some form of neurasthenia, migraine, la grippe, pneumonia, and strenuous indoor life. The treatment is the same as for pus formation in any other part of the body. The middle turbinate most frequently causes obstruction of natural openings or a hindrance to free drainage, and he advocated its early removal.

Strictures of the Urethra.

DR. A. RAVOGLI, Cincinnati, said that the symptoms of urethral strictures are mostly local, but at times may be general and neurasthenic. Strictures are somewhat diminishing in their frequency, and this must be credited to the recent method of treatment of gonorrhoea. A great deal of benefit may be expected from systematic dilatation and from remedial applications, but in very serious cases external urethrotomy is imperative.

The Perilous Calms of Appendicitis.

DR. ROBERT WALLACE HARDON, Chicago, presented these conclusions: "1. Defervescence of symptoms and apparent better condition of the patient do not always mean recovery, but may precede a dangerous condition. 2. As there is no specific for the disease, no matter what treatment is used, the one who procrastinates should shoulder the responsibility for the death. 3. When a clear diagnosis is made only one treatment should be advised, operation as soon as possible, or the opportunity may be gone. 4. The physician who does not explain the great dangers of delay and the small comparative danger of operation, is doing his patient a serious injustice which often leads to fatal results. 5. Operation at the proper time usually greatly shortens convalescence, and eliminates all danger from this cause thereafter. 6. Procrastination is the greatest cause of surgical death, operation often being performed as a last resort when little hope of recovery exists."

(To be continued.)

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-first Annual Meeting, held in New York City, Oct. 17 to 20, 1904.

(Concluded from page 1329.)

Conservatism Versus Early Intervention in Simple Dystocia.

DR. WILLIAM J. MEYER, White Plains, believed that there is too much conservatism in uterine inertia, or cervical rigidity, and that the condition may exist for days because a physician does not use forceps. During the past five years he has used forceps in 186 cases of simple dystocia, and has had neither laceration of the perineum nor postpartum hemorrhage. He is convinced of the wisdom of manual dilatation in rigidity of the os, and never permitted patients to remain in labor longer than seven hours without interference.

DISCUSSION.

DR. EVERARD D. FERGUSON, Troy, strongly objected to mechanical metal dilators. With proper cleanliness the risks of manual interference are reduced to a minimum. He never uses any instrument but his hand in placenta previa or other conditions requiring interference.

DR. BERNARD COHEN, Buffalo, approves of manual dilatation of the rigid cervix; one of the advantages being that it gives information as to why the condition exists. He recommends morphin and quinin as an oxytotic. He emphasized the importance of proper judgment as to the right time to apply forceps. He has found that in 2,500 cases he has torn one out of every seven perineums, and one out of every five cervixes.

DR. JOSEPH B. COOKE, New York, invariably uses his fingers to dilate the cervix until it is completely dilated or paralyzed. His patients are always thoroughly anesthetized before the application of forceps, which should not be removed, but allowed to fall off after the expulsion of the head.

DR. BENJAMIN W. STEARNS, Binghamton, recommended the administration of six grains of chloral hydrate, one-half a dram of viburnum compound, and two grains of quinin every twenty minutes to relax a rigid cervix. Chloral does not interfere with the use of chloroform later.

Asthma and Its Relation to Environment.

DR. GEORGE N. JACK, Buffalo, said that the asthmatic is a human thermometer and barometer; some environments will explode this pathologically charged machine into an asthmatic manifestation, while others will retard the explosion or quell it. To one or the other of these classes belong every factor, climatic, thermic, actinic, motion and quiet, dust and fumes, and the asthmatic hourly responds to each.

An Old Specialty.

DR. JANE LINCOLN GHEELEY, Jamestown, said that others may render more conspicuous service, but the family physician stands nearest the daily life of the people. His work begins

with the beginning of the family. He looks to the sanitary condition of the house and the vicinity. He should be a public-spirited man, for the interests of the family are the interests of the community. He should have a good general education and should be interested in educational problems, in labor and in diversions. His work calls for a study of human nature, but the absolute requirement is character.

An Atypical Case of Appendicitis Presenting Some Unusual Features Found at Operation.

DR. W. B. REID, Rome, reported this case. The patient was 49 years of age, and was first seen after being thrown from a sleigh. Pulse, 110; temperature, 101; respiration, 24. There was tenderness over McBurney's point and general tympanitis. The bowels had not moved for three days, and the urine showed pus cells and granular and hyaline casts. The diagnosis was traumatic appendicitis. Operation three weeks later revealed a case of appendicitis of long standing, the traumatism being a coincidence; the acute attack was followed by the invasion of the colon bacillus and abscess formation. The acute nephritis was caused by an infectious toxemia, as postoperative examination of the urine showed that the associated diabetic condition furnished a sufficient amount of sugar in the abscess cavity for the production of gas formation. The question suggested was whether this was a double infection by the *Bacillus coli communis* and the *Bacillus lactis aerogenes* or the infection by the coli communis alone which had produced what is ordinarily called "involution forms" resulting in gas formation.

Nephropoiesis; Its Gynecologic Importance.

DR. AUGUSTINE H. GOELET, New York, said that the prolapse of the kidney is very often overlooked as a factor in producing and maintaining congestion of the pelvic organs. The kidney, when prolapsed, overlaps and compresses the ovarian vein, thus obstructing the return circulation from the pelvis when the waist is constricted even sufficiently to support the clothing. The intestinal distention is an important factor in forcing the kidney back against the spine. The colon, being attached to the kidney, when distended drags on it and holds it in position at the waist line, thus, as there is no room for the bowel above the waist line, it becomes displaced below. Compression and obstruction of the ovarian vein may also be caused by the vein being in front and the ureter behind the kidney where they cross, when the kidney descends the ureter becomes bent on and drags on the vein. Distention of the ureter will also cause pressure on this vein. Prolapse of the kidney may cause or maintain such conditions as leucorrhœa, endometritis, uterine displacements, ovaritis, salpingitis, hemorrhages into the pelvis, and even cystitis. Examination of patients who have consulted him for this condition showed that 75 per cent. suffered from existing inflammation of the pelvis or urinary tubules. In 197 consecutive nephropoieses, in 47 of which both kidneys were fixed, he has had no mortality, consequently the operation can not be considered a serious one.

Transillumination of the Stomach as an Aid to Diagnosis.

DR. ROBERT COLEMAN KEMP, New York, said that transillumination is an aid in investigating mucus colic and has enabled him to demonstrate gastropoiesis as a factor in this condition, which is due to abnormal positions, and not to inflammations. Transillumination is an aid in differentiating dilatation of the stomach and gastropoiesis, and also in indicating the degree of dilatation and the prognosis. It is of value in exploration of the anterior wall and the greater curvature of the stomach, of tumors and of thickenings and in explorations at or beneath the costal arch. It can be used in differentiating carcinoma or other tumors in various parts of the gastrointestinal tract. Gall-bladder diseases can be differentiated from diseases of the stomach, and it is also of value in determining the position of adhesions.

A Substitute for Rubber Gloves in Surgery.

DR. FREDERICK H. WIGGIN, New York, said that the following substitute for rubber gloves has given him the greatest

satisfaction: 49½ ounces alcohol (96 per cent.), 49½ ounces of ether, ½ ounce of colloidin and 1 ounce of castor oil. The operator dips his hands in this solution after having sterilized them. This gives a coating which does not crack and is not soluble in water or ordinary alcohol, and which equal parts of alcohol and ether will remove.

Salivary Calculi.

DR. HERMAN JARECKY, New York, reported three cases, in two of which the calculi were situated in the submaxillary ducts, while in the other case one calculus was in Wharton's duct and one in Blandin's gland. The point of interest is that two calculi could occur in two different glands. He has been able to find but two such cases in literature.

DISCUSSION.

DR. WOLFF FREUDENTHAL, New York, does not think that these calculi are rare, and said that it is remarkable how many people can stand the presence of large calculi without noticing them.

DR. G. LENOX CURTIS, New York, said that he has operated on at least twenty similar cases and does not consider the condition rare.

Radical Operation for Carcinoma of the Breast.

DR. WILLY MEYER, New York, said that in his ten years' experience with his operation he has only once had to give intravenous injections during the operation. Eighty patients have been operated on and only two of these have died from conditions connected with the operation. One of these was diabetic and the other had a recurrence of the carcinoma. The total removal of the pectoralis major does not interfere with the free movement of the arm. His statistics are as yet incomplete, owing to the difficulty of keeping track of patients in a large city.

Prolonged Fasting in Treatment of Acute Alimentary Diseases.

DR. NORTON JEROME SANDS, Port Chester, said that in acute diseases in general especially of the alimentary canal, food should be withheld, as the assimilative powers are impaired. Food should not be administered until the temperature is normal, the bowels regular and the tongue clean. It is possible to fast three or four weeks without pronounced weakness.

DISCUSSION.

DR. FREDERICK H. WIGGIN, New York, said that he relies on castor oil and glycerin by the mouth in surgical sepsis, and saline solutions by the bowels, two or three quarts daily until the temperature recedes.

The Suppression of the Acetone Bodies in Diabetics.

DR. HEINRICH STERN, New York, said that in diabetes the acetone substances always indicate a state of undernutrition. He does not consider that oatmeal is any better tolerated by diabetics exhibiting acetonaemia than other amyloid substances. If we wish to successfully combat acidosis without aggravating the diabetic condition, we can neither add carbohydrates to the diet for any length of time, nor can we augment the amount of protein ingesta. The only fatty article of food which he has found useful in the diabetic during acidosis is yolk of egg. Raw or semi-raw eggs may be consumed in almost any quantity. The yolk cure is based on four factors: 1. Palmatin, stearin and olein, the fatty substances of the yolk, yield little or no butyric acid. 2. The large amount of lecithin restores the nerve force and ameliorates the wasting condition. 3. The diastatic ferment in the yolk aids in starch conversion. 4. The yolks exert a stimulating action on the gastric secretion. This treatment consists in the consumption of from ten to forty yolks daily, with a small amount of proteids and some carbohydrates.

Twenty-five Cases of Pernicious Anemia.

DR. A. E. WOERNERT, Buffalo, reported cases in which blood drawn from the finger was less viscid and dark than normal, and when much impoverished looked more like water. A marked feature was that the red cells were increased in di-

ameter. The erythrocytes varied from 628,000 to 2,440,000 to the c.m. The leucocytes varied from 2,400 to 12,344. A differential count of the white cells showed, on the average, polynuclears 61 per cent., lymphocytes 33 per cent., large mononuclears 4 per cent., and eosinophiles 2 per cent. Specific gravity in 11 cases was from 1.037 to 1.051. Hemoglobin ranged from 23 per cent. to 65 per cent. The hemoglobin index was high, being about 122 per cent. Macrocytosis was the rule. Many of the cells had lost their concavity, and in some the nucleus took a light stain and was separated from the rest of the cell by a zone.

DISCUSSION.

DR. J. J. WALSH, New York, said that pernicious anemia is much more frequent than was formerly supposed. Anti-streptococcal serum in pernicious anemia has been disappointing.

DR. W. B. STEARNS, Binghamton, thought that as in malignant growths the malignant cells take the place of normal cells, so in pernicious anemia the abnormal cells may take the place of the normal.

Some Occupations and So-Called Rheumatic Pains.

DR. JAMES J. WALSH, New York, stated that patients frequently complain of pains which they believe to be rheumatic. In recent years there has been a decided reaction in regard to the so-called uric acid diathesis, and at present very few scientific men consider uric acid of etiologic importance, except, perhaps, in gout. Such pains seem caused by overworking certain muscles in various occupations, as in a motor-man, who was troubled with pains in the shoulders. In such cases a neuritis had probably been set up for which no satisfactory reason can be given.

DISCUSSION.

DR. WILLIAM W. BEMIS, Jamestown, has found that proper support to the instep has relieved many cases of cramps in the feet and legs. He had seen cases of general neurasthenia due to pains in the back, which were probably due to some pressure on the nerve low down. This condition can be relieved by supporting the upper part of the body.

The Alexander Operation; Its Results Immediate and Remote.

DR. JAMES E. KING, Buffalo, said that successful results are only possible when the indications have been carefully considered. The only indication is simple uncomplicated retroversion. Where relapses occurred they are due to suppurative or small ligaments. Great care should be taken in handling the ilio-inguinal nerve. In two cases that he reported the symptoms were due to a relaxing of the uterosacral ligament and prompt relief was afforded by operation. The operation has no influence on pregnancy or labor.

DISCUSSION.

DR. HENRY O. MARCY, Boston, has now ceased to do the operation. It has a limited field, but far less than formerly was thought.

DR. J. RIDDLE GOFFE, New York, has discontinued doing the operation, and has found that 80 per cent. of cases of retroversion are complicated by disease of the uterus or appendages and this limits the field to 20 per cent. The round ligaments are not designed to support the uterus, but, during gestation, to keep the fundus against the anterior abdominal wall. The uterosacral ligaments are the proper supports of the uterus and in proclitidia shortening these ligaments has given satisfactory results.

Scarlet Fever with Reference to the Heart and Other Complications.

DR. LOUIS FISCHER, New York, said that in this disease more attention should be paid to the heart and less to the temperature. A moderate rise in temperature often occurs in the most malignant forms of the disease, and, on the other hand, the mildest forms of scarlet fever begin sometimes with a very high temperature; therefore, one can not say that a very high fever is any guide to the severity of the case. Fever does not invariably indicate disease, and the temperature curve is

given far more credit during convalescence than it deserves. A drop of several degrees does not indicate improvement in all cases. The greatest attention should be bestowed on the condition of the heart. The pulse, its character, frequency and tension are the most important guides in determining a favorable or unfavorable termination. High mortality is largely due to the fact that the children are not kept in bed long enough; every case of scarlet fever should be kept in bed at least four weeks. The diet should be liquid, and the emunctories should be stimulated. A hot saline, colon flushing, one or two quarts, at a temperature of from 115 to 120 degrees F. should be given once a day after the first week, regardless of the necessity of the same; it stimulates diuresis, cleanses the bowel and nourishes the blood.

Other papers read and discussed were as follows: "Iodine in the Treatment of Postoperative Sepsis," by Dr. James H. Burtenshaw, New York; "The Result of 1,400 Operations for the Radical Cure of Hernia in Children," by Drs. William T. Bull and William B. Coley, New York; "The Brief Story of a Smallpox Epidemic," by Dr. Edward Munson, Medina; "Ocular Reflexes and Their Influences on General Health," by Dr. S. W. S. Toms, Nyack; "Infant Mortality in New York City," by Dr. Louis Curtis Ager, Brooklyn; and "Prostectomy in Emergency Cases," by Dr. John F. Erdmann, New York.

VERMONT STATE MEDICAL SOCIETY.

Ninety-first Annual Meeting, held at Rutland, Oct. 13 and 14, 1904.

The president, Dr. William N. Bryant, Ludlow, in the chair. DR. PATRICK M. MCSWEENEY, Burlington, the vice-president, made an earnest appeal for early operation in all cases of ectopic gestation.

DR. DONLY C. HAWLEY, Burlington, demanded pure milk and fresh air for children as being more important factors than medicine.

Surgery of the Stomach.

DR. JOHN C. MUNRO, Boston, a guest of the society, detailed in his address the great advancement that had been made in the last two years in surgery of the stomach, and the rapid decrease in mortality following operations on that viscus.

Prevention of Ear Infection.

DR. FRANCIS P. EMERSON, Boston, also a guest of the society, in a paper entitled "What Can Preventive Medicine Do to Safeguard the Middle Ear Against Acute and Chronic Infection," clearly demonstrated that in order to prevent infection of the ear it was necessary properly to treat all discharges and malformations of the nasal passages and pharynx.

President's Address.

DR. WILLIAM N. BRYANT, Ludlow, selected for his theme, "Epidemic Influenza in the Etiology of Certain Diseases," and by means of charts and statistics showed most clearly that influenza has a marked effect in the production of other disorders.

Mercury in Typhoid.

DR. J. MORRIS HACKETT, Champlain, N. Y., read a paper on "The Specific Treatment of Typhoid," which evoked considerable discussion, as the author alleged that, after fifteen years' experience, he had clearly demonstrated that mercury in the form of blue mass and calomel is a specific in typhoid fever.

Election of Officers.

The report of the house of delegates, read by the clerk, Dr. Lyman Allen, Burlington, named the following officers, committees and delegates, all of whom were declared elected: President, Dr. Patrick E. McSweeney, Burlington; vice-president, Dr. Myron L. Chandler, Barre; secretary, Dr. George H. Gorham, Bellows Falls; treasurer, Dr. Bingham H. Stone, Burlington; auditor, Dr. John H. Blodgett, Saxtons River. Executive committee, the president, secretary and Dr. Donly C. Hawley, Burlington. Publication committee, Drs. George H. Gorham, Bellows Falls; George R. Anderson, Brattleboro; Edward R. Campbell, Bellows Falls. Necrology committee, Drs. Merritt H. Eddy, Middlebury; Columbus S. Scofield, Richford, and C. W. Howard, Shoreham. Legislation com-

mittee, Drs. Sumner E. Darling, Hardwick; Henry D. Holton, Brattleboro, and Edward R. Campbell, Bellows Falls. License censors, Drs. Henry James, Waterbury; Schuyler W. Hammond, Rutland, and J. Sutcliffe Hill, Bellows Falls. Anniversary chairman, Dr. Charles W. Peck, Brandon. Delegates—To American Medical Association, Dr. Henry D. Holton, Brattleboro; to Massachusetts Medical Society, Drs. John H. Blodgett, Saxtons River, and Frederick R. Stoddard, Shelbourne; to Dartmouth Medical Society, Drs. Lester W. Burbank, Cabot, and Orville C. Baker, Brandon; to University of Vermont, Drs. Michael F. McGuire, Montpelier, and Clayton W. Bartlett, North Bennington; to Maine Medical Society, Drs. Edwin M. Nichols, Barton, and Frederick S. Gray, Troy; to Rhode Island Medical Society, Drs. Ansel I. Miller, Brattleboro, and William W. Townsend, Rutland; to New Hampshire Medical Society, Drs. Anson C. Bailey, Randolph, and Frederick C. Liddle, Dorset; to Connecticut Medical Society, Drs. Fred T. Kidder, Woodstock, and John W. Estabrooke, Brandon; to New York Medical Society, Drs. Edward D. Ellis, Pouttney, and C. Lyman Hodgkins, Castleton, and to White River Junction Medical Association, Drs. Frederick L. Osgood, Saxtons River, and A. Lawrence Miner, Bellows Falls.

The society adjourned to meet in Burlington in 1905.

Travel Notes.

XV.

MEDICAL EDUCATION IN AUSTRALIA.

NICHOLAS SENN, M.D.
CHICAGO.

COLOMBO, CEYLON, Aug. 25, 1904.

The number and character of the educational institutions of a country furnish the most reliable gauge with which to estimate the degree of intelligence of its people and the virtues of its government. Measured by this scale young Australia compares well with America and the countries of the old world. New countries, like new cities, have the great advantage of profiting by the experience of the past, placing them in a position to select what has been found most useful and practical and to eliminate what has been proved objectionable by the test of experience. The educational institutions of the old world and some of our own have been undergoing constant changes in the construction of buildings and methods of teaching, in order to keep pace with the rapid strides of progress and spirit of investigation and original research which characterize the present age. Scrutinized in the light of the beginning of the twentieth century, many of the famous, venerable, moss-covered universities of the old as well as of the new world appear like a patched garment when contrasted with the new, vigorous institutions of learning founded, organized and managed in accordance with the most recent requirements. Viewed from an educational standpoint, Australia has reason to take pride in what she has accomplished. The government of this country has been liberal in responding to the educational needs of its slowly growing and now almost stationary population. Its public schools are within easy reach of every child, not only in its cities and villages, but wherever a small settlement is found in the mountain forests and arid plains. It has its grammar and high schools, colleges and universities, which meet all the necessities of a higher and professional education. It is a great mistake for any young Australian man or woman to leave their native soil in search of better opportunities to qualify themselves for any position in life, as the choicest and best lies at their very door. An Oxford or Cambridge degree will be of no more use to a professional man or woman in Australia or anywhere else than a degree from any of the three universities of the island continent, as the requirements for graduation of the latter are equally, if not more, stringent than of the former. This southwestern part of the world is fully aware of what is going on in the way of scientific progress and

has already to some extent contributed its share to the common fund of knowledge, and is now in a position to become a more liberal contributor. We as physicians are more especially interested in the advantages offered by the Australian universities for its medical students. It is in this branch of university education that the greatest changes in the methods of teaching have been witnessed during the last quarter of a century. In writing this communication I have made liberal use of two addresses delivered by Prof. T. P. A. Stuart, the distinguished physiologist of the Sydney University ("A Review of University Life in Australia, Etc.," and "The Majority of the Medical School," the latter on the occasion of the University of Sydney celebrations), and the last calendars of the three universities. The three Australian universities are located at Sydney, Melbourne and Adelaide, and were founded in the order in which these names appear. Each university has its own medical department. Fortunately for the new country and its medical profession, private medical schools are out of the question. The requirements for entrance and graduation are about the same in all of the three schools and I quote here from the last catalogue of the University of Adelaide:

"No person shall be permitted to commence the medical course until he shall have completed his sixteenth year and have produced evidence of the fact to the satisfaction of the council. Before entering on the medical course the intending student must satisfy the examiners at the senior public examinations in the following subjects: 1, English literature and English history and geography; 2, Latin; 3, arithmetic and algebra; 4, geometry; 5, one of the following—a, Greek; b, French; c, German."

The medical course is five years. The examinations are held annually in November and supplementary examinations may be held, should occasion arise, in March. The students are not pestered with so many examinations as in some of our medical colleges and their time is spent in steady, uninterrupted work instead of one-fourth of it being spent in cramming for the frequent examinations, as is the case with some of our schools.

The first examination includes: 1, Elementary anatomy and dissection; 2, elementary biology, theoretical and practical; 3, inorganic chemistry, theoretical and practical; 4, elements of physics.

The second includes: 1, Anatomy, general and descriptive, with dissections; 2, physiology, including practical physiology, histology and physiologic chemistry; 3, organic chemistry, theoretical and practical, with special reference to physiology and medicine; the chemistry of poisons, organic and inorganic, with special reference to their detection.

The third includes: 1, Principles and practice of medicine; 2, principles and practice of surgery; 3, regional and surgical anatomy; 4, materia medica.

The fourth includes: 1, Principles and practice of medicine, including clinical medicine; 2, principles and practice of surgery, including surgical anatomy and clinical surgery; 3, obstetrics; 4, forensic medicine, including insanity; 5, pathology.

The fifth and last includes: 1, Medicine, all branches; 2, surgery, all branches, including anatomy and operative surgery; 3, gynecology; 4, ophthalmology; 5, otology; 6, elements of hygiene; 7, therapeutics.

It seems to me that the order of subjects in these examinations is excellent, leading the students from the elementary branches up a gradual incline to the most complicated practical subjects. Anatomy is taught in England better and more thoroughly than in any other country. The English surgeon is invariably a good anatomist. The Australian schools, conducted as they are largely by men who obtained their education in the United Kingdom, place the same stress on this the most important of all the primary branches, and when their students graduate they know their anatomy. No time is spent in making skeletons of clay. Gray's Anatomy and Heath's Dissector are their text-books and the cadaver their object lesson. Professor Watson of the Adelaide University has little confidence in lectures as a means of teaching anatomy and spends most of his time in the dissecting room with his students, supervising, demonstrating and directing their work.

Some of the dissections I examined were sufficient proof of the students' interest and diligence in acquiring their knowledge of anatomy and the efficiency of the methods of teaching employed.

The only fault I could find with the methods of teaching employed in the Australian medical schools is that too much weight is still given to didactic lectures and too little attention is paid to recitation courses. There are, however, indications that gradual changes will soon reverse this order of things. The attendance at the medical schools is necessarily small; the teaching force, on the other hand, in each school is large, conditions most favorable for systematic, theoretic teaching by the use of reliable text-books, recitations, remarks and demonstrations. Each of the three medical schools has the practical control over a hospital of 200 and more beds, where the main clinical teaching is done. In Sydney it is the Royal Prince Albert Hospital; in Melbourne, the Melbourne Hospital, and in Adelaide, the Adelaide hospitals. In all of these cities the students have also access to a children's and other hospitals, the former always directly or indirectly connected with the

and the obtaining of it involves another and not inconsiderable expense, most of the practitioners enter on their life work without applying for it. Many physicians and surgeons prefer the plain title of Mr. to Doctor. All the professors receive a salary of from \$800 to \$4,500 a year; in one or two of the universities they receive a pension of \$2,000 a year on retirement after twenty years' service.

SYDNEY UNIVERSITY AND MEDICAL SCHOOL.

The Sydney University commenced its first matriculation on Oct. 4, 1857. Its courses of lectures were at first restricted to those required for the Arts degree; the medical school and the school of engineering were opened in 1883, and the law school was opened in 1890. The teaching staff of the university has gradually increased from three professors and two lecturers in 1854 to 14 professors and 34 lecturers in 1899, having under their care 519 students. The university owes a great deal to private benefactions. The total sum from this source at the close of 1899 was over \$2,000,000.

The university building is a magnificent solid stone structure in Gothic style, occupying the summit of a high hill and



Medical School, University of Sidney.

medical school, the latter being available for extra mural clinical teaching. Not much weight is placed, however, on the importance or value of extra mural teaching in any of the schools. On the other hand, the greatest attention is given to laboratory work, and all of the schools have excellent laboratories with all modern equipments and appliances. No other medical schools in the world can offer better inducements for their graduates to obtain an internship in a hospital than those of Australia. Thus, of the 218 graduates of the Sydney University no less than 184 held office as resident medical officers in some hospital, and growing hospital facilities will only increase the number of internes in the future. The fees for the whole course of five years, including fees charged for examination, is about \$575.

The universities confer three medical degrees—Bachelor of Medicine, Bachelor of Surgery and Doctor of Medicine. To obtain the last degree a Bachelor of Medicine or Surgery makes application one or two years after graduation, writes a thesis or passes another examination and, if satisfactory, receives the degree of M.D. As this degree is more honorary than useful

surrounded by 132 acres of land. The Prince Alfred Hospital is located on the same grounds. A large, fine brick building for the library is now in process of construction. The present chancellor of the university is Sir Normand MacLaurin, a distinguished Sydney practitioner of medicine. I will always remember with pleasure and gratitude the hours I spent with the chancellor in visiting the university, inspecting its great hall, library, rich museum and the medical school. Sir Normand has shown great tact and executive ability in the management of this young but vigorous institution, but has not lost his interest in medicine and he takes a just pride in the medical school on which he showers his fostering care. The university has now an attendance of about 700, of whom 250 are medical students. Professor Stuart is the heart and soul of the medical school and its present dean.

The medical school is the gem among all the university buildings. It owes its origin largely to the indefatigable efforts of Dr. H. G. Douglass. Sir Charles Nicholson, Mr. Wentworth, Professor John Smith and Dr. Richard Greemp. The first medical school commenced its work in 1883 in a four-room

cottage. The palatial new college building was completed in 1890 at a cost of \$400,000, one of the finest buildings of its kind in the world. It is a massive stone building in imitation of the university building, with tile floors throughout and inner finishing seldom seen in a medical college. Statuary and stained glass windows make one forget one is in a medical college. One imagines he is in a cathedral or a palace. The stained glass windows do not immortalize saints, but the men in our profession whose work has made medicine and surgery what they are to-day. The inner architecture corresponds with the beauty of its external appearance. The lecture rooms and laboratories leave nothing to be desired. What a pleasure it must be to work in such a building!

MELBOURNE UNIVERSITY AND MEDICAL SCHOOL.

The Melbourne University is indebted for its foundation to the public enterprise of the late and well-known English statesman, Mr. Hugh Childers, formerly an inspector of schools in the state of Victoria, and to Mr. Latrobe, its first governor. The former introduced a bill into the legislative council for incorporating and endowing the University of Melbourne in 1853. The bill met with little opposition and was passed the same year. The university commenced work with three professors and 16 students in April, 1855. At the annual examinations of students in 1899, 341 passed. Its present attendance is from 700 to 800, of which number about 250 are medical students. It receives an annual endowment of \$45,000 from the government which, with the gifts, bequests and fees, suffice to meet the current expenses and leave a sufficient residue for making improvements as needed. The buildings are not so expensive as those of the Sydney University. The whole university plant consists of a group of buildings, each of which is devoted to the department for which it is intended. For instance, the medical school is made up of a number of separate one-story stone or brick buildings, representing as many departments. Melbourne Hospital and the Children's Hospital furnish the clinical material. Professor Allen is dean of the medical faculty and professor of anatomy and pathology. He is a remarkable man. He is a graduate of the university and has acquired his professional knowledge of anatomy and pathology by the hardest kind of work within the shadows of his beloved alma mater. The choicest fruit of his ceaseless labor has been a pathologic museum containing thousands of the most interesting specimens, which he has prepared and labeled with his own hands. Besides this, he keeps a record of all the findings of the postmortem examinations at the Melbourne Hospital and has also filed away the clinical history of each case. I believe he could walk through the great museum hall and pick out any particular specimen blindfolded; not only this, but he could give the astonished visitor a minute description of them all. He showed and demonstrated to me scores of the rarest and most interesting specimens. He has one of the finest collections illustrative of the pathologic anatomy of hydatid, actinomycosis and bone disease. He relies on wood alcohol in the preparation and preservation of the specimens. The specimen jars are covered with heavy tin foil, which can be removed and replaced with the utmost ease, and the tin foil cover properly applied over the mouths of the jars effectually prevents the evaporation of the liquid, the loss during a year from this source being insignificant. Professor Allen has become satisfied from his immense experience that malignant disease among the aborigines is extremely rare; on the other hand, syphilis is very common. Everything in his museum shows system and order, a beautiful and rich workshop for anyone who seeks information in this branch of medical study and teaching. Professor Allen knows how to get the best work from his students. He has published a little inter-leaved book, "Pathological and Histological Methods of Sections," for the junior students, in which a brief description is given of the mechanical part of the work and the blank pages are filled in by the students with notes and drawings. A somewhat similar plan is followed in the bacteriologic laboratory.

ADELAIDE UNIVERSITY AND MEDICAL SCHOOL.

The University of Adelaide, the youngest and smallest of

the Australian universities, was incorporated in 1874. It commenced work two years later with the Arts course. Other schools were gradually added until the university was able to give its students, besides degrees in arts, degrees in law, medicine, science, music, agriculture and engineering. It receives a substantial government aid and has been endowed by a number of handsome donations and bequests, among them one of \$480,000 by the late Sir Thomas Elder. The Elder Conservatory of Music, opened in 1898, commemorates this munificent gift. Its present attendance does not exceed 400, of whom about 120 are medical students. The primary branches of the medical school are taught in separate buildings. The anatomy building, the real home of Professor Watson, is a large one-story brick building. Here he dwells along with his students from morning until dusk, often unconscious of the lunch hour, his mind bent on unraveling the mysteries of human anatomy and in supervising, directing and encouraging the students in their work. If any new discovery is made in anatomy anywhere in the world he is sure to learn of it, test it, and make use of it in his teachings. He takes special delight in demonstrating to his students Byron Robinson's utero-ovarian circle. He fully appreciates the importance of applied anatomy and never loses an opportunity to show the intimate relationship between it and operative surgery. A visit to Adelaide without seeing and knowing this interesting man would be about as unprofitable as a journey to Rome without seeing the pope or at least making a visit to the Cathedral of St. Peter. Another most interesting member of the medical faculty of Adelaide University is Professor Stirling, professor of physiology and director of the natural history museum. A combination of these two important offices makes him one of the busiest men in Adelaide. He is equally at home in his physiologic institute as in the great hall of the museum crammed from floor to ceiling with the choicest specimens of the animal and vegetable kingdoms of his own country as well as from all parts of the world, and the products of man's ingenuity from the stone age up to the most recent inventions. This part of his work is to him a labor of love. He has made this museum what it is, the best in Australia and the peer of many in countries that count their age by centuries. From what has been stated it must become clear to anyone that the Australian universities offer to medical students advantages and opportunities equal to if not superior to any of the medical schools of America and the United Kingdom. It would be folly for any Australian medical student to cross the ocean in either direction in search of something better, because if he did he would certainly meet with keen disappointment.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Olive Oil Injections for Constipation.

Hershell, in the *Lancet*, Oct. 1, 1904, describes his method of treating selected cases of constipation by the injection of olive oil. The two points which he emphasizes as necessary to be observed in successful results obtained with this method are: 1. Select suitable cases; 2, that the injections be given in the proper manner. Cases like the following we can not hope to benefit: Constipation depending on improper food or hard drinking water, or as a result of pyloric stenosis or gastric myasthenia. The following classes give the most gratifying results by the use of olive oil injections: 1. Cases depending on chronic colitis. 2. Constipation associated with spasm of

the bowel such as we so frequently find in neurasthenia. 3. We may use this method with advantage to secure a daily action of the bowels in atony of the intestines whilst the affection is being treated by electrical methods. In these last cases the first week or two are most trying to both physician and patient, as all purgatives have been abandoned and the treatment has not yet had time to restore sufficient tone to secure a daily relief. In these circumstances oil injections render us invaluable aid, and if properly given are usually sufficient to keep the patient comfortable.

THE METHOD OF INJECTION.

The method consists in the injection of from 3 to 10 ounces of warm olive oil in the rectum at bedtime. This is retained during the night and usually results in an evacuation after breakfast on the following day. If the oil is introduced slowly, at a low pressure by the force of gravity, the patient should have no difficulty in retaining it for some hours. The following is described by the author as the best apparatus to be used in giving the oil injections: "A glass funnel of a large relative capacity to its height and provided with a metal loop by which it can be suspended at a convenient height above the bed on which the patient lies, is fitted with about 27 inches of rubber tube of large caliber, and terminates in a nozzle of special construction. This latter has a large bore to allow the ready passage of the oil which invariably clogs the nozzle supplied with ordinary enema apparatus, and has the end bore well rounded, so that even when roughly and unskillfully used it is impossible to damage the mucous membrane of the rectum, and from its shape it is self-retaining. For durability and cleanliness it has been constructed of aluminum. The outflow of the oil is controlled by a spring clip which is so contrived that when opened it will remain so until a catch has been released. The injections can easily be made by the patient without assistance. The oil is first heated by standing the beaker containing it in a basin of hot water. The funnel is hung on a nail or hook driven into the wall above the bed. The patient lies on his back directly under it with the hips on a pillow, introduces the nozzle and waits until the funnel is empty. For the first few times it may be necessary to apply a pad of wool to the perineum to absorb any oil which may be expelled. It is best to commence with five or six ounces and to reduce the dose daily until the smallest amount which will produce an action of the bowels is found. If five ounces is not sufficient it may be raised to ten, but beyond this it is not advisable to go, and in cases where this is insufficient the oil may for a few days be supplemented with a small water injection before breakfast. In any case after a few days it will probably be found that a few ounces of oil alone at bedtime will produce a daily evacuation. When this stage has been arrived at this dose can be given nightly for two or three weeks. The effect may then be tried of using the oil on alternate nights. It will probably be found that the bowels will be opened on the days following the intermission, and as the case progresses the action of the oil will extend over a longer time until it will be followed by several daily stools. When this period arrives the injection should be ordered to be taken only on the evening of the day on which an action has not taken place."

Eczema.

The following methods of treating this condition are given by Lassar, in the *Dermat. Ztschr.*, 1904, No. 2:

1. It is necessary to inquire very carefully to discover the cause of the cutaneous inflammation. Very frequently the cause is found to be some external irritant rather than some perversion in the constitution or the blood. If the dermatitis is recent, induced by some external irritant, it is necessary to purify the surface, which may be done as follows: A warm bath with the addition of bran and a bland, never a medicated, soap, or by fomenting with an infusion of camomile flowers. Then the affected parts are to be enveloped for half an hour, three times a day, in compresses moistened with a 1 to 1,000 watery solution of zinc sulphate. The compresses are to be replaced by fresh ones as soon as they become warm. This

alternation of evaporating fomentation and cooling contraction imitates the natural activity of the absorbing capillaries, and is grateful to the patient. Directly on the moist follows the dry treatment, which consists of the free application of a simple dusting powder, the cheapest and most serviceable being a fine pure talc. If itching is prominent a 1 to 2 per cent. solution of carbolic acid may be added. If burning is present it is well to add from 1/2 to 1 per cent. of menthol. By the establishment of a protective layer, frequently renewed and kept in position by bandages, the damaged epidermis is replaced by a regenerated epidermis. This method of procedure in time renders the skin dry and its smoothness can be restored if a paste composed of zinc oxid 60 parts, olive oil 40 parts, be thickly smeared on, dusted over with talc, covered with cotton-wool and a light bandage applied. In the morning the part is best cleansed by olive oil to avoid fresh irritation. If pustules form each one should be opened with an aseptic knife, compresses moistened with aluminum acetate are to be applied and later a vaselin starch paste:

R. Zinci oxidi	
Amyli, āā	.....5ii 8
Vasellini	.....3ss 15

M. Sig.: Apply as directed.

Acidi salicylicy gr. x-xx (.6-1.2) may be added if itching is intense. In the parasitic forms, if superficial, this same paste with the addition of from 10 to 20 per cent. of sulphur is efficient. When deeper infiltrations are present a success is hardly possible without tar. The crusted eczema of the face in children can be rapidly cured if managed as follows: It must be carefully cleansed, oiled over, then washed without so much friction as to occasion bleeding; then thickly smeared with a salve of

R. Olei rusci	
Sulphuris sublimati, āā	.....3ss 15
Vasellini	
Saponis domesticy, āā	.....3i 30
Crete albe	.....5iiss 10

M. Sig.: Apply locally, cover with powder and bandage.

Chronic Furunculosis.

Gaucher, in *Rev. de Therap.*, July 15, 1904, recommends boric acid internally against relapsing furunculosis. He says that this is a harmless substance if it is chemically pure and not taken in too large doses. He prescribes it as follows:

R. Acidi boricy (C. P. recrystallized)	.....3i 30
Aque destl.	.....5xxxiii 1000

Of this solution the patient is to take a tablespoonful at each meal, well diluted. If undiluted it is apt to give rise to cramps. The boric acid is alternated with tar (a teaspoonful of tar water in half a glass of Vichy water), and with arsenical preparations in the following manner: During the one week the tar and alkaline water, during the second week the boric acid solution, during the third week a solution of sodium arsenate. Repeat the same cycle.

Medicolegal.

Insanity and Criminal Responsibility.—According to the recently reported decision of the Court of General Sessions of Delaware, in the case of State vs. Jack, a prosecution for assault with intent to commit murder, it was claimed that some four years previously the accused had been injured in his head in a game of football, which occasioned concussion of the brain and occasional fainting spells; that for some time prior to the alleged assault he had also been addicted to the excessive use of cocaine, and that from these causes his mind was so affected that at the time of the alleged assault he was insane—that is, so demented as not to be criminally responsible for his actions. This, if true, it was held, was a complete defense, it being said that the law regards a person in such mental condition as incapable of committing crime. Insanity may be either total or partial in its character. It may be either permanent or temporary in duration. Where insanity of a permanent charac-

ter is once established by the evidence, it is presumed to continue until the contrary is proven satisfactorily; but, if the insanity be of a temporary character, no such presumption arises. To exempt a person from responsibility for crime, the insanity must be of such a character as either to deprive him of the capacity to distinguish between right and wrong in respect to the particular act committed, or to deprive him of sufficient will power to choose whether he would do the act or refrain from it. So long as a person has capacity to distinguish between right and wrong in the particular act, and has will power to do it or not to do it, he will be held criminally responsible, even though the mind is subject to hallucinations, melancholy, exhilaration, or is otherwise affected from the use of cocaine, intoxicants, or any other cause. In considering the defense of insanity, the jury must direct their attention to the time of the alleged assault particularly, for, while much testimony had been admitted as to the mental condition of the accused before and after that time, it was admitted only with the view to throw light on that precise time and event. If he was sane at the time of the alleged assault, he was responsible, it mattered not what may have been his condition at any other time or place. Every person is presumed to be sane until the contrary is proved to the satisfaction of the jury. Insanity being a matter of defense, the burden of showing it is on the defendant. It must be proved as a fact to the satisfaction of the jury. If the proof does not arise out of the evidence offered by the state, the defendant must so establish it by distinct evidence. Evidence tending to show the absence of motive may be considered in determining the question of insanity of the accused, if any such evidence there be.

Why Insanity Must Be Proved, Rather Than Sanity.—The Supreme Court of Rhode Island says, in the homicide case of State vs. Quigley, that the question as to the rule of evidence where insanity is a defense to crime has arisen in almost every state of the Union and in the courts of the United States, and between the decisions of these courts there is a hopeless conflict. It would be a fruitless task to review in detail the cases where the question has been considered, for they are divided into two classes, which follow substantially the same two divergent lines of reasoning. The English rule implies that the question of guilt and the question of insanity raise two distinct issues, and that, while both may be involved in the final verdict, the burden of proof upon each issue lies upon different parties. The American rule, so called, holds that in a criminal case there is but one issue, and that the burden throughout is on the prosecution to prove not only the criminal act, but the capacity of the accused to commit it beyond a reasonable doubt. This court thinks the first of these positions is the more logical. Sanity is not an ingredient of crime. It is a condition precedent of all intelligent action, as well benevolent as nefarious. It is a quality of the actor, not an element of the act. It is incumbent on the prosecution to show the commission of the act, and from this showing and its circumstances to sustain the inferences of malice and such emotions as the particular crime may include. But sanity is not one of these inferences. It is a pre-existing fact which may be taken for granted as implied by law and general experience. We do not infer sanity from the criminal act as we do malice and premeditation. Sanity is a premise, not a conclusion. It is argued that criminal intent, malice and premeditation are facts to be proven by the prosecutor; that these can not exist in an insane mind; hence sanity must be proved by the prosecutor. But these are facts of mental condition and action, and they can only be proved by inference from material facts, circumstances and acts. It is incumbent, therefore, on the prosecution to prove such material facts, circumstances, and acts as would compel the inference of guilt in a sane person, and this is the limit of his burden. In murder the prosecution must establish the act, and, either by inference or additional evidence, malice and premeditation. If these ingredients of the crime can not exist without sanity, sanity is presumed. The defense of insanity admits the act, but not the crime. Sanity of a human being is an assumed fact, never depending on evidence until it is disputed. The presumption of sanity continues after the

presumption of innocence has been overcome. Evidence is required to overcome it, and the accused must furnish this evidence. If the evidence on this point simply balances, and so produces no probative effect on the mind, the presumption of sanity survives, and the judgment that the man is guilty remains unshaken. Sanity is a condition which does not require proof until its existence is denied. When the well-established, but absolutely arbitrary, rule is announced that all facts constituting the crime must be proved beyond a reasonable doubt, it can not logically be held to include a fact which is not required to be proved at all. Insanity is not a normal condition, but a positive disease; and positive proof may reasonably be required to establish it as a fact to be regarded in making up a judgment on any question where it is relevant.

A Novel Crime and Its Punishability.—The Court of Appeals of Kentucky says that, taken as a whole, the case of Commonwealth vs. Hicks presented an anomaly seldom found in the annals of actual crime. The crime with which the accused stood charged was the somewhat novel one of being accessory before the fact to the self-murder, or suicide, of one Chris Haggard. Section 1123, of the Kentucky Statutes of 1903, provides: "In all felonies, the accessories before the fact shall be liable to the same punishment as the principal, and may be prosecuted jointly with the principal, or severally, though the principal be not taken or tried, unless otherwise provided in this chapter." The court holds that it can not be said that an accessory before the fact in self-murder is not liable to punishment under the terms of the statute, because, his principal being of necessity dead, he can not be punished by any earthly sentence for his crime. Suicide at the common law is murder, and the Kentucky statute fixes the punishment of willful murder at death or confinement in the penitentiary for life, in the discretion of the jury. The case stands, in principle, as if one was accessory before the fact for the murder by his principal of a third person, and, after the commission of the crime, the principal should immediately kill himself. In this case, it would be impossible to punish the principal, but it is not believed that under any sound reasoning the accessory would thereby go scot free. On the contrary, the very object of the statute is to make the punishment of the accessory entirely independent of the conviction or punishment of the principal. Wherefore, the court concludes that under the law as it now stands in Kentucky, an accessory before the fact in a case of suicide is subject to the punishment for the crime of willful murder. In this case, the accused smilingly said to one Sears: "I am on my way to purchase morphin for Chris Haggard. I reckon he is going to kill himself." In the presence of his sister, Lucy Hicks, Haggard, while playing on a guitar, and seemingly in the best of spirits, appointed the day of his death and refused to extend the time to accommodate the engagements of a friend beyond one day—from Friday until Saturday. At the appointed time he was found by a physician dying from opium poison. No one seemed to have regarded the matter otherwise than in the light of a joke, and the motive, if there was one, was not disclosed. An analysis of the evidence, and the enforcement of the provisions of the code on the subject of confessions, the court holds, warranted the trial judge in giving a peremptory instruction to find the accused not guilty.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

October 22.

- 1 *Some Problems in the Life-history of Pathogenic Micro-organisms. Theobald Smith.
- 2 The Modern Conceptions and Methods of Medical Science. W. T. Councilman.
- 3 *The Early Diagnosis of Pulmonary Tuberculosis. Wm. F. Cheney.
- 4 *Dilation and Carettement of the Uterus. John M. Fisher.
- 5 *Shorten the Time from the Cow to the Baby. Arthur R. Reynolds.

1. **History of Pathogenic Micro-Organisms.**—Smith points out certain biologic problems which seem to lie on the surface, as it were, and which illustrate the close relationship existing between bacteriology and general biology. He also advances the hypothesis that the tendency of all invading micro-organisms in their evolution toward a more highly parasitic state is to act solely on the defensive while securing opportunity for multiplication and escape to another host. It is largely through the phenomenon of parasitism that nature attempts to restore the equilibrium, and in this micro-organisms play the most important part. As soon as the individual falls below a certain level, he may become the prey of a microscopic, or even ultra-microscopic worm. Hence, the importance of bacteriology in medical science.

3. **Early Diagnosis of Pulmonary Tuberculosis.**—Cheney is a firm believer in the value of old and well-tried methods—the clinical history and the physical examination—in the early diagnosis of pulmonary tuberculosis. Of the newer methods, sputum examination does not give information early enough; tuberculin may give a reaction when no active tuberculosis is present, and may fail to give a reaction when active tuberculosis is present. The Roentgen ray confirms what physical examination has already discovered, but does not tell us anything that can not be found out in other ways. Furthermore, Cheney doubts the value of the Roentgen ray in the diagnosis of early pulmonary tuberculosis; he has not found it reliable. The sources of error in the diagnosis of early pulmonary tuberculosis mentioned by Cheney are: 1. Preconceived ideas: Physicians are apt to approach the examination of a case with their minds made up before hand that the patient has or has not tuberculosis, and then proceed to find facts which will support their view. 2. Inattention to details: In early diagnosis the changes from the normal are very slight, and it is by many little things that by themselves mean nothing, but put together mean everything, that a diagnosis must be reached. 3. Lack of persistence in examinations: It is impossible to reach a definite decision after one examination. The evidence obtained must be gone over again and again before a conclusion is arrived at.

4. **Dilatation and Curettement of the Uterus.**—Fisher reviews the indications and contraindications for the performance of this procedure and describes in detail the various steps of the operation, and instruments to be used, and the after-treatment, but offers nothing new.

5. See abstract in THE JOURNAL, October 8, page 1078.

Medical Record, New York.

October 22.

- 6 The Gynecologic Importance of Prolapsd Kidney. Augustine H. Goelet.
- 7 The Pathogenesis and Treatment of Edema. Wm. J. Dougherty.
- 8 The History of Tuberculosis. John B. Huber.
- 9 My Experience with Light Therapy. Julius Rosenberg.
- 10 Albumin: Report of Case. Henry M. Blum.
- 11 Report of Two Fatal Operative Cases. Irving S. Haynes.
- 12 Aural Reflex Phenomena. J. J. Richardson.
- 13 A Case Illustrative of the Unclassified Troubles of Women. Eugene C. Savidge.

9. **Light Therapy.**—Rosenberg is convinced, more than ever, "that in light we possess a remedy of no mean order, and one which in the near future will occupy a most exalted position as a therapeutic agent." He reports 27 cases confirming his statement, and showing that blue, violet and ultra-violet rays are almost a specific against pain, such as lumbago, torticollis, pleurodynia, acute and chronic neuritis. The ultra-violet light rays are obtained from an iron-carbon arc of high amperage. The bactericidal powers of the chemical light rays are easily demonstrated in inflammatory conditions of the skin of parasitic origin. In acne and ferunculosis, the curative effect is both prompt and certain. His results in gonorrhoeal peritonitis and catarrhal inflammation of the deep urethra and adjacent structures have been encouraging and justified by the trials, he thinks. In rheumatic arthritis the rays failed to be of much benefit; Rosenberg's results, in this respect, being at variance with those reported by German authors. He believes that the

ultra-violet rays may be of some assistance in the treatment of pulmonary tuberculosis, gonorrhoeal and tuberculous infections of joints and in lessening the pains accompanying locomotor ataxia.

10. **Ainhum.**—Blum gives a brief résumé of what is known concerning this disease and cites one case, a negro woman, aged 65. The disease occurs almost exclusively among the dark-skinned races of certain tropical and sub-tropical regions, and is characterized by a progressive constricting sclerotic ring around the bases of the digits of the hand or foot, especially selected the little toe of either or both feet, and ending in a gradual amputation of that portion of the affected member distal to the constriction. Formerly the disease was characteristic of the negro race, but it has gradually become a disorder to which other races may be subject. Blum suggests that this is probably due to the emigration of the negro from his former home. Ainhum is very insidious, the condition progressing slowly for years, in some cases lasting as long as twenty years. The disease is painless at first, but as the constricting ring grows tighter and fissures appear, pain becomes very troublesome. It is purely a local condition and it never recurs at the site of amputation. Its duration is sufficient to differentiate it from Raynaud's disease. In leprosy, which may be confused with ainhum, changes are to be seen in other parts of the body and pain is absent. Blum agrees with Mats that the disease is a tropho-neurosis, and not an infectious disorder. In the case he reports, the toe was disarticulated at the metatarso-phalangeal joint under cocaine anaesthesia. The wound healed rapidly without any further manifestation.

11. **Two Fatal Cases.**—The first case reported by Haynes is one of hypertrophic cirrhosis of the liver on which a Talma's operation was done. The patient died on the morning of the sixth day after the operation with symptoms suggesting sepsis; temperature, 102.6; pulse 136, and respiration, 30. In the second case, one of carcinoma of the head of the pancreas, a cholecystenterostomy was done between the gall bladder and the transverse colon, a Murphy button being used to effect the anastomosis. The union between the two viscera was apparently so even and firm that no supporting sutures were added, which, in the author's opinion, was an error of judgment. The region of the anastomosis was drained by a small gauze wick on either side, with a medium-sized rubber drain placed within the gauze and the wound closed by layer sutures. All went well until the tenth day, when the patient complained of a diffuse pain in the abdomen. Temperature, pulse and respiration became high, to be followed by a subnormal temperature, as low as 96, which lasted for three days, when the patient succumbed gradually. Haynes believes that the failure of the approximation to produce firm union allowed leakage of bile after the slough had freed the button. The abdominal cavity was filled with bile-stained fluid and the cause of death was failure of the gall bladder and colon to unite, only one-half of the area constricted by the Murphy button having joined.

New York Medical Journal.

October 22.

- 14 *The Roentgen Rays in the Treatment of Fractures and Adjustment of the Fragments Under the Eye, by Use of the Fluorescope. Harry T. Gilchrist.
- 15 Inaccuracy in Clinical Thermometers. Caswell A. Mayo.
- 16 Quintuplets. Albert Bernheim.
- 17 *Syphilis Continuously Treated by Intramuscular Injections of Mercury Salicylate. D. A. Sinclair.
- 18 Vulvovaginitis in Little Girls. A Clinical Study of 190 Cases. (Continued.) Sara Welt-Kakels.
- 19 Two Cases of Paralysis of the External Recti Muscles of the Eyes, Tabetic in Origin; Improved by Operation. Frank N. Lewis.
- 20 A Contribution to the Surgery of Nephritis. Report of Case. C. W. Wille.

14. **Roentgen Rays in the Treatment of Fractures.**—Gilchrist details the advantages of using the x-rays in the treatment as well as for the diagnosis of fractures. The apparatus necessary for this method of managing fractures is a complete x-ray outfit, of either coil or static machine, and the usual accessories. An ordinary wooden-top table can be utilized for the patient, or one can be improvised by laying two

pieces of pine lumber, 6 feet long by 12 inches wide and 1 inch thick on a firm support about 18 inches high. The tube is placed on a stand underneath the table, from 4 to 8 inches from the under surface of the board. As an extra precaution to prevent burning, the table can be covered with a rubber blanket. By placing the fluoroscope over the injured part the conditions of the fracture can be seen constantly, as can also every movement of the fracture extremities during their adjustment, thus avoiding the necessity of giving an anesthetic for diagnostic purposes, saving the patient many painful manipulations, and the tissues from bruising and laceration by unnecessary handling. The method, in short, consists of setting the fracture under the fluoroscope.

17. **Intramuscular Injections of Mercury Salicylate in Syphilis.**—Sinclair says that intramuscular injections of salicylate of mercury possess many advantages over inunctions, fumigations and the internal administration of mercury. They are more scientific and accurate; the gastrointestinal tract and the skin are relieved of irritation; they are quick and sure of action, the symptoms disappearing with wonderful rapidity; they are applicable in all three stages of the disease, non-compromising, easy of administration; do not produce abscesses, and permit of perfect control of the patient. Because of their insoluble properties and slow absorption, they can be given in larger amounts than could be used of the soluble salts of mercury. The salicylate of mercury needs to be injected but once in 7 days. Relapses are extremely rare and are due to the smallness of the dose. The local phenomena following the injection are nil in nearly every case, although there may be slight pain, due to the introduction of the needle. In a small number of cases there is apt to follow, in from 6 to 24 hours, slight lameness, with dull pain more or less severe, at the site of the injection. This may be accompanied by an itching or burning subcutaneous nodule. The drug should be suspended in a heavy liquid. The dose of an injection in ordinary cases is 1½ grains of the drug. The most favorable site for the injection is the gluteal region. The calf of the leg or the muscles of the back or chest may be chosen.

Medical News, New York.

October 22.

- 21 *The Surgical Physiology of the Lymphatic System. C. H. Mayo.
- 22 *A Contribution to the Study of Infections of the Prostate from the Urethra. Frederic Bierhoff.
- 23 The Use of Absorbent Paper in the Service of Practical Hematology. T. V. Tallquist.
- 24 The Climate and Waters of Hot Springs, Va. Guy Hinsdale.
- 25 Three Cases of Probable Psittacosis. Herman F. Vickery.
- 26 With Bacteriologic Report. Oscar Richardson.
- 26 The District Nurse in Her Relation to Cases of Pulmonary Disease. Arthur W. Falbanks.

21. **Surgical Physiology of the Lymphatic System.**—Mayo calls attention to the fact that the relation of the lymphatic system to surgery seems to have been appreciated but little. He reviews the microscopic and gross anatomy of this system and devotes considerable space to a discussion of its physiology with reference to the production of surgical lesions, and its rôle in preventing sepsis. The lymphatic system is a drain and where there are few lymphatics, artificial drainage for some time after operative interference is absolutely necessary.

22. **Infections of the Prostate.**—Bierhoff suggests that the fact that the gonococci which enter the prostatic ducts are brought into and enter in constant contact with a secretion of a distinctly alkaline reaction, may be the explanation of the generally mild character of gonorrhœal prostatic infections. He discusses the clinical history of prostatic infection and the methods of treatment followed by him.

Boston Medical and Surgical Journal.

October 20.

- 27 The Modern Conceptions and Methods of Medical Science. W. T. Connelman.
- 28 *Heart Complications in Diphtheria. A Clinical Study of 946 Cases. Franklin W. White and Howard H. Smith.
- 29 *The Assouan Cure. F. Gordon Morrill.

28. **Heart Complications in Diphtheria.**—White and Smith present the results of a clinical study of nearly one thousand cases of diphtheria, made to determine the condition of the heart, the character and frequency of heart lesions, and their

practical importance in prognosis and treatment. About 5 per cent. of the cases were less than one year old, nearly 40 per cent. less than 5 years, and about 70 per cent. less than ten years. In about one-fourth of the cases the course was mild, about one-half were moderately ill, and in one-quarter the illness was severe. Over one-half of the severe cases proved fatal, namely, 132. About one-half of these patients died of bronchopneumonia, usually following operative interference, such as intubation or tracheotomy. About one-fourth died of heart complications. Of the remaining one-quarter, the majority died of early severe toxemia and a few of asphyxia or late paralysis. The physical signs of a greater or less degree of cardiac disturbance, such as murmurs, rapid and irregular pulse, were very common. Ordinary symptoms of heart disease, such as dyspnea, dropsy, cyanosis and hemorrhage, were not common. About 65 per cent. of the cases had a maximum pulse rate of less than 140, and the mortality among these was about 5 per cent. In general, the higher the pulse rate, the greater the mortality. Irregularity of the pulse was noted in nearly 60 per cent. of the cases. In the majority of cases its time of onset was one or two weeks after entrance. It was observed at entrance to the hospital in 12 per cent. of the cases. Irregular rhythm was most frequently observed in the severe and fatal cases. Heart murmurs were found in 94 per cent. of the cases. All the murmurs were systolic in time, with the exception of those in a few cases of chronic heart disease. These observations were confirmed in each case by two or three competent observers. In the 6 per cent. recorded as having no murmurs, the heart examination for obvious reasons, was unsatisfactory. The murmurs were heard at both apex and base in 77 per cent., at the apex alone in 30 per cent., at the base alone in about 3 per cent. The majority were associated with accentuation of the pulmonic second sound and with irregular heart action, and they outlasted the fever. The mere presence of these murmurs does not affect the prognosis. Gallop rhythm, late vomiting, and epigastric pain and tenderness are important, as danger signals of severe heart complication. The association of late vomiting with gallop rhythm renders the outlook almost hopeless. Frequent examination of the heart and pulse in the second and third week of the illness are necessary, that being the time when severe heart complications most frequently occur. Heart murmurs and irregularity are of long duration in many cases, and make it necessary to watch the condition of the heart long after convalescence in all severe cases.

29. **The Assouan Cure.**—Morrill writes of the benefits to be derived from a sojourn in the Nubian desert. The benefit is obtained from the air only, which differs from that found in conjunction with the comforts of civilized life. Dryness is its main characteristic (an average relative humidity of 41 degrees during the "season") together with a comfortable degree of warmth. This dryness, taken in connection with an average mean temperature of 67, and absence of rain, constitutes an almost ideal winter climate. The diseases which derive the greatest benefit from a prolonged stay at Assouan are nervous exhaustion, from any cause; delayed convalescence, chronic bronchitis, with emphysema and cardiac dilatation; rheumatic affections and neuralgias; cases of prolonged albuminuria, and Morrill has observed two or three cases of incipient pulmonary tuberculosis which have done remarkably well.

Cincinnati Lancet-Clinic.

October 22.

- 30 Indications and Limitations of Various Operations on the Gall Bladder. Charles A. E. Row.
- 31 Some Therapeutic Needs. John C. Larkin.
- 32 Hygiene in Maternity. J. S. Hanson.

St. Louis Medical Review.

October 15.

- 33 Personal Experience with Ergot in Gynecologic Practice. James H. Burtenshaw.
- 34 Gastric Atony and Its Treatment by Means of Adhesive Plaster Dressings. A. Rose.

American Journal of Obstetrics, New York.

October.

- 35 *Papillary Cysts and Papillary Tumors of the Ovaries with a Consideration of the Prognosis and Treatment. S. Pozzi.

- 36 *Intrapelvic Hematoma Following Labor Not Associated with Lesions of the Uterus. J. Whitridge Williams.
- 37 *The Hematom-Mole: Its Clinical and Pathologic Characteristics and Relation to Early Hydramnios.—Fred J. Taussig.
- 38 An Epidemic of Pimplisms Neonatorum. Emma L. Call.
- 39 Report of Two Cases of Tuberculosis of the Ovary. Herbert L. Celler.
- 40 *Vaginal Cesarean Section as a Substitute for the Induction of Labor in Cases of Threatened Eclampsia or of Bright's Disease. Charles S. Bacon.
- 41 Case of Malformation of the Internal Genitals with the Reproductive Glands in the Labia Majora. Charles L. Patton.
- 42 Suppurative Cyst of Left Ovary During Pregnancy; Miscarriage; Laparotomy; Death. Charles Greene Cumston.
- 43 A Rare Form of Vaginal Cyst, Originating from Either the Mullerian or Wolffian Tract. Frank E. Pierce.

35. Papillary Cysts and Tumors of the Ovary.—Pozzi lays down the following proposition: 1. Papillary tumors of the ovary (cystic or solid) must not always be considered as malignant. Not infrequently some of these tumors never undergo malignant degeneration, and do not relapse after removal, or only after a long time, and then but locally, without metastases. 2. It is necessary to make a careful distinction between carcinomatous generalization (which takes place through lymphatics and blood vessels) and simple grafts which result from contact or from growth on the peritoneum of detached papillary vegetations of the ovary. This latter process is benign and can be compared with what happens with papillomas and warts of the skin. 3. Some of these tumors undergo a malignant process which, at the beginning very limited, may afterwards extend all over the mass and at last brings on a real generalization with cancer metastases. Before this last period and at the outset of the malignant transformation it is quite impossible to discern it with the naked eye and microscopic investigations are necessary. Even then, the examination can lead to misinterpretation if it has not been carried all over the tumor, for the malignant process may be very limited in extent. 5. In the absence of positive symptoms of malignancy, operators must always behave towards these tumors as if they were benign, and proceed to remove the largest extent possible of the neoplasm. The disseminated growths or even small parts of the papillary tumor detached and lost in the peritoneal cavity may disappear. In other cases they will be the origin of local recurrence; but these relapses can be treated successfully by major operations. 5. Frequency of successive invasion of both ovaries by papillary tumors constitutes indication for removal of the adnexa of both sides, even if those of one side are still healthy, at least in women who are approaching the menopause. In young women it would be preferable to venture a new laparotomy. Conservative operations must be performed in young women, unless the tumor removed seems indubitably cancerous, in which event it is best to make a complete removal, even taking away the uterus. 6. With bilateral papillary tumors, operative technic will be greatly simplified by performing sub-total or total hysterectomy, according to the case. Hysterectomy should be total if malignant degeneration is feared. If the bilateral papilloma is benign, sub-total hysterectomy is preferable since it is more rapid and less serious. Hysterectomy, in bilateral tumors, simplifies, to a considerable extent, the technic and makes the control of bleeding much easier. 7. Drainage is not necessary when cysts do not present outside vegetations, and when there is no ascites. When ascites is present, it is right to drain the peritoneal cavity for some time, for three or four days, with gauze, and the following days with a tube. In some special cases, a Mikulicz dressing may be necessary, but Pozzi never leaves it in longer than four days. Incomplete removal or even an exploratory incision in inoperable cases is often accompanied by a real diminution of ascites with local and general improvement. This does not justify the systematic performance of incomplete operations either through mistake or as a last resource. Exploratory celiotomy, especially if followed with temporary drainage, has a good effect even in malignant cases and inoperable neoplasm. A little incision followed by drainage for 48 hours is preferable to a simple tapping, in every kind of ascites.

36. Intrapelvic Hematoma.—Williams advises that in the vast majority of cases the treatment should be purely expect-

ant, and the attempt made to tide the patient over the emergency by the subcutaneous use of intravenous salt solution and the administration of the ordinary stimulants. If, however, the tumor increases rapidly in size and the collapse becomes more pronounced, the best means of coping with the hemorrhage is by laparotomy. It is vastly superior to attacking the hemorrhage from below, as under such circumstances all that can be done is to pack the wound in the dark and then be haunted with the fear of not having successfully checked the bleeding and the possibility of a secondary rupture into the peritoneal cavity. On the other hand, if the patient is not seen until some time after the occurrence of the accident, when the acute symptoms have subsided, or the clinical picture points toward the recurrence of suppurative changes, attack by the vaginal route would appear preferable; as under such circumstances the danger of fresh hemorrhage is nominal, while the possibility of contaminating the peritoneal cavity is done away with.

37. The Hematom-Mole.—Taussig adds one case to eight previously reported. He considers hematom-mole a form of "missed abortion" in which the uterine retention lasts usually from six to eleven months; in which not merely the ovum as a whole, but also the amniotic cavity and the fetal membranes that at points lie in folds, is proportionately very large in contrast to the minute embryo, and in which there are found subchorionic hematomata varying in size and number, usually of a tuberosous or polypoid shape. Examination of the fetuses has thus far revealed no reason for their premature death. They are somewhat smaller than their stage of development would indicate, due probably to shrinkage, but even allowing for this shrinkage the disproportion between ovum and embryo remains very great. Taussig's conception of the formation of the mole is that after the death of the fetus in the first or second month of gestation the fetal membranes and the amniotic fluid increase in volume. Thus arises a secondary hydramnios-ovum. This growth continues up to a certain point. The ovum is retained. The amniotic fluid is then gradually absorbed and the ovum, as a whole, shrinks somewhat in size. By the negative pressure thus produced, folds or invaginations of the membranes arise which become filled with the blood circulating in the intervillous spaces. By continued absorption of the fluid, together with a certain degree of stretching of the membranes by the blood clots, a hematoma is formed. In this process the insertions of the villous stems act as fixed points. If the stems are close together, a hemispherical or broad base hematoma results; if far apart, a tuberosous or polypoid hematoma.

40. Vaginal Cesarean Section.—In the opinion of Bacon the most important element in making a prognosis in eclampsia is the presence of, the amount of, and the persistency of, albuminuria. Next to albuminuria in prognostic importance is general edema. The prognostic value of albuminuric retinitis, so far as convulsions are concerned, is no greater than that of albuminuria without retinitis. Hydramnion and multiple pregnancy are factors in the causation of eclampsia, and so are of importance in prognosis. Therefore, Bacon urges that more attention should be given edema and albuminuria when found in connection with twin pregnancy or hydramnion than when occurring in more normal conditions. He says that in cases of chronic Bright's disease the indications for operative delivery are not only those of threatened eclampsia, but likewise concern the pathologic condition due to special anatomic changes wrought by this complication. With no apparent symptom of eclampsia, life may be in danger from kidney disease aggravated by pregnancy. The emptying of the uterus having been decided on, it is necessary to choose between induction of labor and cesarean section. The objections to the induction of labor, says Bacon, are that it may excite convulsions, and it is a tedious procedure. On the other hand, after the occurrence of convulsions, when the cervix is not yet in a condition to be rapidly dilated, vaginal cesarean section is the safest method of treatment of eclampsia, if proper facilities for the operation are at hand. Possibly, in any case where cesarean section is required for any other indication than that of con-

tracted pelvis or disproportion between the size of the passage and the passenger, the vaginal section will replace the abdominal operation. Unless it is followed by hysterectomy in cases of cancer of the uterus, the peritoneal cavity is not opened. All the dangers of peritoneal contamination are avoided as well as the disadvantages of peritoneal adhesions. The incision does not reach the placental site, and thus much hemorrhage is avoided. In many cases there is no need for the hasty removal of the placenta, and hence there is much less hemorrhage than from abdominal cesarean section from this cause. The scar in the uterus is probably in a less dangerous location than in case of abdominal cesarean section. The avoidance of a scar and the frequent resulting weakness in the abdominal wall is certainly a great advantage. Finally, it will often be an advantage to employ the vaginal route, because it will be easier to secure the consent of the patient to the operation. Two cases are cited illustrating the advantages of vaginal cesarean section and describing the details of the operation.

Journal of Advanced Therapeutics, New York.

October.

- 44 Electricity in Medicine. A. D. Rockwell.
 45 *Cataphoric Treatment of Cancer. Amédée Granger.
 46 *A Case of Fibromyxosarcoma of the Sacrum of Large Size. Successfully Treated by Cataphoric Operations, with Preservation of the Sphincter. G. Betton Massey.
 47 *Radiography. Herman Grad.
45. Cataphoric Treatment of Cancer.—Granger, who is a firm believer in mercuric cataphoresis, discusses the physics of the method, and reports twelve unselected cases treated by him. He divides the cases into three classes: First, those cases which were operable; second, those which were inoperable, and third, those which were hopelessly inoperable. The head or neck was affected in 75 per cent. of the cases. The disease was recurrent after some cutting operations in 3 inoperable cases. Radiotherapy had been employed in 3 cases, and all 3 were made worse by its use. As the treatment had to be applied within the mouth in the majority of the cases, he constructed four electrodes for the purpose of overcoming some of the disadvantages of the ordinary style zinc points. The advantages of these points are: That after being inserted into the diseased part, they can be kept in position more easily; that two, and even three, can be employed at the same time; that, except when inspecting the mouth or changing the electrodes the mouth can be kept almost closed. Thus the patient can be kept more thoroughly under the influence of the anesthetic and with a smaller quantity of the latter. His results are summarized as follows: Operable cases.—Number treated, 3; cured, 3. Inoperable cases.—Number treated, 6; cured, 2; improved, 2 (one of these cases is still under treatment and progressing so satisfactorily that Granger hopes to include it among the cases cured); palliated, 1; failed, 1 (in this case the major application which was indicated could not be employed). Hopelessly inoperable cases.—Number treated, 3; palliated, 1; failed, 1; died, 1.

46. Cataphoric Treatment of Fibromyxosarcoma of Sacrum.—The tumor in the case reported by Massey was about the size of two fists and nearly filled the pelvis, the lower border curving back to the sacrum at a point about two inches from the anus. The skin over the upper portion of the coccyx was incised to admit a sharp pointed zinc-mercury electrode somewhat larger than a lead pencil, the unusual thickness of the electrode being arranged to prevent breakage when softened with mercury. Through the slit thus made in the skin, the electrode was forcibly thrust into the still healthy tissues surrounding the coccyx and directed upward into the middle of the growth by a finger in the rectum. This route was selected to avoid interference with the anal sphincter and also because it was anticipated, as subsequently occurred, that the slough would be too large to come away through an intact anus. The powerful current was slowly turned on; this quickly developed the ionized chemicals by electrolytic destruction of the anode, and disbursed them radially from the electrode, necrosing and sterilizing an increasing area of skin, subcutaneous tissue and malignant tissue surrounding the electrode. The current was gradually raised to 1,600 milliamperes, after two other elec-

trodes of smaller size had been inserted alongside the first, and was allowed to flow steadily for three hours, when it was turned off and the patient placed in bed. The conditions present after the application were as follows: A round, grayish colored area of devitalized and sterilized skin, subcutaneous tissue and sarcoma tissue had been produced with a diameter of about three inches, extending deeply into the growth. The growth itself had become shrunken and softened. On the twenty-first day after the operation three of the bones of the coccyx and about half of the tumor came away bloodlessly. A second and final application was made one month after the first, 1,200 milliamperes being turned on and maintained for two hours. Sixteen days later the remainder of the mass came away, somewhat larger than a man's fist, and three days later the detached, devitalized, first segment of the coccyx was lifted out of the wound. Twelve months after the second application the patient was in unusually good health, with no evidence of recurrence. A microscopic examination made of a small portion of the tumor showed it to be a fibromyxosarcoma.

47. Radiography.—In this, the second paper of his series, Grad considers the nature of the x-ray, fluoroscopy, skiagraphy, the technic, and time of exposure, and the location of foreign bodies by means of the x-ray.

Chicago Medical Recorder.

October.

- 48 *The Treatment of Pathologic Face and Brow Presentations. Joseph E. DeLee.
 49 The Relation of the Pulmonary Cilia to Infection. W. M. Fitch.
 50 Differential Diagnosis and Complications of Appendicitis. Daniel M. Eisendrath.
 51 *The Model Method of Treating Tuberculosis of the Lungs. C. H. Wilkinson.
 52 Some Cases of Anemia. I. S. Lewis.

48. Treatment of Face and Brow Presentations.—DeLee says that not all face presentations are pathologic. The large majority of cases, if left alone, terminate spontaneously and happily for mother and child. After a careful study of many reported cases and a close review and consideration of 21 cases of face presentation coming under his care, DeLee presents the following as a guide to the treatment of such cases: 1. Normal pelvis, normal child (size and condition), chin anterior—watchful expectancy. 2. Normal pelvis, normal child, chin posterior—at first expectancy: when it is apparent that the chin shows no tendency to rotate to the front—manual correction of the presentation, that is, changing the face to occipital presentation; failing in this—podalic version. 3. Normal pelvis and child, face deep in pelvis, with chin in anterior or nearly anterior position, give a strict indication for delivery—forceps. 4. Normal pelvis and child, face deep in pelvis, with chin in posterior position, version being contraindicated—a careful trial of manual correction. If it fails—craniotomy or symphysiotomy are the alternatives. Forceps are nearly always contraindicated, because fatal to child and injurious to mother, therefore the cranioclast is more humane. 5. Flat contracted pelvis, of mild degree, normal child—version as the operation of election. 6. Generally contracted pelvis of mild degree, normal child—manual correction, followed by expectancy. 7. Face presentation complicated by placenta previa, prolapse of cord, or extremities, rigidity of cervix, threatened rupture of the uterus, a dead or dying child, monstrosities and highly contracted pelvis—offers no good field for the manual correction, although rarely it may be done. Version and other operations are preferable. One must individualize strongly and carefully weigh the indications and conditions of each case before determining the course of procedure. DeLee's method is to correct the attitude of the fetus by internal manipulation mainly, and aided by the outside hand. Certain conditions must be fulfilled before deciding on manual correction of the mal presentation. First, the cervix must be dilated. Second, the bag of waters is ruptured. Third, the child not too large nor the pelvis too small. Fourth, the uterus must not be on the point of rupture. Fifth, the child must be living and viable. Anesthesia is needed and it should be profound. The operation is divided into four parts: 1. Raising and freeing the head and shoulders. 2. Flexing the chin and pressing down

the occiput. 3. Pushing the shoulder and chest to one side. 4. Forcing the flexed head down into the pelvis. The steps of the operation are described in detail. During the operation the back of the hand should give warning of any thinning or tear of the uterus, which is a signal for the immediate cessation of all manipulations. A gentle trial of the high forceps is then in order, failing which, craniotomy is the alternative. Brow presentations always require interference and DeLee believes that they should be corrected early in labor, the head not being allowed to enter the pelvis in this abnormal attitude. The conditions and contraindications surrounding the manual correction here are the same as in face presentation. After molding is well advanced the forceps may occasionally bring a living child, but the operation should not be forced, as the object striven for, a living child, is likely to be lost in the attempt, and an injured mother will have to be accepted with the bad bargain.

51. **Model Treatment of Pulmonary Tuberculosis.**—Wilkinson's paper is a review of the generally favored hygienic, climatic, dietetic and tonic treatment of tuberculosis.

Northwestern Lancet, Minneapolis.

October 15.

- 53 *Treatment in Diabetes. LeRoy Crummer.
54 *Embolism of the Axillary Artery Following Chronic Endocarditis. George E. Sherwood.
55 Expert Evidence in Court. R. S. Joyce.
56 *Singultus. W. B. Gulick.

53. **Treatment in Diabetes.**—That the treatment of diabetes requires not only the closest attention to details on the part of the physician, but also absolute obedience on the part of the patient is the burden of Crummer's paper. He says that in the severe cases a single dietary indiscretion on the part of the patient is just as dangerous as a single slip on an unsplinted leg with an ununited fracture. Care must be taken not to advise any treatment that will favor the production of acids and the ensuing danger of coma. As a third consideration, one must reduce, or cause to disappear, the dextrose in the urine. All this is done by calculating the proper diet for the individual case—one that does not contain too little carbohydrate, for there is the danger of acid production; nor too much, for then there is the danger of further impairing the already diseased sugar-retaining power.

54. **Embolism of Axillary Artery.**—Sherwood reports a case of embolism of the axillary artery consecutive to a chronic endocarditis in which gangrene of the forearm ensued, necessitating disarticulation at the shoulder, which was done after the oval flap method of Larrey. The patient rallied from the operation, and after a somewhat slow and eventful convalescence, made a complete recovery. The points emphasized by Sherwood are: First, the rarity of this complication following chronic endocarditis; second, would it not be possible in the case of an embolus lodging in as large an artery as the axillary or femoral, to attack the condition surgically as soon as the diagnosis could be made, open up the artery, remove the embolic plug, sew up the vessel and thus save the patient's limb and possibly his life.

56. **Singultus.**—This subject is discussed by Gulick, and a case is narrated in which the usual methods of treatment failed to give any relief. Finally ether was administered, after which the patient hiccupped less often. After six hours of sleep, produced by the administration of $\frac{1}{4}$ grain of morphin, the hiccup became less frequent and within two days had stopped altogether.

Detroit Medical Journal.

October.

- 57 *The Necessity for a Periodical Examination of the Apparently Healthy. Alexander MacKenzie Campbell.
58 *Intratracheal Injections in Bronchial and Pulmonary Affections. Willis S. Anderson.
59 The Use of Rubber Gloves as a Prophylactic in Obstetrics. F. J. W. Mazurek.
60 A Brief History of Cystoscopy and Urethral Catheterization. Byron Robinson

57. **Examination of Apparently Healthy.**—If a man in apparent health shows a proclivity to weakness in one or more parts of the body, that tendency, says Campbell, should be overcome by careful observation and necessary treatment.

Diseases of the lungs, circulatory system, blood and ductless glands, nervous and digestive system, may be recognized before they have any apparent effect on the health. The individual should be examined periodically, at least yearly, in every detail. Whenever there is the slightest indication a bacteriologic and chemic diagnosis should be made. People in apparent health should be educated to the necessity of subjecting themselves to a periodical physical examination.

58. **Intratracheal Injections.**—Anderson has made a large number of experiments on dogs to prove the absorbability of drugs in the bronchial mucous membrane, and to prove that a considerable quantity of a non-irritating liquid can be introduced into the bronchi without injury. He has tried various liquids with a view to testing the relative irritability of the different vehicles, and olive oil was found to be non-irritating, and in every way suitable as a vehicle for the medicaments. Intratracheal injections offer a direct method of introducing medicaments and allow germicides to come directly into contact with the affected part. He is convinced that they are absorbed into the circulation and act systemically as well as locally, without taxing the stomach. Among the substances experimented with were the oils of eucalyptus, thyme, cinnamon and wintergreen, which may be employed singly or in combination in from 2 to 5 per cent. solution in olive oil. Menthol he found to have a local sedative action. It may be combined with camphor. Campbell's favorite formula is a sterilized mixture of camphor, menthol 5 per cent., oil of eucalyptus 5 per cent., guaiacol 2 per cent., in olive oil. The solution and syringe should be warmed to body temperature before they are used. A syringe with a suitable curved cannula is used. From 1 to 2 drams is the proper dose, which may be repeated in a few minutes. Daily treatments usually give the best results. The injection should be given with the aid of a laryngoscopic mirror or direct. The tongue in each case is held out and the patient inhales as the injection is given. He advocates the use of these injections in the congestive stage of acute bronchitis, the so-called "winter coughs," asthma, and phthisis, except in advanced stages.

Indiana Medical Journal, Indianapolis.

October.

- 61 An Epidemic of Asiatic Cholera. John G. Wishard.
62 Tetanus Resulting from Fracture of Thumb. J. G. Jones.

Buffalo Medical Journal.

October.

- 63 Chinese Doctors and Medical Treatment. Mrs. J. F. Bishop.
64 Chinese Medicine and Surgery in New York. Nelson W. Wilson.

Texas Medical Journal, Austin.

October.

- 65 Hlo-collitis—Etiology and Treatment. E. B. Parsons.
66 The Vaginal Route in Pelvic Surgery. O. L. Newsworthy.
67 Treatment of Typhoid Fever. Robert M. Sterrett.

Clinical Review, Chicago.

October.

- 68 Medical Clinic. J. M. Patton.
69 Surgical Operations in Private Houses. John G. Sheldon.
70 Occupation Neuroses. L. Harrison Mettler.

Medical Times, New York.

October.

- 71 Solitary Kidney. Byron Robinson.
72 The Search for Health in the Various Phases of Climate. A. K. Yost.
73 The Fight Against Tuberculosis. G. R. Johnson.
74 Bad-Naumbel and Its Treatments. J. Howe Adams.

Maryland Medical Journal, Baltimore.

October.

- 75 Remarks on the Etiology and Treatment of Diabetes Mellitus. (Concluded.) Thomas B. Fletcher.
76 Distinctions for Diphtheria and Scarlet Fever in Baltimore, with an Account of Reinfections. Wilbur P. Stubbs.

Northwestern Lancet, Minneapolis.

October 1.

- 77 SunEries. T. L. Hatch.
78 The Social Status of the Doctor. A. S. Condon.
79 Notes on Some Recent Progress in Neurology. E. G. Gowans.
80 Penetrating Wounds of the Eyeball. L. W. Snow.
81 Case of Gastroscopy for Carcinoma. E. F. Root.

Journal of the Kansas State Medical Society, Lawrence.

October.

- 82 Eye Reflexes. R. J. Peare.
83 The Expectant Mother. Edwin T. Shelly.
84 Evolution. The Evolution of Man. Physical, Mental and Moral—Its Hindrances and Helps. W. L. Schenck.

American Medical Compend, Toledo.

October.

- 85 Pancreatitis. Wm. J. Gillette.
 86 Uteral Punction. Byron Robinson.
 87 Surgery of Hydrocephalus. B. Merrill Ricketts.
 88 Surgical Preparations. W. C. Gates.

Albany Medical Annals.

October.

- 59 The Present Problem of Pediatrics. Theodor Escherich.
 90 The Experimental Production of Liver Necroses by the Intra-venous Injection of Hemagglutinins. Richard M. Pearce.
 91 A Description of Prof. Theodor Kocher's Clinic at Berne, Switzerland. James N. Vander Veer.

Journal Missouri State Medical Association, St. Louis.

October.

- 92 A Contribution to the Study of the Treatment of Gastrone. Herman E. Pearse.
 93 Internal Administration of Adrenalin Chlorid in the Various Toxicum. John K. Broderick.
 94 Legal View of Boards of Health. A. M. McAlester.
 95 Symptomatology of Prostatic Diseases. J. Leland Dougher.
 96 Resection of the Hip Joint. Ernest Lowrey.

Toledo Medical and Surgical Reporter.

October.

- 97 *Surgery of Hydrocephalus. B. Merrill Ricketts.
 98 Surgical Preparation. W. C. Gates.
 99 Treatment of Coughs Following the Acute Diseases of the Lungs, with Special Reference to Pneumonia and Pleurisy. J. W. P. Smithwick.
 100 How to Curette. C. M. Harpster.
 101 Diagnosis of Pathologic Conditions at the Hip Joint. Thomas H. Manley.

97.—This article has appeared elsewhere. See THE JOURNAL, July 2, 12.

Journal of Cutaneous Diseases, New York.

October.

- 102 Rhinophyma—a Pathologic Analysis of Five Separate Tumors Occurring in the Same Patient. Grover W. Weende and Charles A. Pentz.
 103 An Inquiry into the Etiology and Nature of the Toxic Erythema. Jay P. Schamberg.
 104 Xanthoma Multiplex; Histology of the Palmar Striae. Henry H. Whitehouse.
 105 Pinta; Pano Bianco; Spotted Disease of Central America. Paul G. Woolley.

California State Journal of Medicine, San Francisco.

October.

- 106 Inflammation of Appendices, Epiploicae and Intestinal Diverticula. Emmet Rixford.
 107 The Conservative Treatment of Acute Appendicitis. A. W. Morton.
 108 Cases of Acute Suppurative Appendicitis Treated by the Ochsner Method. Wallace J. Terry.
 109 The Action of Saline Purgatives. John Bruce MacCallum.
 110 Epinephrin; the Active Principle of the Suprarenal Gland; a Second Word. Philip Mills Jones.
 111 Some Mechanical Aspects of Spinal Curvature.—Demonstration of Wullstein's Apparatus. James T. Watkins.
 112 Pernicious Malarial Fever. William F. Blake.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

October 15.

- 1 Criminal Responsibility. Charles A. Mercler.
 2 Criminal Responsibility and Degeneracy. Eugene S. Talbot.
 3 Heredity in its Biologic and Psychiatric Aspects. J. Beard.
 4 The Problem of Heredity from the Psychiatric Aspect. W. König.
 5 Dementia Precox. Conolly Norman.
 6 The Cure of Quackery. A. T. Schofield.
 7 *Lesions of the Posterior Columns in General Paralysis. David Orr and R. G. Rows.
 8 How to Take a Family History. E. S. Pasmore.
 9 *Discussion on the Treatment of Pruritus Ani. Malcolm Morris and others.
 10 Discussion on the Comparative Value of the Old and New Methods of Treatment of Lupus Vulgaris and Certain Other Skin Diseases. J. H. Soguelia and others.
 11 Discussion on the Relative Importance of Bacterial and Other Factors in the Causation of Skin Diseases. Arthur Whitfield and others.
 12 Case of Acne-keleoid. A. Douglas Henth.
 13 Benign Cystic Epithelioma and Its Relationship to So called Syringocystadenoma, Syringocystoma and Hemangioidtheoma. M. E. Hartzell.
 14 Bacillus Pyocyaneus and Pemphigus Vegetans. George Pernet.
 15 On Chronic X-ray Dermatitis. J. Hall-Edwards.
 16 On the Non-parasitic Cutaneous Reactions. Leslie Roberts.

7. Pathology of General Paralysis.—Orr and Rows publish a preliminary note of a study of the lesions in the posterior columns of cords taken from cases of general paralysis with acute and constant excitement, with bedsores, with right-sided

pyopneumothorax, with staphylococcus infection, with convulsions, and acute general paralysis. The spinal cords from these cases were treated by the Marchi method, each segment from the lowest sacral to the upper cervical being cut in serial sections. As the lesions had in no instance reached the stage of secondary sclerosis, their starting point was determined without difficulty. In every case the following features were constant: 1. The portion of root between cord and posterior root ganglia showed no degeneration. 2. Degeneration of the internal division of the sensory root in its intramedullary path, commencing at the point of entrance into the cord. 3. The external division, or Lissauer's area, was almost intact. 4. The collaterals and terminals passing into the gray matter shared in the degenerative process. 5. The long fibers derived from segments situated low down in the cord were also affected, as shown by the presence and position of the degenerative fibers in Goll's column in the upper parts of the cord. Without doubt the degeneration was a primary one, due to the direct action of toxins on the myelin sheath and axis cylinder. From here they spread up the perineural sheath without attacking the nerves, and degeneration took place immediately beyond the point at which the neurilemma is lost.

9. Treatment of Pruritus Ani.—Constitutional treatment, says Morris, is of as much importance as local treatment, and every effort should be made to determine the underlying constitutional cause of the affection, and proper treatment instituted. The first principle of local treatment is to remove any cause of irritation. The most scrupulous cleanliness must be enjoined. As an anodyne application, Morris advocates the use of a suppository containing half a grain of cocaine, or a 4 per cent. ointment with lano-vaselin or boric-acid ointment as a base. Cocain may also be used in lotions with glycerin. Because of the danger of producing a cocaine habit, the patient should not be allowed to use this agent either too freely or for too long a time. Menthol, a strong solution of bicarbonate or bisulphate of soda, or carbolic acid may be combined with cocaine or with mercury. Compresses soaked in oil of cade, Peruvian balsam in vaselin, and the tarry preparations are also useful. Among other sedative remedies which may be tried are extract of belladonna, $\frac{1}{2}$ grain in suppository, lead in spirit and water, nitrate of silver in sweet spirits of niter (3 grains to 1 ounce), ichthyol, chloral hydrate, borax, benzoïn, tincture of iodine, ointment of galls, chloroform ointment and oxid of zinc. Among antiseptics the most useful is mercury in the form of the oleate, combined with the oleate of morphin. Black wash, calomel ointment, and ammoniated mercury in benzoated lard (20 grains to 1 ounce) are valuable. Of caustics, nitrate of silver is the best, applied in solution, $\frac{1}{2}$ dram to 1 ounce of sweet spirits of niter. The actual cautery may be applied, the patient having been anesthetized. In the purely neurotic forms of pruritus the less local treatment is used the better it will be for the patient. The right remedy can be found only by trying all things and holding fast to the good. The practitioner will be most successful who gives the greatest attention to detail, studying each case as a distinct problem and leaving untried no resource that can help in its solution.

The Lancet, London.

October 15.

- 17 Insanity and Epilepsy in Relation to Life Assurance. W. R. Gowers.
 18 Knowledge and the Methods of Reaching It. P. H. Pre-Smith.
 19 Relation of Therapeutics to Other Sciences in the Nineteenth Century. Oscar Liebreich.
 20 *Case of Gigantic Renal Calculus. Illustrated with Remarks on Cases Where Renal Stones Form Obvious Tumors. A. Marmaduke Shield.
 21 *Case of Fracture-dislocation of the Cervical Vertebra. Ernest Ringrose.
 22 *Pulverizing Gangrene of the Lung. John L. Steven.
 23 *Case of Blood Poisoning from Tonsillitis; Comparative Results Obtained from Two Varieties of Antistreptococcal Serum and from Perchlorid of Iron. Isambard Owen.

20. Gigantic Renal Calculus.—Shield reports the case of a man, aged 39, who, after several very severe attacks of renal colic with hematuria, noticed a swelling which filled the left flank and loin, was rounded, firm, very tender, not moving with respiration. The diagnosis inclined toward a large ma-

lignant tumor with intrarenal hemorrhage. Operation was determined on and on opening the abdomen in the left semilunar line, an abscess containing a quantity of pus and two small stones was immediately opened. The kidney was greatly enlarged and firmly adherent to the surrounding parts. An enormous stone, which was subsequently found to weigh more than a pound, was removed with some difficulty. A nephrectomy was done, and when the kidney was sectioned two small stones were found in its substance. The difficulties of the operation were great. Pus and urinous fluid were pouring from the diseased mass over the intestines and wound. The operation, though performed with all possible speed, lasted one hour, and the patient at its termination was collapsed. The after-treatment consisted of saline and nutrient enemata, a small quantity of laudanum being used with the rectal injection. The patient eventually recovered. The stone, soaked in blood and fluid, weighed 19 ounces. When weighed dry on chemical scales, it weighed exactly 1 pound and half an ounce. It was 5½ inches long; circumference at the largest part, about 10 inches. Portions of the stone were broken away accidentally so that its original weight probably exceeded 19 ounces.

21. Fracture Dislocation of the Cervical Vertebrae.—A case of fracture dislocation of the neck is reported by Ringrose which is remarkable because of the disproportion between the accident and the mischief produced thereby, being the converse of what is usually found in these cases. The patient, aged 14, while diving into the river, collided with a man who was swimming by at the time. He was partially stunned, and said he felt "queer" in his head. On admission the patient complained of headache and pain at the lower part of his neck, which was rigid and slightly tender. There was no bruising, and no deformity was to be seen. There was neither loss of power nor of sensation anywhere. He was, however, unable to move his head except to a very limited extent, the side-to-side movement and extension being much more restricted than flexion. After a three days' stay in the hospital the boy returned home and no further symptoms developed. For six months he was in the habit of holding his head with his right hand under the right side of the lower jaw when walking about. Subsequently he joined the militia, having been passed as sound by the military surgeon. He appeared to be perfectly well, but carried his head rather stiffly. A skiagraph made at the time disclosed a forward displacement in the lower cervical region, the center of the body of the fifth cervical vertebra resting on the anterior superior edge of the body of the sixth. The bodies of the fifth and sixth vertebrae were small and wedge-shaped, the apex of the wedge being anterior. The body of the fourth vertebra is almost directly anterior to the fifth. The sixth and seventh cervical and first dorsal vertebrae are pushed backwards, while the cervical curve is greatly increased from the fifth vertebra upwards, the intravertebral spaces being considerably opened; a line drawn through the center of the body of the fourth and one drawn through the center of the body of the seventh forming an angle of about 100 degrees.

22. Pulsating Gangrene of the Lung.—The postmortem examination made in the case recorded by Steven showed that the pulsation was caused by the intimate relationship of the gangrenous lower lobe of the left lung to the left surface of the pericardial sac. There was a distinct tumor-like projection inwards of the pericardial wall which would receive the systolic shock of the heart, and this was transmitted to the chest wall through the semifluid contents of the gangrenous cavity. There was no localized bulging of the chest wall, as in most of the cases of pulsating empyema—the bulging in this case being internal into the pericardium. The pulsation was distinctly felt in the intracostal spaces of the left axilla, and at the base behind, and was of the same character as that felt over the apex beat of the heart. It was a distinct systolic pulse. The heart was neither hypertrophied nor fixed. The anatomic findings seemed to indicate that in order for an empyema to pulsate, the pus-filled cavity must directly abut

on the pericardium, and the adjoining lung must be firmly bound to the chest wall by adhesions.

23. Blood Poisoning from Tonsillitis.—Owen's patient was suffering from a very severe sore throat. Both tonsils were swollen and a patch of membrane was observed on the left tonsil, but a bacteriologic examination failed to reveal either diphtheria bacilli or streptococci. The left tonsil later showed fluctuation, and on opening it, pus was discharged. The condition of the throat thenceforward improved, but the temperature continued to rise, notwithstanding repeated sponging, reaching 104.7. The chest was filled with rhonchi, the abdomen became distended and tympanitic, and the tongue became dry. The patient grew weak, tremulous, and began to wander in his mind. Two days later the left knee had swollen and there was evidence of effusion on the inner side of the joint. The next day both the delirium and sweating had increased. A blood examination was made and streptococci were found. The Widal test was negative. Owen then commenced treatment by injecting antistreptococcus serum. The injections were made subcutaneously in the flank, four injections of 20 c.c. within three days, but without any apparent result. Five days later the shoulder became painful and there was obvious swelling of the joint. Tubular breathing was heard over the left lung about the angle of the scapula. The apex beat of the heart had extended outside the nipple line and a "slapping" second sound was heard in the pulmonary area. Microscopic examination of the blood now revealed nothing abnormal. In the course of the next five days eight subcutaneous injections of 20 c.c. each of Roux's serum (Lister's having been used before) were given. The temperature sank steadily, the delirium disappeared, the shoulder became less painful and the general condition of the patient improved markedly. Treatment by Roux's serum was then recommenced, one injection of 20 c.c. being given on each of five days and 3 on the sixth. After an interval of two days, the serum was again resorted to and injections were given once a day for eight days, after which the patient was treated with a mixture consisting of 30 minims of tincture of perchlorid of iron, with 25 minims of dilute hydrochloric acid and 3 grains of sulphate of quinin, to be taken every six hours. Under this treatment the patient made an uneventful but protracted recovery. Owen attributes to the perchlorid of iron the destruction of the residual toxic elements which were not destroyed or neutralized by the anti-serum.

Semaine Médicale, Paris.

- 24 (XXIV. No. 29.) De l'orientation auditive latérale; son rôle et son mécanisme. L. Bard.
 25 Report of International Congress of Dermatology. (Commenced in No. 38.)
 26 *L'exposition du charlatanisme à Breslau. F. Lejars.
 27 Traitement du tétanos par les injections intraveineuses de solution physiologique. Hodson. Abstract.
 28 (No. 40.) *In rôle de quelques lymphagocytes dans les œdèmes et les rétentions. L. Ambard.
 29 La médecine et le don littéraire.
 30 *La chambre pneumatique de Sauerbruch. F. Lejars.
 31 *The Tourniquet After Accidents. Alberg. Abstract.
 32 *Phototherapy of Vascular Nevus. H. Bordier. Abstract.
 33 *Pure Gauze for Dressing Purulent Wounds. Propkhorov and Bilobjesky. Abstract.

26. Exposition of Irregular Methods.—See news columns, page 1176.

28. Role of Digitalis and Theobromin in Edemas and Retentions.—Ambard remarks that the knowledge recently acquired in regard to the part played by the chlorids in the production of edema has cast new light on the pathogenesis of both edema and retention. He has been studying the action of digitalis and theobromin from this new point of view. It is currently assumed that digitalis induces diuresis by its action on the heart, and theobromin by its action on the kidneys. He affirms, however, that digitalis has very little action on the heart. When it seems to be acting on that organ it is only indirectly, by means of the diuresis which it induces. Theobromin does not act directly on the kidneys, but only indirectly, by the same mechanism of induced diuresis. We have learned that certain metabolic albumino-toxic substances, non-crystalloids, have a powerful action on the blood, concentrating it and expelling the serum from it, driving it into the tis-

sues. He believes that digitalis and theobromin belong to a group of substances which have an opposite action, attracting the serum out of the tissues and drawing it into the blood—a process entirely distinct from osmotic action. The blood thus diluted gets rid of the excess of fluid by pouring it into the kidneys. The drugs in this group have an antagonistic action to the substances of the category first mentioned. They either neutralize these albumino-toxic substances directly, like an antibody, which theobromin accomplishes, or they induce the elaboration in the organism of certain other neutralizing substances; this is accomplished by digitalis. The retention or elimination of the salts, which in turn induce osmotic currents, is not a mere physico-chemical phenomenon, but is subsidiary to secretory phenomena which dominate the entire mechanism. Osmosis and diffusion are sufficient to explain conditions during a state of repose, but the secretory phenomena are the key to the conditions when things are stirring.

30. Sauerbruch's Air Chamber.—Lejars describes in detail the Sauerbruch air chamber and gives his impressions of it. (See THE JOURNAL, page 1181.) In the chamber are installed a large electric lamp, telephone and all the paraphernalia of an operating room with the advantages that the glass walls can be effectually washed and disinfected and spectators outside can watch the proceedings. The door is double, with an air space between. A dog was operated on under chloroform, the thorax opened and the lung seen to be on a level with the long incision made in the sixth left interspace. Respiration remained even and tranquil. The upper third of the stomach was drawn up into the wound and the esophagus severed, the cardiac stump closed with purse-string suture and the upper stump implanted in the stomach wall to the right of the cardia. During the entire operation the lung retained its normal aspect, size and relations. It was pushed out of the way under a compress like the intestine during a laparotomy. Toward the close of the operation one of the aids left the room and neglected to see that the inner door was closed air-tight before he opened the outer door. The air rushed in, the lung collapsed and the respiration became rapid and jerky. It lasted but an instant, as the door was shut at once and the pneumatic pump worked a little faster to restore pre-existing conditions. Gradually the lung filled out and expanded again. As the pressure was increased to a trifle over the standard 10 mm. the lung ballooned out, protruding from the incision. The pump was regulated, the lung resumed its normal place and the operation was concluded. It had lasted an hour. There were six persons besides Lejars inside the air chamber during the entire intervention. It was rather warm, but they were able to breathe without discomfort. They felt the pressure only when the door was opened and then only in the ears. The pressure of 10 mm. is merely equivalent to an altitude of 900 feet. The pressure in the room was very slowly increased to this point, and as slowly restored to the ordinary pressure. The point that most impressed him in the whole experience was not the absence of pneumothorax so much as the permanence of the calm, regular, normal respiration of the animal, notwithstanding the extensive breach in his thorax. Sauerbruch has established that it is possible under these conditions to open both pleurae and resect the sternum and ribs almost to the spine; in short, remove almost the whole of the "thoracic cage," without interfering with the calm regularity of the respiration. The clinical experience to date with the pneumatic chamber has been 10 operations on human subjects, with 4 recoveries. The subjects were all in desperate condition, enfeebled by the pathologic processes, which included gangrene of the lungs, stab wound of the heart and cancer of the esophagus. The phenomena observed in animals were reproduced in the human subjects. Deep narcosis is indispensable for the success in both. Sauerbruch is now studying the effects of hypertension, for application in operations on the skull, etc. He demonstrated the effects of a pressure of 60 to 70 mm. on the protrusion of the brain after trephining.

31. Abuse of the Tourniquet.—Ahlberg relates a number of cases to show the danger of gangrene from prolonged use of

the tourniquet. He urges that it should be removed at the earliest possible moment, and never be left for twenty-six to thirty-six hours. It is also dangerous to apply the tourniquet any higher than is actually necessary. He thinks that the physician is frequently to blame, as he finds the tourniquet an easy mode of arresting hemorrhage when it would be much better in most cases to ligate the bleeding vessel.

32. Phototherapy of Nevus.—Bordier reports the complete cure of an extensive multiple vascular nevus on the face of a young girl. He applied a compressor to cover the region, with pressure sufficient to blanch the skin, the sound skin between the patches being protected by tin foil. The current of 16 to 18 amperes was turned into the arc light for an hour, the sittings repeated daily. The exposed parts in time looked as if they had been burned, and the applications were suspended until the burned tissues had been eliminated, which required about ten days. The daily applications were then resumed, four of these series being required. Under their influence the entire nevus was finally cast off as an eschar leaving sound skin in its place.

33. Guaiacol in Treatment of Suppurating Wounds.—Two Russian physicians simultaneously report excellent results from tamponing purulent wounds with gauze moistened with 20 to 30 drops of pure guaiacol. It even arrested the morbid process in one case of fulminating gangrene requiring amputation of the arm. After the operation the extension of the process in the muscles of the shoulder was completely checked by the guaiacol dressing.

Berliner klinische Wochenschrift.

- 34 (XLI, No. 38.) *Muscular Connection Between Auricle and Ventricle. K. Braeunig.—Ueber muskulöse Verbindungen zwischen Vorammer und Kammer des Herzens.
- 35 *Query: True or Inoculated Modified Hydrophobia? L. Heydenreich.—Wirkliche Wuth-Krankheit oder angepflanzte modifizierte Wuth?
- 36 *Ein Chancroid auf lupiger Grundlage bei starkem Diabetes, behandelt mit Röntgen-Strahlen. M. Levy-Dorn.
- 37 Ueber infectiöse und toxische haematogene Dermatosen. (Commeed in No. 37.) J. Jagassohn.
- 38 Ueber die Hydrocèle des Erypters. B. Pfister (Cairo).
- 39 (No. 39.) *Increased Molecular Concentration of Blood in Kidney Affections. A. Loeb.—Rechtzeitig erhöhte moleculäre Blutconcentration bei Nierenkrankung immer den Schluss auf Krauksein beider Nieren?
- 40 Thermopalpatatorische Untersuchungen über die Temperatur im äusseren Gehörgang (in outer ear). E. Sommer.
- 41 *Chronisch-recidivirender Typhlo-spasmus als Indication zur Operation. H. Schirokauer.
- 42 Ueber die Constitution des Diphtherie-Giftes (toxln). R. P. van Calcar.
- 43 Ueber Pseudotetanie und Uebergangsformen zwischen genuiner und hysterischer Tetanie. (Commeed in No. 38.) Hans Curschmann.
- 44 Report of LXXVII Naturforscher Congress.
- 45 (No. 40.) *Digitalis as Cause of Sclerosis and Dilatation of Right Coronary Artery. T. von Openchewal.—Sclerose und Erweiterung der Coronar-Arterie des rechten Herzens durch Digitalis ermittelt.
- 46 *Heredity and Treatment of Squint. Hermann Cohn.—Ueber Vererbung und Behandlung des Einwärts-Schielens.
- 47 Ein operativ geheilter Fall von Labyrinth-nekrose mit Austossung der ganzen Schnecke (expulsion of labyrinth). L. Katz.
- 48 Ueber die praktische chirurgische Bedeutung des Sesam-Belnes im Musculus gastrocnemius. H. Wolff.

34. Muscular Connection Between Auricle and Ventricle.—Braeunig has found a well differentiated muscular apparatus which appears first in the higher animals and serves to transmit the muscular contractions from the auricle to the ventricle. The heart in reality is merely a muscular tube with peristaltic movements, and the supposed gap between the auricle and ventricle is bridged by this muscular connection which he has discovered in the septum cordis of rats, mice, a lion, in two monkeys and in man.

35. True or Inoculated Hydrophobia?—Heydenreich describes minutely a case of apparent hydrophobia which developed into complete idioy. Five days after having been bitten by a dog suspected of rabies, the patient, a robust, intelligent house-keeper, 45 years old, submitted to Pasteur treatment. After 24 injections during twelve days an illness developed, accompanied by gastrointestinal and multiple paralytic symptoms, indications of the disturbances in swallowing and breathing of true hydrophobia, and a general decay of the mental faculties, with fatal termination in the tenth month. He queries whether the case can be regarded as one of true hydrophobia or whether it was a modified hydrophobia induced by the Pasteur

injections. Comparing the case with others in which the symptoms developed between the ninth to the fifteenth day after the bite, he thinks that they can be explained better by inoculation of the vaccin than by the bite. Another person, who had been bitten but had not been treated, remained healthy. The dog was a young one, and the probabilities are against its having been rabid.

36. Caneroy on Lupus in a Diabetic Treated with Roentgen Rays.—Levy-Dorn's patient had been diabetic for six years, and had had a patch of lupus on the buttocks for nearly twenty-eight years. The caneroid had developed on this patch. The ulceration, 5 by 6 cm. in size, healed under Roentgen treatment to a most satisfactory extent. The results observed show that diabetes (7 per cent. sugar on ordinary diet), is no contraindication to Roentgen treatment. The success in this case was especially gratifying on account of the duration and extent of the lesion and the lack of any special reaction to the exposures.

37. Infectious and Toxic Hematogenic Dermatoses.—Jadassohn's article was partially summarized on page 1180. In this concluding portion he discusses the question whether some of the toxic hematogenic erythematous dermatoses are not in reality inflammations. Many of the drug and serum exanthems are of an unmistakable inflammatory nature. He pleads that the term erythem may be restricted to the unmistakable vasomotor disturbances, and all other erythems be called what they truly are, that is, inflammations. His article is a comprehensive study of the subject from every point of view, based on his own experience and careful sifting of the literature. He expatiates on the importance of the co-operation of dermatology and internal medicine, adding that in many points the dermatologists may be givers as well as receivers.

39. Molecular Concentration of Blood in Kidney Affections.—The question which Loeb and Adrian propound in the title of their article is whether increased molecular concentration of the blood in case of a kidney affection necessarily means that both kidneys are affected. They describe a case which shows that this is not invariably true. The patient had a malignant tumor in the left kidney and the other kidney was supposed to be diseased on account of the fact that the freezing point of the blood was minus .635 C. The patient refused operation and, on account of the blood findings, the surgeons did not insist, but the necropsy revealed that the other kidney was free from any trace of chronic inflammation. We are not justified, therefore, in concluding, merely from the increased molecular concentration of the blood, that the second kidney is diseased in case of a demonstrated surgical affection of one kidney.

41. Recurring Pyloric Spasm as Indication for Operation.—Schirokauer describes 3 cases characterized by attacks of pains with copious vomiting, with intervals of complete health. The patients were extremely nervous subjects and he explains the symptoms observed as a chronically recurring pyloro-spasm and equally constant hypersecretion on a nervous basis, forming a complex neurosis. The pyloric spasm is the result of disturbance in the motor nerve tracts of the stomach, and the hypersecretion, of disturbance in the secretory nerve tracts. With the underlying neurosthenia, they form a vicious circle and relief is possible only by breaking up the circle. This can be accomplished by appropriate surgical measures, and he advocates gastroenterostomy as the most rational method of treatment of pyloro-spasm with chronic succorria. It may be a lifesaving measure in some cases, even when there are absolutely no organic changes at the outlet of the stomach. Two of his patients were restored to complete health; the other refused operation until it was too late to prove effectual and died in coma.

45. Digitalis as Cause of Cardiac Dissociation.—The graphic tracings and postmortem findings of a case are given to show the danger of routine treatment of heart affections with digitalis. The clinical diagnosis was rheumatic endocarditis and endarteritis on an alcoholic basis. After each dose of digitalis the action of the right heart became much stronger, while that of the

left heart became weaker. Such a disturbance in the co-ordination could be explained only by changes in the right coronary artery which prevented it from contracting. The right ventricle was stimulated to excessive action. The left ventricle was unable to take charge of all the blood delivered by the right, and dyspnea and edema indicated the disturbed compensation. These phenomena could be explained only by assuming that digitalis had an exaggerated action on the right heart, which would be the consequence of dilatation of the right coronary. The clinical assumption that the right coronary was dilated was confirmed by the postmortem findings of sclerosis and a lumen 14 mm. in diameter, while that of the left coronary was only 8 mm. Pharmacologic dissociation, resulting from degeneration of the right coronary artery, has been observed by the writer in 2 previous cases. The curves show the weak pulsation of the left ventricle and the excessive action of the right. The duplicated pulse in the jugular vein was probably attributable to an accessory contraction of the right auricle. Dissociation of the heart action can be studied at the bedside more instructively than on animals' hearts.

46. Treatment of Inward Squint.—Cohn tabulates the statistics gleaned from his personal experience in respect to the heredity of squint. The more he inquired the larger the proportion of squint in the family history. Out of 27,000 patients he found 805 with squint and there was a history of squint among the relatives in 16 per cent. of the first series, 25 per cent. in the second, and 33 per cent. in the last. The various relatives were parents in 25 per cent., grandparents in 7 per cent., brothers or sisters in 26 per cent., and uncles or aunts in 12 per cent., a total of 172 relatives with convergent squint to 805 patients with the same. Worth's statistics show 52 per cent. heredity and Jensen's 70 per cent. In all Cohn's hereditary cases the squinting eye exhibited hyperopia, which he cites as a significant fact. He thinks that there is probably some unknown factor at work here, possibly a congenital alteration in the internus, which ophthalmologists will do well to seek. We are not positive even as to whether amblyopia is cause or effect of the squint. In regard to treatment he follows the following principles: 1, up to the fourth year he has the sound eye bandaged for a few hours every day while the child is at play; 2, during the fifth year he commences special exercises with convex glasses and the stereoscope; 3, corrects total hyperopia; 4, refrains from operating until the child is 10 years old, and does tenotomy in the sixth year only in case of great disfigurement; he promises improvement but not total cure, and advances the externus in extreme degrees of squint.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 1015.

- 49 (XXVII, No. 26.) *Schönchne oder forcirte Entbindung bei Eklampsie (question of delivery). F. Kernauer.
 50 *Vaginaler Kaiserschnitt bei Eklampsie (cesarean section). Haumerschlag.
 51 *Extramedian Symphyseotomy. E. Ferroni.—Beitrag zum Lateralschnitt des Beckens nach Gigli.
 52 *Uben Sondierung und Uterus-Perforation. W. Thorn.
 53 (No. 27.) *Eklampsie im 5 Gravitäts-Monat ohne Foetus (bei Blasen-Mole). F. Hiltchnann (Vienna).
 54 Zur instrumentellen Beendigung des Abortus. R. v. Braun-Fernwald.
 55 Ein neuer Operationstisch mit beweglicher Schulterstütze (operating table with shoulder support). Hartog.
 56 (No. 33.) *Transverse Abdominal Section. O. Vertes.—Ueber den suprasymphysären Querschnitt.
 57 *Permeabilität of Tubes for Flüssig Injected. W. Thorn.—Die Durchgängigkeit der Tuben für in den Uterus injizierten Flüssigkeiten unter spezieller Berücksichtigung experimenteller Versuche und der Lebenden.
 58 Beitrag zu den Verletzungen der weiblichen Sexual-Organe sub (genu) (injuries). J. Saks.
 59 Illuminator for Operating Rooms. F. König (Altona).—Beleuchtungs-Vorrichtung.
 60 (No. 29.) *Ueber Lumbal-Punktionen bei Eklampsie. B. Krönig (Jena).
 61 *Zur Diagnostik in der ersten Hälfte der Gravidität. O. Sarwey.
 62 Zur Frage des Vagitus uterinus. R. Creutz.
 63 (No. 40.) Case of Posttyphoid Anxieties. E. Dimoser.—Ueber eitrige Adnex-Erkrankungen infolge von Typhus abdominalis.
 64 Die Behandlung des inkompletten Abortus. F. d' Erchia.
 65 Rissum tenebris amiel oder: Die intra-uterine Taufe menschlicher Fier und Foeten (baptism). J. Kocks.

49. Expectant or Forced Delivery in Eclampsia.—Kermtuner sifts the records at the Heidelberg gynecologic clinic in regard

to delivery in eclampsia. The principles followed are those of conservative treatment, and he thinks that the cases of aggravation of the attacks after delivery, and of the first onset during the puerperium, favor the assumption that the evacuation of the uterus alone is not sufficient. It is only a part of the general treatment.

50. **Vaginal Cesarean Section in Eclampsia.**—Hammerschlag reports 4 cases of vaginal cesarean section, and tabulates the others on record, a total of 21, including Stamm's case. In 8 instances no convulsions occurred after delivery; in 2 others this point was not mentioned, and in 3, one to eleven convulsions are mentioned after the operation (iodoform gauze tamponing). The mortality was 9 in 21; 2 deaths were due to infection and 1 to pneumonia. In 34 cases of abdominal cesarean section on record the mortality amounted to 55 per cent., and 4 of the deaths were due to sepsis. Even the most favorable statistics give 6 to 8 per cent. mortality.

51. **Extramedian Symphysectomy.**—Ferroni adds another to the 26 cases on record in which symphysectomy was performed to one side of the median line, according to Gigli's technic. In every instance the incision healed by primary intention with the exception of one "chloroform death." It is eminently superior to median symphysectomy in the opinion of all who have performed the operation, both in the simplicity of its technic, the immediate results and the definite enlargement of the pelvis which it produces without interfering with the gait. The pelvic organs are left intact and the severed bone heals with most remarkable *restitutio ad integrum*. The present case is the only one known in which there was considerable hemorrhage from the bone and a puerperal hematoma of the labia. Notwithstanding these complications the operation was brilliantly successful in every particular. Gigli's technic was followed in every detail. (See page 764, abstract 81.)

52. **Sounding of the Tubes.**—Thorn presents arguments to prove that it is absolutely impossible to pass a sound through the fallopian tube in normal conditions. The cases in which it has been supposed to have been done must have been in reality perforations of the uterine wall. He found it impossible to pass a sound through the tube even in an inverted uterus and on the cadaver. In case of a myomatous uterus or deformity, with unusually wide opening into the tube, it may be possible to introduce a sound, as has been reported in 4 such cases in the literature and as occurred in a case personally observed. The orifice has to be unusually large, the walls of the tube exceptionally hard, straight and resistant, with other conditions which are seldom encountered.

53. **Eclampsia in the Fifth Month of Pregnancy Without a Fetus.**—Hitschmann reports a case from Schauta's clinic which he believes is without a parallel in the literature. Eclampsia is very unusual at so early a stage as the fifth month. Schauta, in his study of 342 cases of eclampsia in 134,345 childbirths, never observed any from the fourth or fifth month. The placenta had become completely transformed into a hydatid mole and not a trace of a fetus could be discovered. The patient—a *hipara*—was seen at the second week of the fourth month. The size of the uterus corresponded to the seventh month and on account of 7 per 1,000 albumin in the urine the patient was kept in bed on a strict milk diet. Labor commenced soon after, and the next day two very severe eclamptic attacks were observed, with complete loss of consciousness. Under Scheich narcosis the patient was delivered. Not a trace of normal placenta could be discovered in the hydatid mole which filled the uterus, and the fetus—if there had been any formation of a fetus—must have perished at a very early stage. This case is an argument against the theory that eclampsia is due to toxins from the fetus. The peripheral parts of the fetal ovum are probably the source of the toxin generation. The case in question unmistakably indicates this, as the villi were of unusual size and development, the epithelium itself proliferating. Veit's theory of deportation of the villi is superfluous in presence of such a case. Only 2 cases of eclampsia in connection with a hydatid mole are known, besides

the present case. Veit succeeded in inducing albuminuria in animals by injecting placenta tissue. The patient recovered rapidly after delivery, with no recurrence of the eclamptic seizures.

56. **Transverse Abdominal Section.**—Vertes lauds the Pfannenstiel incision as destined to rank most prominently in gynecologic abdominal operations. He reviews the literature on the subject, and states that at Döderlein's clinic 133 patients have been operated on by this technic, which is being adopted more and more as a routine measure. The skin, subcutaneous tissue and fascia are incised transversely at the edge of the hair, above the symphysis. The fascia is detached from the muscles below and mobilized, and then the rectus muscles and peritoneum are incised on the linea alba.

57. **Permeability of Tubes for Fluids Injected into the Uterus.**—Thorn describes 6 cases of gynecologic affections in which he injected a solution of iodine or methylene blue into the uterus without the usual precautions to prevent its passage into the tubes. The solution of iodine was never found in the tubes, but the methylene blue did get into them to a slight extent. He is convinced that the permeability of the tubes for the blue is due to some physical capillary attraction of this fluid, absent in case of iodine, and that this explains the supposed permeability of the tubes. He is convinced that with ordinary precautions there is no danger of an injected fluid finding its way into the tubes.

60. **Lumbar Puncture in Eclampsia.**—Krönig's 3 eclamptic patients were treated by lumbar puncture. No immediate benefit was apparent, but the general condition was notably improved by the seventh to eighth hour, and all the patients recovered. He was impressed with the extremely high tension of the cerebrospinal fluid. The normal standard is said to be 120 mm. water column. In one of the patients the pressure was 500 mm. and during the attack it rose to 600 mm. and more. The fluid was withdrawn to an amount of 37.5 to 47 c.c. before the pressure fell to normal.

61. **Early Diagnosis of Pregnancy.**—Sarwey has never missed finding the fetal heart sounds in the thirteenth week of pregnancy since he has begun listening for them. They were distinctly audible even during the twelfth week in one instance. Good hearing and a practiced ear are necessary to detect them, with absolute silence in the room and anteroom, not even a clock ticking. A still more indispensable condition is persevering patience on the part of the investigator. Sometimes he has auscultated for twenty to thirty minutes before the faint heart sounds were perceptible. The difficulty in hearing them is probably due to the fact that they are audible only at a certain part of the uterine wall, and as the fetus changes its position it may be necessary to go over the entire area before they are located. They were generally found when the stethoscope was placed over the lower segment of the uterus, in the anterior wall, where it is thinnest. He therefore commences to auscultate at this point just above or back of the symphysis, continuing the auscultation over the entire accessible uterine wall, if necessary, stroking the intestines out of the way, the bladder empty, and paying due regard to the location of the uterus and to the possible location of the fetus within. A displaced uterus must be corrected beforehand. In multipare with relaxed and thin abdominal walls it may be possible to draw the uterus into pronounced antelexion and thus be able to auscultate its rear wall. When the fetal heart sounds are detected their frequency must be determined with the watch and compared with the maternal pulse. When they correspond the diagnosis of a pregnancy is certain, even in the twelfth to the thirteenth week, seven or eight weeks earlier than the text-books admit as possible.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

- 66 (XXX, No. 28.) *Principles of Treatment of Syphilis. H. Hallenau.—Grundsätze der Syphilisbehandlung.
67 *Zur Behandlung der Syphilis. O. Rosenhal.
68 *Bemerkungen über den Krebs. Jonathan Hutchinson.
69 *Paralprose. G. Armaner Hansen.
70 *Die Therapie der Lepra. H. F. Lie.
71 *Ueber Lichtbehandlung nach Sensibilisation. Forchhammer.
72 *Ueber den Einfluss photodynamischer Substanzen auf die Wirkung der Röntgenstrahlen. R. Kothe.

- 73 Ueber ein Band-Compressorium für Röntgen-Aufnahmen. W. Cowl (Berlin).
- 74 Urteil über den Arztstand aus der Zeit des Dreissigjährigen Krieges (profession in 1641). Zandy.
- 75 (No. 33.) Ueber den gegenwärtigen Stand und die Probleme der Lehre von der Blutbewegung (movement of blood). K. Hürthle.
- 76 Ueber die Bedeutung der Sensibilitätsprüfungen mit besonderer Rücksicht auf die Prüfung des Drucksinnes (tests of sensibility and sense of pressure). Ad. Strümpell.
- 77 *Ueber Lungen-Steine. R. Stern.
- 78 *Welche Aufgaben stellt die komplette Uterus-Ruptur der Therapie? Otto Küstner.
- 79 Ueber den pathologischen "Einfall." K. Bonhoeffer.
- 80 *Beitrag zum metastatischen Carcinom des Ciliarkörpers. W. Uthoff.
- 81 Zur Entstehung der otitischen Kleinhirnszesse; Infektion durch den Hiatu subarcuatus. V. Hinselberg.
- 82 Die Zähne als Eingangspforte der Tuberkulose (teeth as entering point for tub.). Patsch.
- 83 *Meine Versuche zur Uebertragung der Syphilis auf Affen (to monkeys). A. Neisser. (Commenced in No. 37.)
- 84 Experimentelle Untersuchungen über die Wirkung des Radiums auf embryonale und regenerative Entwicklungsvorgänge. A. Schaper.
- 85 Neuere Angriffe gegen den Darwinismus. R. Hertwig.
- 86 Wilhelm His, Obituary. W. Waldner.
- 87 *Report of Cancer Research Committee.

66. Principles for Treatment of Syphilis.—Hallopeau's principles are intensive treatment for four years, and not only intensive but continuous. General treatment must be accompanied by local measures as often as practicable. Metallic mercury is the one specific, the dose the largest amount that can be given without symptoms of intolerance, preferably through the skin or into the muscles. Later potassium iodid should be given a larger place and local treatment assume a more prominent rôle. In the after-affections vigorous specific treatment during the premonitory or incipient stages of tabes offers the only prospect for complete success. Vigorous treatment should also be resumed whenever a new symptom indicates the development of a new syphilitic focus in the spinal cord. Patients in the incipient stages of tabes can thus be kept in satisfactory condition for years. The same applies to progressive paralysis except that mercury alone is indicated in this case. Edema may be benefited by compression, cicatricial keloid by radiotherapy; ectropion and sequesters may require operation, dystrophies may be cured by electrotherapy. In inherited syphilis, after-affections resulting from disturbance in the embryonal elements, are scarcely amenable to treatment. The physician should treat the syphilitic with mercury, internally and externally, without cessation, and with potassium iodid as long as he is justified in assuming that the causal agent still lingers in the body.

67. Treatment of Syphilis.—Rosenthal advocates a chronic intermittent mercurial treatment of syphilis, adapting it to individual cases. He prefers subcutaneous injection of the less soluble salts of mercury. When inunctions are employed he thinks the effect is enhanced by keeping the patient in bed, as the inhalation aids in its absorption. This is particularly important in tabes, as the repose is also favorable in this nervous affection.

68. Remarks on Cancer.—Hutchinson's views in regard to the importance of certain drugs, especially arsenic in predisposing the tissues to malignant growths, were mentioned in these columns, page 1180. He thinks that this fact excludes the possibility of a parasitic origin for cancer. He knows of 12 examples of cancer developing in subjects who had been long under the influence of arsenic. He ascribes the tendency of chimney-sweeps to cancerous affections to the large proportion of arsenic in certain coals. He suggests that the gradual transformation of many eczematous or psoriasis affections into mycosis fungoides may be partially due to the protracted arsenic or iodine treatment applied. Some physicians maintain that syphilites are predisposed to carcinoma. It is possible that, not the syphilis, but the drugs employed to combat it, may be responsible for this tendency if it exists. In conclusion, Hutchinson describes some rare malignant affections, including ulcus crateriforme, lentigo maligna senilis and "potato" tumor of the neck. He advises extirpation of a neoplasm without waiting always for certainty in regard to malignancy.

69. Paraleprosy.—Hansen has examined a number of the descendants of lepers and never found any indications of the disease in them nor signs of resulting degeneracy. He also

remarks that the thickening of the ulnar nerve, recently described as a "paraleprosy" symptom, is merely due to the greater accessibility of the nerve in certain individuals.

70. Treatment of Leprosy.—The tuberculous form of leprosy is essentially a skin affection, while the maculo-anesthetic variety is almost exclusively a nerve affection. The nervous system reacts to the latter with swelling of the nerves involved, accompanied by pain and fever. This reaction may be so strong that the infection is conquered, and the subject recovers. In the tuberculous form, in which the process is restricted to the skin, this reaction seldom occurs in the early stages. When it does occur, it is much more intense and is not restricted to the nervous system, but involves also the skin and internal organs. A fatal termination is the rule, on account of the consequent degeneration of important organs, especially of the liver. Treatment should be based on these facts. The maculo-anesthetic form may be favorably influenced by general treatment, especially by potassium iodid and tuberculin, if the latter is given according to the principles in which it is being applied now in tuberculosis. Both these substances act by promoting the reaction on the part of the organism, and both promise good results. The action of chaulmoogra oil is similar, but less constant. Carassquilla's serum probably acts in the same way, but is very uncertain and not always harmless. In cases in which no reaction follows the treatment, some other substance should be given a trial. It may be possible, Lie adds, that leprosy may be found transmissible to anthropoid apes, and that an effectual serum may thus be produced in time. "Science will have to climb up another round of the ladder, however, before we can see what prospects bacteriology has to offer in leprosy."

71. Phototherapy After Sensitizing the Tissues.—This communication proceeds from the Pinsen Light Institute at Copenhagen, and reports extensive clinical research with phototherapy after the tissues had been injected with a 1 per 1,000 solution of erythrosin according to Dreyer's technic, to render the tissues more sensitive to the action of the light. About 350 exposures were made, the subjects—23 lupus patients. The results were negative in respect to any favorable action from the "sensibilization."

72. Influence of Photodynamic Substances on the Action of X-Rays.—Kothe is enthusiastic over the enhanced action of the x-rays after the tissues have been previously injected with a 1 per cent. or per thousand solution of eosin, an hour before exposure. He describes experiments on animals and with lupus and warts in the clinic. The injection of eosin enables the course of x-ray treatment to be much shortened, the exposure need not be so long, and the reaction occurs sooner and is more intense than without the eosin. The eosin injections also permit the energetic reaction to be restricted to a circumscribed area, while the uninjected, sound tissue around or above scarcely feels the action of the rays.

77. Lung Stones.—Stern describes 3 cases of the expulsion of concretions from the lungs after the sputa had been blood-stained for a longer or shorter period. They all consisted of calcium carbonate and phosphate with a trace of magnesia, and all seemed to have an organic foundation, containing tubercle bacilli in one instance. The stones or gravel were multiple, and expelled during coughing. One of the patients had coughed up 20 stones, some of them $\frac{3}{4}$ of an inch long, after years of a catarrhal condition of the lungs, with symptoms finally suggesting a gangrenous focus. Tubercle bacilli were never found in his sputa, but streptococci were numerous. The patient was operated on by Mikulicz in the Sauerbruch air chamber. The right middle lobe was found covered with a pleuritic deposit, and felt unduly tough. It was sutured to the parietal pleura and the wound tamponed. The patient passed through the operation well. Lung stones may simulate tuberculosis or they may obstruct the air passages or induce actual crises or asthma or bronchial colics. The latter were marked in a fourth case.

78. Treatment of Complete Rupture of the Uterus.—Küstner recommends extensive laparotomy, careful wiping out of all

accumulations of blood or fluids in the peritoneal cavity, re-fraining from rinsing. Hemorrhage from the rupture should be controlled by ligatures. The bladder should be sutured in case of injury, and the tear in the uterus should be sutured or not, according to the circumstances. Extirpation of the uterus is required only in exceptional cases. The intervention should conclude with extensive Mikulicz tamponing of the uterus wound up to the laparotomy wound. Seven cases thus treated are described in full, with 40 per cent. recoveries, with 2 recoveries out of the 5 non-moribund patients. Two of the deaths were due to pneumonia or pre-existing infection. In future he intends to inject nucleic acid to promote local leucocytosis as a preliminary to operation. He draws a sharp distinction between complete and incomplete rupture, the latter not requiring the energetic intervention which he advocates for the former.

80. **Metastatic Carcinoma in Ciliary Body.**—Uthoff reports a case of this kind which was at first assumed to be a syphilitic gummatous affection with secondary iridocyclitis, but which proved to be a carcinoma. He rejects the possibility of a primary carcinoma in this region. Metastatic carcinoma of the choroid has a more rapid growth than other intraocular tumors.

83. **Inoculation of Monkeys with Syphilis.**—Neisser reports the results of inoculation of various kinds of monkeys with syphilitic virus. All were dubious or negative, except the inoculation of anthropoid apes. Passive immunity seemed to have been acquired by the chimpanzee, as subsequent injections were negative. His attempts to obtain an effectual serum from the animals have been failures so far, but he still hopes for better results in the future. Among the questions pressing for solution are those in regard to the various development of the primary and constitutional phenomena when the virus is inoculated into or under the skin or by direct injection into the blood; which organs serve as nests for the parasites; are these nests in the glands, and especially in those exhibiting lesions; is it possible in this way to learn points which will be useful in diagnosis to distinguish between the subjects really cured and those in whom the infection is merely in a deceptive, symptomless state? Special attention should be paid in such research to the organs of generation, to solve, if possible, some of the problems of hereditary syphilis. The question of reinfection is also one for experimental study. In regard to the virulence, is there a quantitative difference between the early and late forms, or is merely the age of the syphilis or the kind and intensity of the previous mercurial treatment, responsible for the variations in the virulence of the syphilitic processes, irrespective of whether they belong to the secondary or tertiary phase. [Neisser leaves for the tropics next March to carry on this research on monkeys under more favorable conditions. He expects to go to the Sunday islands for several months.—Ed.]

87. **Cancer Research Committee.**—Benda referred to the case of pavement epithelium cancer in the bronchi published by his assistant, Watsuji, in the last *Zeitschrift f. Krebsforschung*. The patient was a young physician who presented the syndrome of pulmonary phthisis for years, but at the necropsy a small bronchial carcinoma was found. It had induced chronic bronchitis and recurring pneumonia. In another case, adhesions with the aorta simulated the syndrome of aneurism of the latter. In still another instance an attack of apoplexy was the only symptom of a carcinoma in a bronchus. Cerebral embolism had occurred from a thrombotic vein in the vicinity of the cancer, as also in 2 other cases in which the supposed brain tumor proved to be a metastasis from a small cancer in the lung. When careful search is made for cancer of the lung it is found to be more frequent than generally credited. His own statistics show that it forms 4 per 1,000 of all the deaths, and 4 per cent. of all cancer deaths. During one year, 1900, the proportion rose to 12 per 1,000 of the entire mortality. It almost invariably develops near the hilus. It is at first always concealed beneath a large layer of normal lung tissue, and later by indurated or suppurating pneumonic processes.

The first or second branch of the bronchus is the usual site. (The discussion that followed is reported in detail, Orth, Behla and others taking part.)

Münchener medizinische Wochenschrift.

- 88 (LI, N. 26.) Experimenteller Beitrag zum Studium der oxydierenden Wirkung fluoreszierender Stoffe, Balafoxen.
 89 Ueber die Wirkung fluoreszierender Stoffe (des Eosins) auf normale und hämolytische Sera. L. Lichtwitz.
 90 Ueber paroxysmale Hämoglobinnurie. J. Donath and K. Land steiner.
 91 Zur Lehre vom Ekzem. E. v. Düring.
 92 Zur Kenntnis der Alkaptonurie. O. Schumm.
 93 Zur Behandlung des Diabetes insipidus. B. Steln.
 94 Ueber Ikterus und Diabetes auf nervöser Grundlage. M. Rheinboldt.
 95 Inhalation mit phenylpropionsauren Natrium gegen Kehlkopf- und Lungen-Tuberkulose. Dr. Bulling.
 96 Eine neue dermo-therapeutische Bestrahlungs-Lampe, Jeslonek.
 97 Reply to Bassewitz in No. 29. M. Otto and K. O. Neumann.
 98 (No. 27.) Diabetes insipidus mit cerebralen Herdsymptomen (cerebral focal symptoms). J. Grober.
 99 Ueber Xanthoma diabeticum tuberosum multiplex. Derlin.
 100 Die Bedeutung der Leukozytose für die Indikationsstellung bei akuter Appendicitis. Sprengel.
 101 Ueber das Vorkommen von Typhus- und Paratyphus-Bazillen bei Erkrankungen der Gallenwege (in affections of biliary passages). F. Blumenthal.
 102 Untersuchungen über den Magensaft (gastric juice). A. Bickel.
 103 Tuberculosis inoculated by Morphia Syringe. O. Bruns.—Impftuberkulose bei Morpholinus.
 104 Die Radiotherapie bei Gebärmuttergeschwülsten (uterine tumors). J. Deutsch.
 105 Ueber die carcinomatöser Entartung der Kopf-Atherome (of head). D. G. Zesas.
 106 Ein Wasserdampfabapparat zu therapeutischen Zwecken. Welsch-art.
 107 Ueber sporadischen Skorbut. B. Wagner. (Commenced in No. 36.)
 108 (No. 35.) Ueber die Vermeidung der Perforation lebender Kinder (to avoid perforation). J. Velt.
 109 Ueber die Tuberkulose der menschlichen Plazenta. Gelpel.
 110 Zur Bakteriologie der Akne vulgaris. K. Kreibichs.
 111 Ueber Prothrombin. H. Neumayer.
 112 Ueber die Gefäßbildung des Coecum in Hens. E. Kreuter.—Ueber die Gefäßbildung des Coecum durch Blühung beim Dickdarmverschluss.
 113 Fall von Sesam-Bein-Fraktur. H. Marx.
 114 Zur Aetiologie der akuten Osteomyelitis. Durlacher.
 115 Zur Bewertung der Heilstättenbehandlung Lungen-Kranker (sanatorium treatment). E. Rumpf.
 116 Versorgung der Städte mit Kindermilch (milk supply). Rumpff.
 117 Apparat für sterilisierte physiologische Kochsalzlösung, stets fertig zum Gebrauch (salt solution always ready). O. Pfeilsticker.
 118 Gefensterter Mundspatel aus Nickeldraht (nickel wire spatula). C. v. Plinnet.
 119 F. Wilhelm Zahn, Obduirary.
 120 Franz Diegel, Obduirary.
 121 Die Organisation des Feldsanitäts-Wesens in der russischen Armee. A. Dworsky (Moscow).
 122 Die medikhistorische Abteilung des Germanischen Museums in Nürnberg. H. Peters.

100. **Leucocytosis in Appendicitis.**—Sprengel concludes from a study of 83 cases that the leucocytosis averages lower early in acute appendicitis than during the later stages. It increases parallel with processes in the peritoneum as well as in the appendix, and reaches its maximum in the later stages of destructive appendicitis. The count is less regular in the early than in the later stages. No characteristic difference could be discovered between the blood count in the serofibrinous and the purulent varieties of appendicitis.

102. **Gastric Juice Under the Ultra-Microscope.**—Bickel announces that the ultra-microscope has revealed that pure gastric juice is not a simple solution, but contains innumerable minute corpuscular elements in suspension. It is thus an emulsion. He proposes to call these minute bodies the "ultra-microscopic granula of the gastric juice." Pure water, saline solution and diluted hydrochloric acid show no such elements. Further study of the gastric juice showed that it varies in its molecular concentration at different periods of the digestion of meat, and sometimes is more concentrated than the blood. These researches were conducted on dogs with Pawlow fistulas.

104. **Radiotherapy of Uterine Tumors.**—Deutsch describes a number of cases of uterine tumors which retrogressed under Röntgen treatment. They were diagnosed as myomata, and one patient, whose case is reported in detail, measured 120 cm. around the waist, but under treatment was reduced to 95 cm. After 5 exposures the previous bladder troubles were relieved and vanished entirely after 7 more. The course of treatment lasted two years, with 90 exposures. A large coexistent struma has entirely vanished. In one of the cases the myoma rapidly

retrogressed during the course of 30 exposures, but another tumor, probably an ovarian cyst, showed comparatively little change. Two of the patients had blood-stained serous discharges from the vagina every time after the exposures. The myoma had caused hemorrhages in one instance, but these were much reduced under treatment. Two of the patients exhibited symptoms similar to those noticed during thyroid treatment of goiter, but they ceased when treatment was suspended. Patience and perseverance are needed to accomplish any results with radiotherapy of deep-lying tumors.

106. Steam Substitute for Cataplasms.—A steam generator over a spirit lamp connects by a tube with a very light metal pad which fits over the part to be treated. When the thermometer fastened in the generator indicates the boiling point, the faucet is turned and the steam sent through the metal pad, whence it passes by a return tube into a condenser. It thus works continuously for twenty hours without attention, a safety valve keeping the temperature always below a certain point. Cloths can be interposed to regulate the temperature felt by the skin. Pads of various shapes are provided to fit different parts of the body, including the eye.

108. Avoidance of Perforation of Living Child.—Veit has not allowed perforation of a living child to be done in his clinic at Leyden since he assumed charge in 1896. There have been 8,000 births since. In 26 cases in which it might have been indicated, he performed cesarean section or symphysectomy, and all the children were born alive, except two, who probably succumbed to the gases of putrefaction from a physometra. Two of the mothers died; one was previously infected, but possibly might have been saved if the uterus had been removed with the child; the other succumbed to the results of the tearing out of the suture of the uterus. To avoid the necessity for perforation, the women should be taken to a maternity at once when trouble is anticipated.

112. Danger to Cecum from Distension in Ileus.—Kreuter relates the history of a case in which distension of the cecum from incomplete occlusion of the intestines caused gangrene. The ilocecal valve is liable to close backward, and the cecum has the thinnest walls of the entire large intestine, while it is liable to be kinked, and, even in normal conditions, always contains more gas and fecal matters than other parts of the bowels. He advises to make an opening at once into the cecum in case of suspicion of occlusion and evidences of localized distension. Irrespective of the point of the occlusion, whenever it assumes a threatening aspect, the chief danger always lies in the distension of the cecum which, in certain circumstances, inevitably occurs and may lead to the most serious consequences.

115. Results of Sanatorium Treatment.—See editorial.

116. Milk Supply in Cities.—Trumpp advocates that the Red Cross should assume charge of the milk supplies in cities, backed by the authority of the state and aided pecuniarily by the municipality. The dairies should not be more than an hour's ride from the city, and should deliver the milk in cans to central stations, where it should be put up in bottles containing a day's ration for an infant. The bottles should be distributed to numerous branches, conveniently located, perhaps in drug stores, and sold at cost price or given free to the poor. He states that 200,000 infants die every year in the German empire, and that three-fourths of this mortality is due to the feeding. The Red Cross is well organized throughout the country, the "Vaterländische Frauenverein" alone numbering 250,000 women members.

121. Sanitary Service in Russian Army.—Dworetzky draws a graphic picture of the Russian sanitary and medical service and its workings in the far east. Five "flying columns" were organized for general prophylactic measures against infectious diseases, and 10 for the disinfection service. Each contains 4 skilled bacteriologists. One was organized by the Moscow Internal Medicine Society. It has its own train, one car fitted up for the laboratory, one for the disinfecting apparatus and electric light plant, one for the living rooms of the

detachment, with other cars for the ice plant. The St. Petersburg Institute for Experimental Medicine fitted out another detachment, which comprises 19 disinfectors and 2 physicians. All the personnel of the sanitary service were vaccinated against typhoid and dysentery free of charge. The army has suffered much less from infectious diseases than in any campaign before. At Moscow special courses were given to train persons in caring for the sick and wounded, and the lectures were attended by 600, while 150 more attended the hospital nurses' course, and 200 the Sisters of Mercies' course. He pays an exalted tribute to the devotion of the physicians in the field and their heroic deeds. Never has such unqualified appreciation and praise fallen to the lot of the profession as now. Major General Schupinsky telegraphed to the mayor of Moscow that he bowed his grey head low in homage to the medical detachment from that city, and such expressions are to be heard on every hand. For the first time in history the military order of St. George (for bravery) has been awarded to two physicians, Chabrostin and Banschtschikoff. The Red Cross at date of writing already had had to replace a number of physicians completely worn out by their services.

Brazil-Medico, Rio de Janeiro.

Last indexed page 766.

- 123 (XVIII, No. 28.) *Prophylaxia internacional. Convenção sanitária internacional entre as Republicas Argentina, dos Estados Unidos do Brazil, Paraguay e Oriental do Uruguay. A. Peixoto. (Commenced in No. 28.)
- 124 (No. 29.) O leucura maníaca-depressiva (insanity). A. Peixoto. (Commenced in No. 28.)
- 125 (No. 31.) Complicaciones oculares da varíola. Abreu Filho.
- 126 Contribuição a serum-aglutinação do bacillo interloque. A. Furtado.
- 127 (Nos. 32 to 34.) A dysenteria amebica na infancia. O. de Oliveira.
- 128 Defesa social contra a tuberculose. A. Peixoto.
- 129 (No. 35.) *Um novo tratamento nao sangrento das varizes nas extremidades inferiores.—Prothese valvular da veia grande saphena com a paraffina solidá. E. von Bassewitz (Porto Alegre).
- 130 *A hyperchloruracao na febre amarella. A. Ferrari.
- 131 Defesa social contra o alcoolismo no Brazil. A. Peixoto.

123. Text of the Sanitary Agreement between the South American States.—The representatives of the presidents of the republics of Brazil, Argentina, Paraguay and Uruguay signed the sanitary convention last summer, the text of which is here given in full. It is to be binding for four years, with the privilege of extending it for another four years, if all agree. The measures coincide with those generally adopted at the present time for sanitation against plague, yellow fever and cholera, with special measures against transmission of plague by rats. The contracting powers agree not to close their ports against each other, but reserve the right to limit the number of ports open to vessels from infected countries. In order to benefit by the provisions of the present convention, the ships intended to carry passengers must have a physician permanently on board with apparatus for disinfection and extermination of rats and mosquitoes, with an ample supply of disinfectants, and suitable quarters for the isolation of the sick. One section of the convention is devoted to mosquito prophylaxis. Ships must guard against invasion by shore mosquitoes at the docks in ports infected with yellow fever. Ships arriving from an infected port must take measures to exterminate the mosquitoes on board under direction of the sanitary inspector. A corps of trained, international sanitary ship inspectors is to be appointed, the recommendations of these inspectors to be taken under consideration by the various states, irrespective of the nationality of the inspector.

129. Paraffin Prothesis in Treatment of Varices.—Bassewitz has been much pleased with the results of injection of paraffin to control incipient hernia. The success of this measure suggested to him the possibility of applying it to cure varices. He injects paraffin around the internal saphenous vein at one or more points, in amounts sufficient to compress the lumen of the vein, its obliteration following in time from the inflammatory reaction of the tissues. This supplements the incompetent valves of the vein. He prefers hard paraffin, and makes the principal injection near the junction of the saphenous with the femoral vein, with another injection below, if necessary. He has thus treated 2 patients. The severe neuritis varicosa observed in one case ceased as if by magic after the injections.

The patient can leave the bed the next day. Even if the paraffin should be absorbed in time, as it is always substituted by connective tissue, the compression of the vein that has been realized will be necessarily permanent in any event.

130. Salt in Yellow Fever. Ferrari relates experiences to show the great retention of salt in yellow fever, and its discharge in large amounts as convalescence is established. Administration of salt is not tolerated by yellow fever patients.

Hygiea, Stockholm.

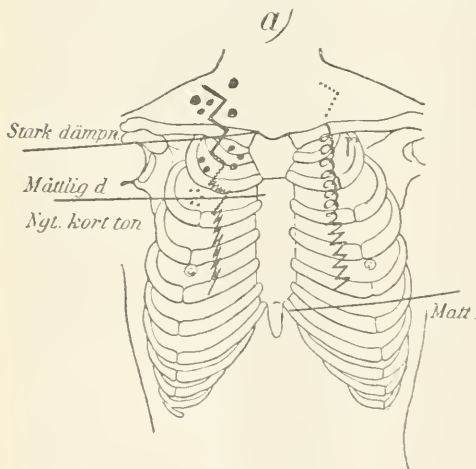
Last issued VIII, page 1396.

- 132 (LXVII, No. 4.) Spontaneous Rupture of Uterus During Delivery. Abdominal Hysterectomy Followed by Acute Dilatation of Stomach. Recovery. E. Borin.—Fall of spontan Uterusruptur, etc.
- 133 Stillings' Theory in Regard to Origin of Myopia. F. Ask.—Om Stillings' närsyntheteorin.
- 134 (No. 5.) Giant Growth. A. Josefson.—Jätteväxt.
- 136 Botrioccephalus and Gastric Secretions. O. Schuamann and J. Grünberg.—Utvär den breda bandmasken något inflytande på magsäftsekretionen?
- 137 *Spread and Prophylaxis of Tuberculosis. C. Runborg.—Huru-som runnen erfarenhet om lungtuberkulosens spridnings-sätt indicerar kraftiga profylaktiska åtgärder mot sjukdo-men.
- 138 *A Practical System for Annotation of the Respiration. I. Holmgren.—Ett praktiskt system för beteckning af andningslud på schabloner.
- 139 Two Cases of Hemorrhagic Pancreatitis. A. Reuterskjöld.—2 fall af pankreas-blödning.

134. Giant Growth.—Josefson does not believe that there can be normal giant growth. He considers excessive growth as necessarily pathologic in every instance. It is probably the result of acromegaly occurring before the termination of physiologic growth. In a case which he illustrates, a young man of 21, over 7 feet tall, exhibited unmistakable evidences of acromegaly. The lower jaw was unusually large, and there was pronounced cervico-dorsal kyphosis. Radioscopy also revealed enlargement of the sinus frontalis and of the sella turcica. The young man has a sister, not quite 17, who is already taller than he is.

137. Prophylaxis of Tuberculosis.—Runborg advocates compulsory notification as a most important measure in prophylaxis.

138. Graphic Annotation of the Respiratory Sounds.—Holmgren uses in his practice and at the hospital a couple of rubber stamps which print an outline of the front of the chest as shown in the illustration, and another similar stamp showing



the back of the thorax. Each clinical chart in which the characteristics of the respiration are to be noted is stamped with these two figures, and the peculiarities of the respiration are briefly noted down by arbitrary signs previously adopted as a kind of cipher. The upper part of the line on the left of the diagram represents bronchial inspiration and expiration; the fine waves below represent broncho-vesicular inspiration and

bronchial expiration. The larger waves, vesico-bronchial inspiration and broncho-vesicular expiration. The lower part of the line on the left represents coarse vesicular breathing with prolonged expiration, and the lower part of the line on the right, coarse vesicular breathing. A line, slanting down to the right represents inspiration, and to the left, expiration. The line of loops represents normal sounds, and so on. The areas of pronounced dullness and moderate dullness are also marked off by horizontal lines. By this means it is possible to note down a complete record of the characteristics of the respiration in each case in much less time than it takes to describe it. Every physician can select a set of signs or an arbitrary cipher to suit himself. The words and lines in the illustration refer to the dullness.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Essays by French, Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otolaryngology, Rhinology, Laryngology, Hygiene and Other Topics of Interest to Students and Practitioners. Edited by A. O. Kelly, A.M., M.D., Philadelphia. With Regular Correspondents in Montreal, London, Paris, Berlin, Vienna, Leipzig, Brussels and Carlsbad. Cloth. Pp. 302. Price, \$2.00 net. Volume III. Fourteenth Series, 1904. Philadelphia: J. B. Lippincott Co., 1904.

A PHILOSOPHY OF THERAPEUTICS, THE FOUNDATION OF WHICH RESTS ON THE TWO PRINCIPLES: First, that it is the Human Organism that is the Active Factor in the Healing of the Sick, and Not Drugs, and Second, that There Are Two Therapeutic Laws. By Eldridge C. Price, M.D. Cloth. Pp. 336. Price, \$2.00. Baltimore: Nunn & Co., 1904.

"FIRST AID" HAND BOOK: A Collection of Instructions for Rendering Effective and Intelligent First Aid in Accidents and Sudden Illness. By M. J. Shields, M.D., Formerly Attending Surgeon to Emergency Hospital, Carbondale, Pa. Edited by Thomas Boundy. Cloth. Pp. 92. Published by the Office of Thomas Boundy, Jersey, Pa., 1904.

LIGHT ENERGY: Its Physics, Physiological Action and Therapeutic Applications. By Margaret A. Cleaves, M.D., Fellow of the New York Academy of Medicine. With Numerous Illustrations in the Text and a Frontispiece in Colors. Cloth. Pp. \$27. Price, \$5.00 net. New York and London: Lehman Co., 1904.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY for Students of Medicine. By Winfield S. Hall, Ph.D., M.D. (Leipzig), Professor of Physiology, Northwestern University Medical School. With 59 Illustrations and a Colored Plate. Cloth. Pp. 245. Price, \$2.75. Philadelphia and New York: Lea Brothers & Co., 1904.

HAND-BOOK OF PHYSIOLOGY. By W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. Nineteenth Edition with Nearly Seven Hundred Illustrations, including Some Colored Plates. Cloth. Pp. 901. Price, \$3.00 net. Philadelphia: P. Blakiston's Son & Co., 1904.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN DISEASE. By Alida Frances Pattee, Graduate Boston Normal School of Household Arts. Second Edition, Revised and Enlarged. Cloth. Pp. 312. Price, \$1.00 net. Published by the Author, 52 W. 39th St., New York City, 1904.

BLOOD PRESSURE as Affecting Heart, Brain, Kidneys and General Circulation. A Practical Consideration of Theory and Treatment. By Louis Fangeres Bishop, A.M., M.D., Physician to the Lincoln Hospital, New York. Cloth. Pp. 112. New York: E. B. Treat & Co., 1904.

THE ART OF CROSS-EXAMINATION. By Francis L. Wellman, of the New York Bar. With the Cross-examinations of Important Witnesses in Some Celebrated Cases. New and Enlarged Edition. Cloth. Pp. 404. Price, \$2.50 net. New York: The Macmillan Co., 1904.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY for the Use of Students. By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians. Fifth Edition. Cloth. Pp. 236. Price, \$1.50. New York and Bombay: Longmans, Green & Co., 1904.

PATHOLOGY OF THE EYE. By J. Herbert Parsons, B.S., D.Sc. (Lond.), F.R.C.S. (Eng.), Assistant Ophthalmic Surgeon, University College Hospital, London. Part I. Histology. Cloth. Pp. 328. Price, \$3.50 net. New York: G. P. Putnam's Sons, 1904.

PROCEEDINGS OF THE NINETEENTH ANNUAL MEETING OF THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA. Washington, D. C., June 3 and 4, 1904. Paper. Pp. 78. Providence: Snow and Farnham, 1904.

DEPARTMENT OF HEALTH, CITY OF CHICAGO. Arthur R. Reynolds, M.D., Commissioner. "Vital Statistics of the City of Chicago for the Years 1899 to 1903 Inclusive." Cloth. Pp. 128. Chicago, 1904.

REPORT OF THE SURGEON GENERAL OF THE ARMY TO THE SECRETARY OF WAR, for the Fiscal Year Ending June 30, 1904. Paper. Pp. 193. Washington: Government Printing Office, 1904.

REPORT OF THE COMMISSIONERS OF BELLEVAUE AND ALLIED HOSPITALS for Three Months Ending March 31, 1904. Paper. Pp. 15. New York: Martin B. Brown Co., 1904.

EIGHTEENTH REPORT OF THE ROYAL SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS FOR 1903. Paper. Pp. 142.

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Original Articles.

INJURIES TO THE ANTERIOR VAGINAL WALL IN LABOR.

THEIR PRIMARY, INTERMEDIATE AND SECONDARY
REPAIR.*

B. C. HIRST, M.D.
PHILADELPHIA.

There is no dispute as to the desirability of repairing the pelvic floor, posterior vaginal wall and perineum in the puerperium, although there is ample room for improvement in the manner of doing it in general practice. The old custom of immediate repair, even before the placenta is expressed, as one authority recommends, must be unlearned. The necessity for as careful a preliminary vaginal examination as any expert gynecic surgeon would make before attempting a secondary repair must be appreciated and the operation itself must be conducted like any other vaginal operation with a good table, proper implements and sufficient assistance if women are to be spared the secondary operations to which thousands of them are now subjected.

It has been demonstrated by ample clinical experience that the cervix may be repaired with perfect success and with entire safety to the patient during puerperal convalescence, not only in well-appointed hospitals, but in the homes of both the rich and the poor. It must soon be generally acknowledged that no woman should suffer the disadvantages and risks of cervical injuries in her after-life from which she can be saved by proper attention during the lying-in period.

The nature of the common injuries to the anterior vaginal wall in labor resulting later in urethrocele, cystocele, partial incontinence of urine, decomposition of residual urine, cystitis, and contributing to the causes of prolapsus uteri; the recognition of these injuries; the methods of repairing them during puerperal convalescence are not yet understood even by many of the masters of our principal maternities and of the leading specialists in obstetrics and diseases of women, not to mention the general practitioner. And yet, as I hope to demonstrate, these injuries, as common and often more serious than those of the pelvic floor and cervix, are easily recognized soon after their occurrence, and may be securely repaired by a simple operative technic during puerperal convalescence.

It is necessary, first, to understand the anatomy of the region; second, to comprehend the nature of the injuries of the anterior vaginal wall in labor; third, to be

able to recognize these injuries when they occur, and fourth, to devise an operation that will repair them by restoring the original anatomic condition.

We are indebted mainly to Waldeyer for our knowledge of the support and attachments of the anterior vaginal wall.

The pelvic outlet is closed anteriorly, in the triangle under the symphysis pubis by the diaphragm of the urogenital trigonum, consisting of the aponeurosis, the muscle and the fascia of the urogenital trigonum. The muscle constitutes the greater part of the diaphragm. It arises from the periosteum over the ischio-pubic junctions, and from the tendinous extensions of the sheaths of the obturator internus. It is inserted in the preurethral ligament, encircles the urethra and is actually inserted in the anterior and lateral vaginal walls. As half the length of the vaginal canal lies below the level of the pelvic outlet, the greater part of the anterior vaginal wall finds its only support in its attachment to the structures of the diaphragm of the urogenital trigonum. The older view that the anterior vaginal wall is supported by the muscles, particularly the levator ani, encircling the posterior vaginal wall, is not correct. These muscles may be destroyed as a pelvic support without the development of a cystocele; they may be intact or perfectly repaired and yet a cystocele appears.

The injuries experienced by the anterior vaginal wall in labor are two-fold. Transverse rugæ are nipped between the child's head and the symphysis; the fold of the vaginal wall is pushed down in front of the head and is separated from its subjacent attachments to the loose connective and elastic tissue between its upper third and the bladder. This injury, however, is of subordinate importance. The more serious damage is a laceration of the musculotendinous diaphragm of the urogenital trigonum running across the anterior vaginal sulci. As the head at the pelvic outlet is oblique, and as it almost always lies with its longest diameter in the right oblique diameter of the pelvis, the structures in the left anterior sulcus are most extensively torn. Frequently the injury is confined to this side alone.

Of the two injuries the first may be ignored in diagnosis and treatment. No one ever saw such a complete detachment of the anterior vaginal wall that a cystocele appeared at the end of puerperal convalescence. It takes years to develop. What one does see very frequently is a bulging downward and outward of the lower half of the anterior vaginal wall. As years elapse the constant pull of this prolapse drags the upper half of the vagina and the bladder after it, pulls the cervix forward, tilts the uterus backward, and is one of the most important contributory causes of prolapsus uteri. The cause of this dropping of the anterior vaginal wall

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

can easily be recognized by inserting the forefinger in the vagina, palmar surface upward, and making pressure upward and outward in the anterior vaginal sulcus toward the pubic bone. On the sound side the elastic and resistant cushion of the urogenital trigonum diaphragm is plainly felt; on the injured side the finger comes immediately in contact with the sharp edge of the bone, nothing intervening but the vaginal mucosa. Usually this injury is submucous, but frequently the vaginal wall itself is also torn through, as I have demonstrated in scores of cases to my students. In such instances one gets a most convincing demonstration of the true nature of this injury, and sees a raw surface strikingly like the denudation to be discussed later.

If the anatomy of this region is understood as Waldeyer enables us to understand it in his admirable work "Das Becken"; if the nature of the injury to the anterior wall is comprehended, as it can be by a close observation of a sufficiently large clinical material, the remedy is easy enough to devise. It is obviously to reunite the torn fibers of the anterior pelvic diaphragm, restoring the normal anatomic support of the lower half of the anterior vaginal wall and, in the case of an old, neglected, well-developed cystocele, to remove the redundant thinned-out vaginal wall in the middle line, rejoining the stronger connective tissue fibers which have been crowded to either side by a tier suture.

It is almost unnecessary to dilate on the technic of accomplishing these purposes. Any one well trained in plastic vaginal surgery will devise a method to suit himself. Some practical points, however, suggested by a large experience,¹ may be of interest.

In the primary repair of this injury, if it is submucous, the sutures should be inserted so as not to crowd the vaginal mucosa between the ends of the lacerated muscle and connective tissue fibers. This is done by making one deep insertion of the needle, a returning shallow insertion under the mucosa, and the junction of the suture to one side of the injured area.

If the repair is postponed for five to seven days, as it should be if the cervix must also be repaired, a denudation of the anterior sulcus must often be made, and as in all plastic operations on the vagina, the whole thickness of the vaginal wall should be removed so as to expose the muscles and fascia beneath. The most convenient way to expose the anterior vaginal sulcus is to fasten an Allis forceps alongside the urethra and another opposite it, to the lateral vaginal wall at the introitus. By making traction upward and laterally the triangular cleft, if the anterior sulcus is injured, comes plainly into view. The quickest way to make the denudation is to mark out its boundaries with a sharp knife and to excise the triangular piece of vaginal wall with scissors. In inserting the sutures the needle is deeply inserted with the same turn of the wrist that is used to catch the muscle and fascia in the Emmet operation on the posterior vaginal wall.

If there is a very well-marked cystocele of long standing with thinned-out and redundant tissue in the middle line of the vaginal wall, the cystocele is pushed back; the anterior sulci are denuded, the stitches are inserted but not united; the cervix is pulled out of the vulva, a Martin anterior colporrhaphy is performed; then the stitches on the anterior sulci are shotted or tied, as the operator prefers

In cases of injury to the muscles and fascia of the sulci with incipient cystocele, or with that partial incontinence of urine so common in middle-aged women who have borne children, the operation need only include the denudation of the sulci and suturing. If, in addition, there is also a repair of the posterior sulci, one can not fail to be impressed with the normal and nulliparous appearance of the lower vaginal canal.

Attempts have been made before by Simon, Velpeau, Emmet, Fehling and Skene² to perform lateroanterior colporrhaphies for urethrocele, cystocele and prolapse, but a study of the methods described by these authors shows, I think, that they are not based on accurate anatomic knowledge, and that they could not accomplish their purpose so well as the method I advocate and have attempted to describe.

THE ETIOLOGY AND PATHOLOGY OF CYSTOCELE AND A NEW OPERATION FOR ITS RELIEF.*

J. RIDDLE GOFFE, M.D.
NEW YORK.

The early procedures for the relief of cystocele consisted simply in building up a strong perineal body that should retain the prolapsed tissue within the vulva. Simon practiced this for many years, but his experience developed the fact that this method was only a temporary expedient; the weight of the sustained mass and intra-abdominal pressure gradually absorbed the artificially constructed dam and allowed the former condition to be reproduced. Marion Sims brought his batteries to bear directly on the offending tissues, and devised the procedure known as anterior colporrhaphy. Emmet followed the suggestion of Sims, and improved on it, modifying in various ways the denuded surfaces, with the idea of building up a resisting line of tissue that should act as a lever in holding the cervix high in the hollow of the sacrum. E. C. Dudley shifted the seat of operation to the lateral sulci of the vagina in the operation that he denominates "lateral elytrorrhaphy." Stolz' operation, the purse-string suture about an elliptically denuded surface in the center of the protruding mass, has had considerable popularity. This is due more to its simplicity than its efficiency. In addition to its temporary character, it introduces the most objectionable element of shortening the anterior vaginal wall, the baneful consequences of which are universally recognized.

All of these procedures utterly fail in grasping the true cause of the difficulty and attacking it on rational principles. Granting that a cystocele is a hernia, it would seem quite as rational a procedure and give promise of quite as satisfactory results to denude the skin over an inguinal hernia and bring its edges together with stitches as to expect to cure a cystocele by simply denuding the vaginal mucous membrane, tucking in the prolapsed bladder and stitching together the freshened edges of mucous membrane. The fascia is the sustaining tissue, and if there has been a pocket or hernia produced in it by overdistension until it has lost its power of recovery, the only permanent relief consists in cutting out the overdistended and atrophied area of

2. See Fehling, *Centralbl. f. Gyn.*, No. 43, 1889, p. 746, and Skene's *Diseases of Women*, 2d ed., p. 866, 1892.

1. Of a total of more than 2,000 gynecologic cases yearly in the hospital services under my direct control, exclusive of private and consulting practice, more than 700 are women recently delivered. More than 200 of these anterior wall operations have been performed in the last two and a half years.

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the fascia and bringing into apposition the strong, well-nourished areas beyond, that have not been subjected to or have resisted the destructive pressure.

Stone¹ of Washington has emphasized the importance of wide dissection at the base of the bladder and resection of the entire area of overstretched fascia and mucous membrane, giving credit for the suggestion to Saenger of Prague. In addition to this, he strengthens the upper support of the vagina by attaching the vagina to the anterior face of the uterus—a vaginal fixation of the uterus.

Reynolds of Boston, in a paper read before this Section last year, also laid stress on the importance of cutting out the weakened overstretched fascia. His idea is to obtain support also from the anterior vaginal wall by fastening its upper end to the bases of the broad ligaments at either side of the cervix uteri. This is accomplished by swinging around in front of the cervix, the bases of the broad ligaments attaching them together in the middle line and connecting this common point with the vaginal fascia in line with the urethra. To use the author's own language: This approximation of the firm lower and upper attachments of the anterior



Fig. 1.—Cystocele produced by supravaginal elongation of the anterior lip of the cervix uteri, found in virgins and nulliparous women. When both lips are elongated the posterior vaginal wall comes down and rectocele is also produced.

wall has been arrived at in Emmet's and Watkin's operations, and I believe underlies their success.

I have not attempted this operation. Theoretically, it is open to the objection that there is danger of wounding the ureter in passing a suture through the base of the broad ligament at the side of the cervix. It is also open to the objection, common to all the other operations that have been considered, namely, that by tucking up or invaginating the excess of bladder wall and then diminishing the size of its inclosing fascia, the base of the bladder is thrown into multitudinous folds in various directions. In the pockets of these folds the urine accumulates, is retained, undergoes decomposition and is apt to inaugurate an unfortunate train of sequelæ, such as cystitis, calculus, ureteritis, pyelitis, etc.

METHOD OF OPERATION.

It has been my endeavor in the procedure which I offer to-day not only to provide a good strong support

for the bladder, but also to do away with the redundant folds of bladder wall at its base. In diminishing the size of the inclosing fascia, as stated above, not only is there a redundancy of tissue from side to side, but also anteroposteriorly. This can be obviated by dissecting the bladder entirely free from its attachments to the uterus, the broad ligaments and the vagina, the entire organ rotated on its transverse diameter, and the excess of bladder wall in the cystocele spread out on the face of the uterus and the broad ligaments.

The anterior vaginal incision, as employed in vaginal section for the relief of diseased ovaries and tubes, and retrodisplacement of the uterus, affords every opportunity for accomplishing this procedure. This became strikingly apparent to me in a case in which I was operating for the relief of these conditions. The case was one of those multiple injuries resulting from childbirth, in which there was present laceration of the cervix and perineum, rectocele, cystocele, retroversion of the uterus with prolapsed and adherent appendages. After the uterus had been curetted, trachelorrhaphy performed, the anterior vaginal incision made, the ovaries and tubes treated and the fundus uteri restored to its normal position by shortening the round ligaments, the bladder, which pouted through

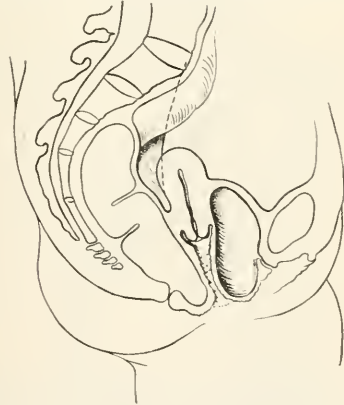


Fig. 2.—Cystocele and rectocele with retroversion and prolapse of the uterus.

the vaginal incision, was rotated on its transverse diameter, and its base carried up onto the anterior face of the uterus and stitched there with chromicized catgut. This took in all the slack in the anteroposterior line of the base, and by stretching out first one side of the bladder and then the other and stitching it on to the respective face of the broad ligament, the lateral folds were also obliterated. The pouting sac had entirely disappeared. It only remained, then, to make the vaginal wall fit this new position of the bladder. This was accomplished by cutting away all the overstretched vaginal sheath and membrane at either side of the longitudinal vaginal incision and bringing together the bare strong facial edges with interrupted catgut sutures. This made the vaginal wall fit snugly against the base of the bladder, and it was at once apparent that the anterior vaginal wall, instead of sagging into the lumen of the vagina, maintained a straight line from the pubis to the cervix uteri. Perineorrhaphy was then performed, and the result was all that could be desired.

1. Trans. Am. Gynec. Soc., vol. xxvii, 1902.

In order to understand the thoroughness of this work, it is necessary to keep in mind the method of making the anterior vaginal incision. A cross incision, slightly curved or straight, is made in front of the cervix, as in vaginal hysterectomy. From the middle point of this a second incision is made at right angles to it down the entire length of the anterior vaginal wall. These incisions go through the fascia down to the bladder wall. The bladder is then dissected widely and freely from the interior of the fascia on either side of the median line till the entire organ is set quite free throughout its entire base and sides. The vesico-uterine pouch is then entered and the peritoneum torn across the face of the uterus and well out on to the face of the broad ligaments. The bladder is stitched by an interrupted suture of chromic gut at three points only, the middle of anterior face of the uterus and two points on the broad ligaments sufficiently wide apart to spread out the bladder wall. The method of passing the sutures is important: The sutures are all passed and left sufficiently long to protrude from the vulva before any one is tied. When all three are in place the middle one is tied first, then the others.

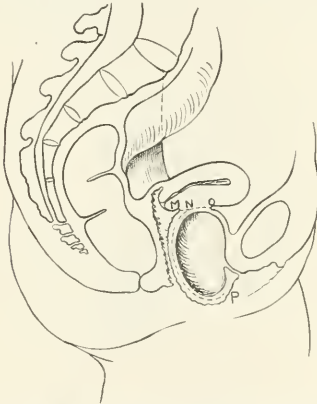


Fig. 3.—Transverse incision in vaginal section reduced from M to N. The bladder is then dissected from the uterus from N to O. A longitudinal incision is then made through the mucous membrane and fascia from N to P, and the bladder is dissected from the vagina as shown in Figure 4.

The principle involved here is that which Nature has employed in sustaining all the organs of the human body, viz., suspension from above. The bladder in this operation is carried up and suspended from the uterus and broad ligaments. In addition to this the true method of treating a hernia is also brought into requisition.

To apply this principle in detail to all cases of cystocele, it is necessary to classify them in accordance with the etiology. In virgins and nulliparous women, as a rule, the uterus, i. e., the fundus, remains in place. Exceptions to this appear rarely in instances of prolapsus. The etiology consists in an elongation of the supravaginal portion of the cervix, due to hypertrophy of the uterine tissue. This permits the descent of the points of support, at the upper end of the vagina, producing a sagging of the vaginal wall and the base of the bladder. This initial elongation pushes down the vaginal supports, but later the rôles are reversed and the vaginal prolapse drags on and increases the elongation

of the cervix. In these cases there may or may not be a hernia of the bladder through the vaginal sheath. There is prolapse of all the vaginal wall accompanied by the bladder. In many of these cases the primary hypertrophy of the supravaginal cervix is confined to the anterior lip. In these instances there exists a protrusion of the anterior vaginal wall with the bladder behind it, but unaccompanied by a rectocele. In the first variety of this class of cases the entire attachment of the upper end of the vagina must be cut away, the elongated cervix amputated, and the attachments of the vagina shifted to a higher level. If it is of long standing and a hernia of the bladder exists, the uterovesical attachments must also be lifted to a higher level and the details of the operation, as previously described, applied. If only the anterior lip is hypertrophied, of course only the anterior attachments of the vagina to the uterus need to be dealt with. In both classes of cases, however, great facility is afforded by the transverse and longitudinal incisions and free dissection of the bladder from the vagina and uterus.

The most common cases of cystocele are found in

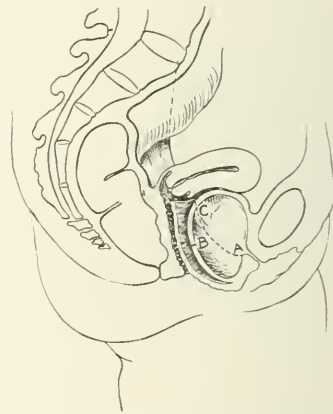


Fig. 4.—The vagina has been dissected from the bladder at either side of the longitudinal incision and the vesico-uterine peritoneum torn through. Point B is selected, which when carried to C, will lift the curve A B to a straight line A C, when it is secured by suture.

multipara, and associated quite uniformly with descent and retroversion of the uterus. In these cases it is necessary, before attacking the cystocele, to restore the uterus to its normal position and secure for it sufficient support, not only to maintain that position for itself, but also to support the bladder. It must be borne in mind, however, that the higher attachment of the bladder operates equally in lifting the bladder to a higher level and maintaining the uterus in its normal anteverted position.

This procedure is applicable to all cases of this class in which the condition is not so extreme or of so long standing as to have robbed the connective tissue of all recuperative power. Extreme cases, however, are surprisingly restored by this operation, when even a more radical procedure seems indicated; for by the restoration of normal circulation and nutrition the sustaining power of the connective tissue is restored and a normal healthy condition established. The extreme cases in which hysterectomy, extreme vaginal fixation of the

uterus or complete removal of the uterus and appendages, together with the entire vagina, panhysterocolpomy, as described by Edebohls, do not come within the scope of our consideration in this procedure.

I have performed this operation eight times, all with most satisfactory results. The first case was operated on in September, 1902. Two of these cases about one year after operation were presented before the New York Obstetrical Society in a preliminary report I made to that association. A committee of three was appointed to examine the cases, and reported individually and collectively that the results in all were eminently successful. All of these cases were in laboring women, well advanced in years, and sufferers to an extreme degree from multiple lesions of the generative organs. All of these lesions in each instance were relieved at one sitting. The reports of the cases follow. I give the first one in full to set forth the various steps of the procedure in all its details:

CASE 1.—Mrs. M. M., age 49.

History.—Married 23 years, five children, the last fifteen years ago; one miscarriage eleven years ago. All labors were

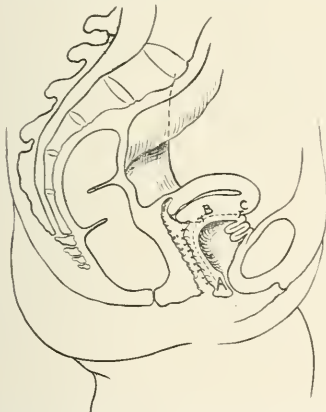


Fig. 5.—Point C in Figure 4 is carried to C Figure 5 and B to B. The vaginal membrane and fascia have been trimmed to fit and suture applied.

prolonged and difficult. Complaints of pain in both ovarian regions and back, accompanied by a "dropping-down feeling" in the pelvis. Menstruation is irregular and painful. Suffers from frequent difficult and painful micturition; is disturbed by it during the night.

Diagnosis.—Retroversion of the uterus, laceration of cervix and perineum, rectocele and cystocele.

Operation.—Sept. 24, 1902. Uterus was curetted and packed with gauze; the lacerations of the cervix were repaired, and the round ligaments shortened through the anterior vaginal incision. In making this incision the bladder was dissected entirely free from the vaginal sheath and fascia well out at either side. The vesicouterine peritoneal fold was pierced and the peritoneum torn across well out on to the surface of the broad ligaments. To relieve the cystocele the bladder was then rotated on its transverse diameter and stitched in the following manner: A point was selected in the middle line of the base of the bladder wall which could be carried up to the torn edge of peritoneum on the anterior surface of the uterus, middle point, and by so doing take up all the slack in the base of the bladder, making a comparatively straight line from the urethra to the uterus. Through this point a suture was passed and carried also through the selected point on the anterior face of the uterus. The suture was of chromicized

catgut No. 2. It was left long and was not tied. Two points were then selected, one at either side, on a transverse line with the first and about equally distant. Through these similar sutures were passed and carried through a point on the torn off edges of peritoneum on the surface of either broad ligament, sufficiently wide at the middle line to take in all the



Fig. 6.—Showing the method of dissecting the vagina from the bladder after longitudinal incision in anterior vaginal section.

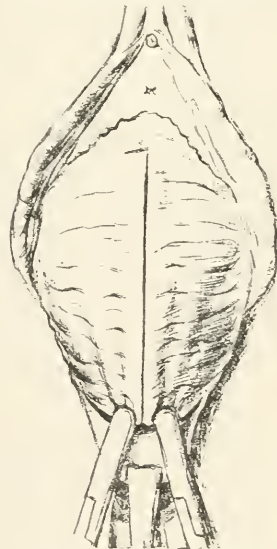


Fig. 7.—Showing the method of making the longitudinal incision in anterior vaginal section. The edge of the transverse incision is grasped by artery clamps and the vaginal wall put on the stretch and an incision made from the neck of the bladder to the middle of the transverse incision.

slack in the base of the bladder from side to side. These sutures were also left long. The three sutures were then tied successively, beginning with the middle one. The effect of this was to stretch the base of the bladder taut and smooth in every direction. The fascia along the middle line of the vaginal incision and the mucous membrane as well were then trimmed

off sufficiently to make them fit the base of the bladder snugly, and were stitched with interrupted sutures of chromicized gut. The perineum was also repaired. The vagina was gently packed with gauze and the patient put to bed. Convalescence was afebrile, smooth and comfortable. When last seen in January the support of the bladder was perfect and all the bladder symptoms had been relieved. The other surgical procedures were equally satisfactory and successful.

CASE 2.—Mrs. L. S., aged 41; married; five children.

Diagnosis.—Rectocele, cystocele, extensive lacerations of cervix and perineum, hemorrhoids.

Operation.—Nov. 15, 1902. Curettage, repair of cervix, shortening of the round ligaments, cystocele treated by method described, perineorrhaphy and Whitehead's operation for piles. The perineal operation was not entirely satisfactory; the results in other respects were exceptionally good.

CASE 3.—Mrs. M. H., age 50; four children; youngest 6 years.

Diagnosis.—Endometritis, cystocele, rectocele with prolapse of the uterus.

Operation.—Feb. 11, 1903. Curettage, anterior vaginal section, shortening of the round ligaments, treatment of cystocele by method described, repair of perineum.

Results.—Entirely satisfactory.

CASE 4.—Mrs. M. M., age 39; mother of five children, last two years ago.

Diagnosis.—Endometritis, retroversion and extreme prolapse of the uterus, cystocele, rectocele, lacerations of cervix and perineum.

Operation.—March 7, 1903. Curettage, repair of cervix, posterior and anterior vaginal section, shortening of the uterosacral and round ligaments, treatment of cystocele by method described, perineorrhaphy.

Results.—Entirely satisfactory.

These are typical cases; the narration of the last three would be only a repetition.

REPORT OF COMMITTEE.

The report of the men composing the committee of the obstetrical society was as follows:

DR. CLEMENT CLEVELAND—I examined the two cases of Dr. Goffe's and one especially impressed me very much. She was a large, stout woman in whom he restored a retrodisplaced uterus. There had been also an excessive cystocele and large rectocele. I examined this patient very carefully and found the uterus in normal position. The anterior wall was as nearly normal as any one could expect after any operation. In the second case the results were not quite as good, but were very satisfactory.

DR. G. G. WARD, JR.— . . . In both cases I particularly noticed that the anterior wall was not shortened in any way. The bladder was suspended and seemed to be supported without the aid of the perineorrhaphy which had been done in both cases.

DR. G. H. MALLETT—One of these patients was a large, stout woman, and she appeared to be in a normal condition. In one there seemed to be left a rectocele.

DR. HENRY C. COE in discussion said: "I have always been convinced that ordinary cystocele operations were of little value. Dr. Goffe's operation is certainly a most ingenious one, but to successfully perform it requires the special skill in vaginal work which he possesses."

The closing remark of Dr. Coe's I uncompromisingly disclaim. A very limited experience in anterior vaginal section promptly convinces any reasonably experienced pelvic surgeon of the practical feasibility of the procedure.

DISCUSSION

ON PAPERS BY DRs. HIRST AND GOFFE.

DR. RUDOLPH W. HOLMES, Chicago, said that we must know the condition of the pelvic structures in pregnancy and the puerperium to appreciate Dr. Hirst's report of 200 operations for cystocele, two weeks after labor in 257 patients confined in

his clinic. During the progress of pregnancy there is a marked relaxation of all the pelvic muscles and connective tissue; this is evidenced by the relaxed vagina, the more patulous vulva which may even be gaping in some primiparæ, and is usual in those already the mothers of children. As the vulva is opened with the fingers the anterior wall of the vagina is seen more dependent, even to such an extent as to be a mild cystocele; this is due to the fact that intra-abdominal pressure readily may force down the anterior vaginal wall when a pelvic floor relaxation exists—as it almost invariably does exist in advanced pregnancy—a fact pointed out by Schroeder years ago; this is specially characteristic in multiparæ, but is not limited to them. Further evidence of this relaxation is demonstrated in the increased pelvic floor projection which has been so well studied by Drs. Hart and Barbour. Cystocele, to a slight degree, is characteristic of pregnancy; if it is a physiologic condition in pregnancy, it must also be a physiologic condition of the puerperium until involution is completed, and then only may it be characterized as pathologic and present the question of an operative procedure. Ten or fifteen years ago Dr. Hart showed that the anterior wall from its relations to the anterior boundaries of the pelvis is not liable to injury during labor. Dr. Holmes has not seen injuries of the anterior wall of the vagina during labor except in operative cases. If these rare injuries occur they should be repaired immediately. Therefore, it is inadvisable to perform a cystocele operation at a time when cystocele is physiologic, with, perhaps, a certain amount of pathologic entity. Cystocele, as a pathologic condition is rare, and in nearly all instances is due to the action of abdominal pressure unopposed by an intact pelvic floor; if the posterior vaginal wall and perineum are repaired the cystocele will take care of itself and the anterior wall will return spontaneously to its normal condition. The second week of the puerperium is a very bad time to operate for vaginal conditions because of the increased liability to infection; the lochia is teeming with septic bacteria which would jeopardize a favorable result.

DR. MORDECAI PRICE, Philadelphia, agreed with Dr. Hirst that repairs should be made immediately after delivery of the placenta. Dr. Price, however, disapproved of closing a wound in the birth canal a week after labor, as such work done in the midst of filth is not good surgery, and no one can say that the birth canal, torn and mutilated, is clean and aseptic at that time, no matter what antiseptics are used; one can not get below the area of sepsis. Dr. Price said that he had recently seen a woman with a temperature of 105 F. on the eleventh day, who had had no sign of trouble prior to that time. Can one say that vaginal repair a week after labor is not the cause? Can an operator say conscientiously that his sutures have not enclosed septic material?

Dr. Price believes that Dr. Hirst is wrong, and that there is not one in ten who can say what is the cause of the fever that follows childbirth. He has stood by patients for weeks and at last there was a little swelling of the leg and a little fever, indicating a condition having its origin, probably, in some disturbance in the large veins of the birth canal. One could not say, having done an operation a week after parturition, that it was not the result of that operation. He would not operate at that time and considered it radically wrong.

DR. SWITHIN CHANDLER, Philadelphia, said that many a general practitioner has been condemned because a cystocele, due to injury to the vaginal wall, has followed labor. The physician was often unable to diagnose such an injury as the mucous membrane was intact, the tissues beneath it being ruptured. Dr. Chandler thought that Dr. Goffe's paper clearly demonstrated that we have displacement as the result of tears in the vaginal wall, and stated that he had removed stitches placed in the vaginal wall from three to ten days after labor, and had found green pus abscesses from the enclosed tissue in the vaginal wall which were the cause of the fever in the patient. He asked if Dr. Goffe examined the bladder after his operation to note its condition, and if so, what that condition was. He said that a question which might bother us is whether the fixation would cause

trouble because the bladder, properly speaking, is not a fixed organ. It is loosely adherent, so that it can expand when required in any direction, and that even though the folds which Dr. Goffe has made by his operation are in the top of the bladder, it is well to remember that they are covered by epithelium, and that any interference might cause cystic or other trouble, which might spread to the kidneys and surrounding parts. Dr. Chandler did not consider that Dr. Goffe had proven his point in regard to cause and effect due to elongation of the cervix, because other factors enter into this question besides the elongated cervix, and the operation for the relief of this elongation will not cure the whole trouble.

Dr. I. S. STONE, Washington, D. C., stated that his work up to 1900 culminated in an operation which was very much like Dr. Goffe's in making section at the cervix, pushing away the bladder, pressing it out from the broad ligaments and attaching the vaginal wall as high on the uterus as possible; at least as high as the insertion of the round ligaments. There was no trouble in closing the two sides of the vaginal rent and getting a very good result. The idea of placing the bladder high up was entirely original with him. He reported the operation in 1900, when he had gone far enough to excise an elliptical piece from the vagina, after separation from the bladder, according to Dr. Goffe's method so that we get an entirely new implantation, and he also attached the bladder out on the sides of the broad ligament. There is not only a cystocele, but also a prolapse, and a hernia; the chief thing to overcome is the hernia. In the average operation all that is done is to shorten a line which may be compared to a cord stretched across the room and tied up in the center, as in the old Stoltz operation or the anterior colporrhaphy of Sims. It tightens the rope in the center, leaving the same strength at either end with the same weight to bear. Therefore, the idea was to attach the bladder in a new position on the sides of the pelvis and utilize all the surplus of fascia instead of leaving it suspended by its former thin attenuated portions. Dr. Stone spoke of a woman, 60 years old, quite senile, with thin vaginal walls and small uterus, who had a complete hernia of the rectum and bladder, effacing the whole cul-de-sac. The hernia was about the size of a child's head; a typical case for a plastic operation. The operation was done precisely as described by Dr. Goffe. The result was that about six months ago the woman returned after having enjoyed several years of good health. She had a slight hernia of the cul-de-sac itself; the bladder was held in position, firmly anchored; no prolapse of the bladder, and the rectal operation was a success, but there is a slight hernia of the cul-de-sac. The rectal operation is the same in principle as the anterior operation, and both of these special operations are best suited to those difficult cases occurring in women who are not likely to become impregnated.

Dr. J. WESLEY BOVÉE, Washington, D. C., thinks that these operations, as a rule, are overdoing the work required. It is not the attachment of the uterus or the bladder to the peritoneum which is giving trouble; it is an injury of the connective tissue between the vagina and the bladder, and he failed to see the necessity for so complete separation of the bladder and opening the peritoneal cavity, and then lifting it up and attaching the bladder higher. It is a matter of properly repairing the supporting structures, leaving its normal load, the bladder, and improving the support, the anterior vaginal wall. Sometimes this connective tissue is thinned out very materially; the tear not being in one line, but the fibers torn in various positions, and in such a case it is best to support the fascia and splice or overlap it. Do not cut away any connective tissue. If the position of the uterus promotes the sinking of the anterior vaginal wall, perhaps from an elongated cervix, or some other condition, repair this at the time, but, if possible, without entering the peritoneal cavity,

Dr. J. H. BURTONSHAW, New York City, thinks that this new operation marks a distinct advance in anterior-wall surgery. In the ordinary operation for the correction of cystocele an area is denuded and the muscle backed up against itself, which naturally results in a puckering of the posterior bladder

wall into rugæ. This factor has always been objectionable for obvious reasons. He said that more than a year ago, Dr. Reynolds of Boston devised an operation which provided for the excision of an elliptical section of the entire thickness of the vaginal wall, the bladder being separated from its attachment above the edges of the wound, and the ellipse closed by deep sutures. In such a case the absence of rugæ will depend entirely on the amount of tissue removed and on the extent of bladder-wall separation. An objection to the technic lies in the possibility of the giving way of the cicatrix, in which event a hernia of the bladder would result, and a secondary operation be necessary. The operation described by Dr. Goffe does away entirely with the formation of rugæ and with the complications which might arise from their presence. Dr. Burtonshaw said that if the bladder wall is attached to the broad ligaments above the level of the internal os uteri, at a considerable distance from the median line, there is danger of including the ovarian arteries in the ligature, and that when the viscus is attached to such a friable structure as the broad ligament, when it becomes overdisted there is a probability of the permanent sutures and adhesions giving way. Then, too, the anterior vaginal wall is split from a point corresponding to the entrance of the urethra to the cervix; is there not a probability that the resulting cicatrix may contract longitudinally, and so diminish the length of the canal?

Dr. B. C. HIRST said that no one should think of repairing the posterior vaginal wall unless he knew the nature of its injury in labor, nor should he repair the cervix unless he knows how it was lacerated in childbirth. It is exactly the same with the anterior vaginal wall. He said that some of the gentlemen who had discussed the subject had ignored the effect of labor on the anterior wall and had proposed operations which had no more relation to the injury the structure experienced in labor, than if the woman had never been delivered. Dr. Hirst considers that the first essential in devising a permanently successful operation for cystocele is to understand exactly what caused the cystocele, and claimed that his method is based on correct anatomic knowledge and a sufficiently large experience in the examination of women recently confined. Much that has been said illustrates a weakness of American gynecology. During the last generation too many specialists in diseases of women have lacked experience in the greater half of gynecology—the child-bearing period. Our school of gynecology is not so good as it would have been had we followed the custom of other civilized countries by preparing ourselves in the whole science of the diseases of women; familiarizing ourselves with child-bearing, and all stages of the diseases and injuries which follow. He also stated that these operations can be done five or six days after labor with perfect safety. He has been doing this work for some time in a large clinic, and many masters of the best maternities in the world have performed and preferred the intermediate operation. He also said that Dr. Price need have no concern for the safety of the patient, because, if his aseptic technic is what it ought to be, he also could perform the intermediate operation without morbidity or mortality. Dr. Hirst said that though a few surgeons have done successful operations for cystocele, as demonstrated by an experience of two or three years, it is not sufficient to demonstrate the advantage of any surgical procedure for this condition. We have all seen recurrences after nine or ten years following cystocele operations well performed. It requires at least that length of time to demonstrate the permanent value of any operation for this purpose, and his conviction is that ten years hence only such operations as are based on a knowledge of the anatomy and of the original injury of this region will be acknowledged and accepted by the profession as permanently successful.

In reply to a question Dr. Hirst said he thinks the majority of injuries in the anterior vaginal wall are in the lateral sulci.

Dr. GOFFE said that Dr. Chandler thinks that the folds in top of the bladder are dangerous to the ureters and kidneys, but that if he considers this a little longer he will see that they are in the top of the bladder where drainage is perfect and there is no danger of an inflammatory process going

on. Dr. Goffe said that it is in the base of the bladder that his operation smooths out the tissue; that is where inflammations are dangerous to the kidney and ureters. He said that we had elongation of the cervix only in primipara and nullipara, and that the only thing to do is to dissect off the bladder and amputate the cervix. If the cervix is amputated at this point, there is a certain amount of superfluous tissue at the base of the bladder that must be disposed of. He does that by raising up the bladder, but, of course, that is only in a limited number of cases. In the majority of cases, such as Dr. Hirst describes, in multipara, the injuries are multiple. Dr. Goffe said that Dr. Bovée enters the peritoneal cavity about as often as any surgeon he knows and with equal impunity. Entering through the vagina, dealing with the pelvic peritoneum, is freer from danger than entering through the abdomen; the bladder is not carried up high enough on the broad ligament to interfere with the ovarian artery. Of course, there is a line of union and a scar no matter where the incision is made. He finds that Dr. Stone's attachment of the uterus to the vagina so as to carry the bladder up over it and make the uterus act as a cushion is an admirable procedure in advanced cases of senile women, where the uterus has finished all its functions. He recently had operated on such a case. He turned the uterus beneath the bladder and stitched the fundus fast to the vagina, far down near the neck of the bladder, making a cushion of it on which the bladder could rest. It seemed a very useful purpose to which to put the uterus. Some men in Germany are doing the same thing.

CLINICAL EXPERIENCES WITH THE APPENDICULO-OVARIAN LIGAMENT.*

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Notwithstanding the fact that a rather extensive study of the literature of the subject has convinced me that no such structure as the appendiculo-ovarian ligament, as an independent entity, exists, and that there is neither reason nor professional justice in the association of the name of Clado¹ with the structure thus named by him, I have retained that nomenclature in the title of this paper because, largely through the writings of Durand,² the name has become fairly well known to the gynecologists and abdominal surgeons of America.

I can not better justify the above statement of opinion than by quoting directly from the exhaustive monograph of Nagel,³ in which he says: "The plica genito-enterica, as described by Treitz in 1857, was known long before the work of Clado and Durand, and it is not becoming that this fold should be associated with the name of Clado, as the appendiculo-ovarian ligament, as many authors have associated it, inasmuch as Clado merely mentions it incidentally. The fold under consideration has, like peritoneal folds in general, been described by Treitz, Rouget,⁴ and Waldeyer,⁵ and later

also by Toldt,⁶ Jonnesco,⁷ Broeseki,⁸ Poltauf and the author."³

If the appendiculo-ovarian ligament is not an entity existing apart from other portions of the peritoneum, what is it? A careful study of the region comprised within the true pelvis and extending up over the pelvic brim convinces me that it is merely the continuation upward in varying degrees of prominence of the outer end of the infundibulopelvic ligament. A careful observation in each pelvis opened in which the normal arrangement of the peritoneal folds has not been grossly distorted by growths shows that it is utterly impossible, in about one-third of the cases, to demonstrate any connection whatever between the peritoneal folds about the head of the cecum and the true pelvic portion of the infundibulopelvic ligament. In the remaining two-thirds, drawing the cecum upward and putting the infundibulopelvic ligament on the stretch will clearly demonstrate a direct connection through a peritoneal fold between the infundibulopelvic ligament and the fold of peritoneum extending downward from the cecal region to meet it at the pelvic brim. The upper termination of this fold varies; in about one-third of the cases observed it is directly continuous with the lower angle of the meso-appendix, but in many cases runs behind various portions of the cecum, or in some cases the mesentery of the ileum, and has no manifest relation with the appendix whatever.

An important element in the production of confusion in the study of this structure is the variety of names under which various authors have described it. Beginning with Treitz, it was called the genito-enteric fold. Since this time the Germans have generally spoken of it by this name, or perhaps even more commonly as the *Ligamentum suspensorium ovarii*. The French have either followed Rouget, and called it the superior round ligament, or more recently, following Clado¹ and Durand,² have called it the appendiculo-ovarian ligament. In this country it has been most commonly called the appendiculo-ovarian or lumbo-ovarian ligament. Careful study proves conclusively that the structures mentioned under these various names are identical.

Much error has arisen from the ambiguity of Clado's¹ original description, in which he says: "On raising the appendix it is seen that a peritoneal fold is formed which is continuous with the superior border of the broad ligament at its superior concavity. It is falciiform, with its narrowest part corresponding to the iliac vessels, and measures at this point only one or two centimeters in height." How this has caused confusion is seen later.

Clado's writing was given greater prominence three years later by the more specific work of Durand,² who says: "The ovary is attached to the posterior part of the lateral wall of the pelvis by a ligament which suspends, in a measure, its outer extremity. This agent of fixation has been described under different names. Henle calls it the infundibulopelvic ligament; Rouget⁴ gives it the name of superior round ligament; Clado calls it the appendiculo-ovarian ligament, while others call it simply the lumbo-ovarian ligament."

Durand further states that the appendiculo-ovarian ligament may take its origin:

6. Toldt: *Ban u. Wachstumsveränderungen d. Gekrose des menschlichen Darmcanals*, Denkschr. d. Kaiserl. Acad. d. Wissensch., vol. xii, Wien, 1879.

7. Jonnesco et Juvara: *Anatomie des ligaments de l'appendice vériculaire et de la fosse iléo-appendiculaire*, Prog. Méd., Paris, 1894, s. 2, vol. xix, pp. 273, 303, 322, 353, 369.

8. Broeseki: *Ueber Intraabdominale (retroperitoneale) Hernien und Bauchfelltaschen*, Berlin, 1891.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunnigie.

1. Clado: *Appendice caecal; anatomie; embryologie; anatomie comparé; bacteriologie, normal et pathologique*, Comptes Rendu. Soc. de Biol. de Paris, 1892, pp. 133-172.

2. Durand: *Le ligament appendiculo-ovarienne (appendiculo-ovarien de Clado)*, Contribution à l'étude du ligament large, Prog. Méd., Paris, 1895, s. 3, vol. II, pp. 1-4.

3. Nagel: *Beitrag zur Anatomie der weiblichen Beckenorgane*, Archiv f. Gynäk., Leipzig, 1897, vol. lxxx, pp. 557-627.

4. Rouget: *Recherches sur les organes erectiles de la femme, et sur l'appareil musculaire tubo-ovarien, dans leur rapports avec l'ovulation et la menstruation*, Jour. de Physiologie, Paris, 1858, vol. I, pp. 320, 479, 735.

5. Waldeyer: *Beitrag zur Kenntniss d. Lage d. weiblichen Beckenorgane*, Bonn, 1892.

1. From the meso-appendix; this is most frequently the case.

2. From the peritoneum which envelopes the terminal portion of the ileum.

3. Exceptionally, behind the head of the cecum.

From a careful study of the embryologic origin of this structure, as described so lucidly by Treitz, Hammerschlag,⁹ Nagel¹ and others, it is quite evident that it is an error to speak of this fold as taking its origin from anywhere in the lower part of the abdominal cavity. It is certain that this fold marks the path followed by the ovary and its vessels in their descent from their place of first appearance in the Wolffian body, high up near the liver and kidney, and that Nagel is correct when he says: "The *Ligamentum suspensorium ovarii* springs, developmentally, from the phrenic ligament of the kidney, being, therefore, naturally situated on the posterior abdominal wall." He further remarks that the spermatic vessels, lymphatics and nerves constitute the essential causal element and foundation of this fold, later to become the suspensory ligament of the ovary.

From the above description, which confirmation by many competent observers leads me to accept as correct, it seems grossly inaccurate to speak of the origin of this ligament in connection with the appendix. The cecum and appendix are also formed high up in the region of the right kidney and liver, where they remain until a relatively late period of fetal life, arriving in the iliac fossa only at about the sixth month. In their descent they follow the same path as that taken by the ovary. It, therefore, seems apparent that the point of disappearance of the suspensory ligament will depend entirely on the position which the cecum finally assumes as permanent with relation to the path of descent of the ovary. Both structures traveling downward retroperitoneally, it inevitably follows that the more bulky cecum will at a given but variable point, cause such a lateral tension of the peritoneum as to obliterate the lesser fold produced by the ovary and its vessels. We should, therefore, speak of the point about the cecum or pelvic brim as that at which the suspensory ligament becomes indistinguishable rather than that at which it arises.

Many authors could be quoted to sustain this view, but two of those better known to all will suffice. Abel¹⁰ says: "The ovary is suspended between the suspensory ligament of the ovary (running to the cecum and the vermiform appendix on the right side and to the sigmoid flexure on the left), and the ovarian ligament (running to the uterus)." He thus distinctly marks the disappearance rather than the origin of the ligament in the iliac region.

Lockwood,¹¹ too, perhaps unconsciously, confirms this view when he says: "This (the appendiculo-ovarian ligament of Clado), is a fold of peritoneum which is prolonged upward and outward from the infundibulopelvic ligament to the meso-appendix, and I would add, in some cases, to the cecum and mesentery."

If this view of the situation be correct, it would seem that any such lymphatic connection between the uterus and its appendages and the appendix as Clado described would be incidental and dependent entirely on anastomoses between the two sets of vessels after their migration was complete, and might or might not exist

in any given case. Therefore, even though the extra-pelvic portion of the suspensory ligament—as I prefer to designate this fold—be well marked, there would not necessarily be any clinical connection between the right uterine appendages and the appendix vermiformis.

Clinically, this view receives ample support because, since beginning the study of this subject, several cases have been personally observed in which, notwithstanding the existence of a well-marked extra-pelvic ligament and suppurating going on at one or the other end of it, the ligament was in no way involved and was apparently of not the slightest clinical significance in the case.

The literature of the anatomy, embryology and pathology of this structure, when divorced from the specific name of appendiculo-ovarian ligament, is enormous, but on turning to the clinical side of the question it is equally meager. To Clado its clinical significance depended entirely on the ability of its lymphatics to convey infection from the uterine appendages to the appendix, and *vice versa*.

Fraenkel¹² quotes Treub, Olshausen and Stratz as reporting cases in which the "plica genito-ovarian" played such a clinical part.

Charpy¹³ speaks of the significance of this upward extension of the broad ligament in determining the reason for the so frequent association of broad ligament and iliac suppurations.

Kustner¹⁴ speaks of the contraction of the suspensory ligament of the ovary as causing a certain degree of uterine torsion.

Deaver¹⁵ speaks of the appendiculo-ovarian ligament as constituting a close bond, clinically, between the appendix and the right appendages.

Graves¹⁶ considers this structure, under the name of the lumbo-ovarian ligament, capable of producing retro-displacements of the uterus in cases in which the descent of the ovary has been incomplete.

While many cases have been personally observed in which extra-pelvic portions of the suspensory ligament could be plainly demonstrated, I have observed only five, with a problematical sixth, cases in which this structure was of actual clinical importance. The sixth is spoken of as problematical because not yet confirmed by operation.

The histories of these six cases are as follows:

CASE 1.—Mrs. E. H. McL., private patient, Feb. 2, 1902; aged 35, married three years; never pregnant; would be glad to have children. Husband healthy. Father living. Mother died of consumption. No other tuberculosis in the family.

History.—When 17 she fell down stairs during menstruation; this stopped the flow and caused much neuralgic pain. Catamenia began at 13. Always regular but painful during girlhood; no pain now. Flow lasts five days, using from twelve to fifteen napkins and having some clots. Last menstruation on Jan. 6, 1902, exactly on time. Developed la grippe on first day of flow and flow ceased for three days, after which it was resumed and its course was normal. She has much distress in base of brain and has stiff neck. Not much backache, but

12. Fraenkel: Die Appendicitis in Ihren Beziehungen zur Geburtshilfe und Gynäkologie, Samml. klin. Fortn., Leipzig, 1898, n. F., p. 229.

13. Charpy: De la structure des ligaments larges et leurs abcès, Lyon Med., 1886, vol. III, pp. 357, 351.

14. Kustner: Lage- und bewegungs-Anomalien des Uterus und seiner Nachbarorgane, Handb. d. Gynäk., Wiesn., 1897, vol. I, pp. 63-229.

15. Deaver: Appendicitis in Relation to Disease of the Uterine Adnexæ and Pregnancy, Trans. Amer. Assn. Obst. and Gyn., Philadelphia, 1897, vol. x, pp. 362-372.

16. Graves: Incomplete Descent of the Ovary and Persistence of the Lumbo-ovarian Ligament as a Cause of Retrodeviations of the Uterus, Bul. Free Hosp. for Women, Boston, 1903, vol. 1, pp. 14-17.

9. Hammerschlag: Die Lage des Eierstocks, Zeitschr. f. Geburt. Leipzig, 1897, vol. xxxvii, pp. 462-470.

10. Abel: Gynecological Pathology, 1901, p. 139.

11. Lockwood: Appendicitis: Its Pathology and Surgery, 1901, vol. viii, No. 17, p. 201.

back is not strong. She has much pain in both iliac regions, which is relieved by drawing up the thighs. She has a small inguinal hernia on the left side. There is considerable pain of a dragging character high up in the right hypochondrium. Nearly constant leucorrhœa, "bearing down" pains and marked dyspareunia, which was not present in the earlier part of matrimonial life, but which is steadily increasing. Micturition is frequent and considerable in quantity, requiring her to rise once or twice each night. Urine looks clear; there is occasionally painful smarting after urination. She has flatulent dyspepsia; bowels usually regular. She drinks three cups of tea a day. Appetite is variable and she is very nervous. She sleeps well, but is not rested in the morning, and dreams constantly.

Physical Examination.—Slight cardiac hypertrophy. Right kidney low but not freely movable. Considerable tenderness over appendix. Uterus normal size; cervix anteflexed. Thickening in left side, which might be thickened broad ligament or a small prolapsed ovary. Right ovary large, low, close to postero-lateral aspect of the uterus. Utero-sacral ligaments short and sensitive. Under date of April 6, 1902, following entry appears: Has been ill with severe pain in the right hypochondriac region, extending up into the right shoulder. Now has tenderness over the site of the gall bladder. Pelvic condition as when last seen.

Operation.—April 12, 1902. Median incision. Many loops of small intestine bound down to right tube and ovary by soft adhesion, easily separated. Right broad ligament presents a broad triangular surface superiorly. This surface was divided into three distinct ridges with two fossæ between them. The anterior ridge was produced by the round ligament, the middle one by the tube and the posterior by the ovarian vessels. This posterior fold was the analogue of the suspensory ligament of the ovary and was unique in that the ovarian vessels ran in its free border instead of, as usual, in the deeper portion, and they persisted in its free border, quite away from the posterior abdominal wall, to the point of their disappearance behind the cecum and base of the mesoappendix. The ovarian vessels were of normal size and could be traced high up behind the ascending colon. A second artery ran in the anterior ridge below the round ligament nearly as large as the ovarian and seemed to be an anomalous origin of the deep epigastric. The ovary, large and of unhealthy appearance, was on the posterior aspect of the broad ligament, low down close to the uterus. Marked tension and thickening of the entire broad ligament, and especially of the extra-pelvic portion of the suspensory ligament was plainly manifest. The left tube and round ligament were entirely absent, the left border of the uterus being perfectly smooth and round. The broad ligament extended only slightly above the level of the internal os and was firm and strong, and contained in its depths what felt as though it might have been a small rudimentary ovary, although nothing in the left side of the pelvis gave the slightest evidence of an ovary having descended through it.

A relatively large V-shaped piece was excised from the suspensory ligament just below the pelvic brim and all but a small, comparatively healthy portion of the right ovary was removed. Exploration of the gall bladder and kidney showed them to be apparently entirely normal. Appendix normal.

The subsequent history of the patient has been excellent and I have heard from her frequently. The right hypochondriac pain has never appeared since the operation and appears to have been the direct result of the downward traction on the vessels.

CASE 2.—Miss A. T., referred to me at my clinic at the outpatient department of the Free Hospital for Women by Dr. Johnston; aged 28; single; worked in carpet works; heavy work. Family and past history irrelevant.

Present History.—For the past two months she has had nearly constant pain in the right loin, which is worse when fatigued. She was obliged to give up work over a month ago. First catamenia at 13. Always regular and always painful. Pain one day before and relieved by flow. Duration, three days, requiring four napkins. Last catamenia May 6, 1903,

exactly on time. Rectum feels sore as though something were pressing on it. Bowels inactive. Micturition normal. Appetite and digestion good. Very nervous. Has a constant burning sensation in the gluteal region, which is aggravated by sitting. Poorly nourished.

Physical Examination.—Chest and abdomen negative except that abdominal muscles seem lacking in tone. Marked tenderness at McBurney's point, and a band can be plainly felt extending from cecal region down into right true pelvis. Uterus drawn a little backward and far to the right. Cervix anteflexed and undeveloped. Right ovary high up.

The preoperative diagnosis made to Dr. Johnston was that of chronic appendicitis with a strong probability of the existence of an appendiculo-ovarian ligament of Clado in a state of pathologic contraction. With the consent of Dr. Johnston I referred this patient for operation to a surgeon whom I knew to be engaged in the investigation of the appendiculo-ovarian ligament, thinking he would be glad of the case. Much to my astonishment, a little later Dr. Johnston reappeared with Miss T., saying that the surgeon mentioned said that there was nothing the matter beyond a general run-down condition and that a rest and vacation would make her all right in a short time. Inasmuch as the patient had been under his care constantly for four months and had done no work for one month and was steadily growing worse, Dr. Johnston was indignant.

Operation.—May 22, 1903. Present, beside my regular assistants and nurse, Drs. Johnston and Badger. Appendix was found bound down to posterior aspect of the head of the cecum, which was relatively long below the ileocecal junction. From the base of the mesocolon the extrapelvic portion of the suspensory ligament was clearly defined, exactly confirming the physical diagnosis. The appendix and a V-shaped piece of the ligament were removed. The pelvic organs were otherwise normal and not involved in the operation.

Result.—Just one year from the date of operation I called up Dr. Johnston and he assured me that Miss T. had been entirely relieved by the operation; that two months from the day of operation she resumed light work with her old employers, and has now for six months been at her old heavy employment in the enjoyment of perfect health.

This is, so far as I am able to learn, the first case recorded in which the existence of the appendiculo-ovarian ligament, so called, was made before operation.

CASE 3.—Mrs. C. E. S., private patient referred to me by Dr. E. S. Winslow of Orange, Mass; aged 23; married six years and has had two children and three miscarriages. Older child 4 years and younger 3 years old.

History.—First miscarriage at three and one-half months, second at four months and third at only a few weeks. First procured. In bed ten days after first child, seven days after second, and only two or three days after the miscarriages, which were accompanied by considerable hemorrhage. First catamenia at 12. Irregular during first two or three years. Pain variable in amount for one or two days before and first day of flow. Duration of flow from four to five days. Last catamenia just ended. Has had typhoid fever and several attacks of pneumonia, and had diphtheria three years ago. Present trouble began after first child and has been worse since the second. The miscarriages have all occurred since the second child and have added to her ill-health. Much pain in sacral and right iliac region, and also some pain in the right hypogastrium and in the left iliac region. She has attacks of severe pain in the epigastrium, and has pelvic "bearing down" pain. Leucorrhœa not constant but produced by exertion. Micturition normal. Bowels inactive. Appetite variable. Digestion poor; pain after eating. Sleeps poorly. Lying in bed makes back and side ache worse. Dyspareunia, causing more pain on right than on left.

Physical Examination.—Heart normal. Slight bronchitis. Right kidney very much enlarged. Perineum torn. Wall between vagina and rectum very thin in median line of perineum. Cervix lacerated and everted, but not much eroded. Uterus in normal axis, but drawn to right and slightly enlarged. Left

ovary enlarged and very tender, but not prolapsed beyond the utero-sacral ligament. Right ovary enlarged and apparently cystic and not freely movable. Very tender. Moderate tenderness starting at McBurney's point and increasing as pelvis is approached. No tenderness at Boas' point.

Operation.—Jan. 9, 1904. Dilated and curetted uterus. Trachelorrhaphy and perineorrhaphy. Median abdominal incision and both ovaries suspended to uterine cornua after removing cystic portion of the right one and removing a V-shaped piece from the thick, tense extra-pelvic portion of the suspensory ligament. Exploration showed appendix normal, but angulated by downward traction by suspensory ligament, which was entirely freed by the above mentioned excision. The appendix was not removed. The mass supposed, on physical examination, to have been an enlarged, movable kidney, was found to be a rolled-up mass of omentum. Adherent to several loops of small intestine and to the ascending colon. Without the removal of any organs this patient is reported as recovered and back at her work after five months.

CASE 4.—Mrs. W. R. C., private patient, aged 35; married six years. One child six and one-half years ago. No miscarriages. Family history irrelevant. Present trouble began in 1896.

History.—Got her feet wet during menstrual period and flow ceased suddenly with severe pain in hypogastrium and both iliac regions. First catamenia at 14 and always regular. Pain was slight at first, but was worse after undertaking a sedentary occupation. Later standing also produced pain in lower abdomen and back. Flow lasts two or three days, requiring five or six napkins. Lately it is more profuse and lasts longer. Last catamenia started Feb. 12, 1904, and on going out in a storm on February 15 she became wet and chilled and the flow ceased and pain has been severe ever since (four days). Pain in lower abdomen and back is constant, of a dull, aching character. There is also a "bearing down" pelvic pain, and a sensation of dragging in the right side. Little inconstant leucorrhœa. Bowels inactive, probably partly due to large quantities of opiates required for pain. Micturition frequent. Frequent frontal headaches. Appetite and digestion variable.

Physical Examination.—Heart normal except for accentuation of aortic second sound. Abdomen shows abnormal tenderness at McBurney's point extending continuously down to ovarian region. Colon much loaded. Uterus slightly ante-flexed and a very little drawn to the right. Perineum intact. Cervix shows fair result of trachelorrhaphy done in September 1903, at Homeopathic Hospital.

Operation.—April 9, 1904. Uterus, both tubes and both ovaries and rectum matted together in posterior part of pelvis. Right ovary completely degenerated with an outgrowth from one side. Left ovary hard and cirrhotic. Both tubes nodular and occluded. Extra-pelvic portion of suspensory ligament very prominent, thick and tense. Appendix normal and not removed. Both tubes and both ovaries removed; suspensory ligament completely relaxed after removal of right ovary. Patient has required no opiates since operation and, although too early to speak of ultimate results, she is already in much better health than for years. There is neither pain nor tenderness in the appendicular region.

CASE 5.—Mrs. N., operated on at the Free Hospital for Women, Nov. 27, 1903. The long hospital history is abbreviated because irrelevant, as regards the structure under consideration, except for the existence of right iliac pain and the manifestation of tenderness about the appendicular region extending down to the ovarian region. The traction of the tense extra-pelvic portion of the suspensory ligament, transmitted through the mesoappendix, produced a sharp angulation of the appendix, which angulation disappeared on severing the ligament. The subsequent history of this case is not known.

CASE 6.—Mrs. A. D., patient of Dr. Farnum of Randolph, Mass. Has the history of right iliac pain with tenderness extending continuously into the right ovarian region and a band can be felt similar to that which determined the diagnosis in Case 2. This case is, however, as yet of no value, in the present connection, as the diagnosis lacks operative confirmation.

These cases possess several points in common which should serve as diagnostic guides in the future. There is, first, the tenderness starting high up in the right iliac region and extending continuously down to the true pelvis; second, there is the sense of dragging in the iliac region; third, there is the more or less pronounced displacement of the uterus to the side of the pelvis in which the contracted ligament exists. In every case, instead of the tenderness being localized about the appendix or instead of having, as is so often the case, an area of tenderness at the appendix and another lower down in the ovarian region, the tenderness has been found continuous.

The studies of Rouget,¹ Testut¹¹ and Sappy, among others, show conclusively that there is a very considerable amount of smooth muscle fiber in the suspensory ligaments, and any irritation at either end of this ligament may produce contraction of these fibers, which may bring it into no slight clinical importance. One fact in the clinical significance of this structure seems to me to have been misinterpreted by some authors, namely, the ability of this structure to cause retro-displacement of the uterus.

We ordinarily think of the broad ligaments as extending out, nearly transversely, to the pelvic walls and of the appendiculo-ovarian ligament as a band coming down from above to join the superior border of the broad ligament. This, of course, would convey the impression that shortening of the appendiculo-ovarian ligament would pull the top of the broad ligament toward the posterior wall of the pelvis, which would, equally, of course, produce retroversion. When, however, the anatomy is carefully studied, and it is realized that the so-called appendiculo-ovarian ligament is in reality but the extra-pelvic continuation of the infundibulopelvic portion of the broad ligament, it is easily seen that the only uterine displacement which tension on this band alone can cause is exactly identical with tension on the remainder of the broad ligament, namely, lateral deviation with possibly slight torsion, as noted by Kustner, and as exemplified in each of the above cases.

It is also manifestly a fact that this structure is as liable, anatomically, to become of clinical importance on the left side as on the right, although, so far as I have been able to learn, no instance of this has as yet been reported.

The fact that in all but one of my cases the appendix appeared normal, and on being left in the abdomen has given rise to no symptoms, seems to negative the tentative opinion that the existence of the appendix on the right side makes that ligament more liable to irritation.

In all these cases the extra-pelvic portion of the suspensory ligament of the ovary, or as more commonly known in American and English medical literature, the infundibulopelvic ligament, certainly was an important clinical factor, and in three of the cases was apparently the only disease-producing factor.

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17. Testut: *Organes Genitaux de la Femme. Traite d'Anatomie, Humaine*, Paris, 1901, pp. 783-896.

The Surgery of the Ancients.—At a recent meeting in Athens M. Smyrniotis exhibited some surgical instruments from a tomb near the long wall of the Piræus, dating from about the first century A. D. Many of these are similar to those now in use and he thought they gave evidence of an eminent surgeon, now unknown, who resided there nearly 2,000 years ago.

PELVIC DEFORMITY.*

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Pregnancy or labor complicated by pelvic deformity will always be of great interest to the obstetrician. As the subject is one that has attracted attention from the earliest times, it would now seem that the ground had been pretty well covered, but there still exists some difference of opinion in regard to the treatment of these cases.

My conclusions are the result of following the work of the Philadelphia Lying-in Charity Hospital for the past fifteen years, during which time over 10,000 cases have been cared for in its various departments. The hospital, owing to its central location, does a large amount of emergency work, many of the cases entering at the end of gestation, and some already in labor.

When the American Medical Association last met at Atlantic City, in 1900, I presented to this Section a paper entitled "The Classical Cesarean versus the Porro Cesarean." In that paper¹ I reported six successful cases for pelvic deformity. Since that date I have had six additional cases, all successful to mother and child. Five of the latter cases have also been reported, and I will in this paper place the twelfth on record.

Sufficient material is now at our command to enable us to better approximate the frequency of pelvic deformity in this country. Reynolds² reported that he had observed 1.34 per cent. of contracted pelves in 2,327 women delivered in Boston. This percentage is estimated from the cases requiring operative interference, and does not include those delivered spontaneously. Edgar states that the frequency of contracted pelves in native-born American women has been estimated at 2 per cent., and among foreign-born women at 6 per cent.

In a study of the records of the Philadelphia Lying-in Charity Hospital for the past ten years (1894 to 1904), we find 3,224 deliveries, with but 76 cases, or 2.5 per cent., of deformity of the pelvis demanding surgical interference. As in Reynolds's report, this study does not include cases of pelvic deformities delivered spontaneously.

Williams³ reports that he has met with 131 contracted pelves in the first 1,000 women delivered in the lying-in department of the Johns Hopkins Hospital. In June, 1901, he gives the results obtained in 1,123 additional cases, which showed exactly the same percentage as in the previous report. A total of 2,133 cases with a percentage of 13.1. He states that one reason for the marked frequency of contracted pelves in Baltimore is probably due to the fact that more than half of the patients are colored, 941 in the entire series being white and 1,182 black women. In the former he found 6.9 per cent., and in the latter 18.82 per cent. of contracted pelves.

From the study of these reports we find pelvic contraction occurs in 7 or 8 per cent. of white women in America, and only in 2 per cent. of cases studied from the standpoint of demanding surgical interference.

It is evident that no one can practice obstetrics without meeting some such cases. Although pelvic deformity is primarily readily diagnosed, the more so the

greater the deformity, the habit of forming quick judgment is not justifiable, as the extent and nature of the malformations are not easily ascertained, and a more general use of the pelvimeter will lead to an earlier recognition of pelvic deformity. While the pelvimeter is invaluable in securing accurate measurements of the external pelvis, the difficulties of determining the capacity of the pelvis by present methods are easily recognized. Fatalities have resulted where most careful measurements made on the living patient showed errors oftentimes of over half an inch at the postmortem. Recognizing the inaccuracy of pelvic measurements, either by means of the pelvimeter or manually, we acknowledge the truth in Barbour's comprehensive opinion, "the fetal head is the best pelvimeter."

Müller's method of estimating the relative disproportion between the pelvis and fetal head, and Kerr's modification of this method, are not always reliable. The cephalometer of Perret and Budin, by which an attempt is made to measure externally the biparietal diameter, must necessarily also be unreliable.

What we are interested in is not so much the variety and degree of pelvic deformity, but whether the passenger is or is not too great for the passageway.

In the cases of great deformity, which are rare, the diagnosis is easy and the course to pursue clear, but in the larger group of cases of moderate deformity, it is not possible to accurately estimate the disproportion between the pelvis and the fetal head.

TREATMENT.

In pelves of great degree of deformity, the treatment is not so difficult; the forceps, symphysiotomy and cesarean section with the living child, and craniotomy if the child is dead, must be resorted to. In the larger group of cases, however, there exists only a moderate degree of contraction, and in this class great judgment must be exercised. The proper solution of the problem will depend on the study of many factors: 1, Whether one first sees the case during pregnancy or after labor has commenced; 2, the general condition of the mother; 3, the nature of the presentation; 4, condition of the fetal heart; 5, multiple pregnancy.

It is not my desire to take up each method of treatment. There is one, however, concerning which there exists a difference of opinion, namely, the induction of premature labor. The advocates of this method of treatment recommend it in minor degrees of pelvic contraction.

The induction of premature labor would be ideal were it possible to accurately measure the length of the period of gestation. I have never been able to satisfy myself that this is possible, and prefer to permit the patient to go to term.

Hirst,⁴ favoring the induction of labor, says: "If the conjugate diameter measures as low as 9.5 cm., it is a safe plan to induce labor four weeks before the expected term of pregnancy."

Norris⁵ states that he is inclined to feel that cesarean section is too frequently resorted to; he reports 29 cases of induced labor with no maternal mortality; and only 10 per cent. fetal mortality. He would resort to induction of labor only in pelves of minor degree of contraction.

Reynolds, Williams and Edgar, on the other hand, pre-

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1. THE JOURNAL, A. M. A., May 4, 1901, p. 1242.

2. Transactions of the American Gynecological Society, 1890.

3. Obstetrics, 1899, Nos. 5-6.

4. Text-book of Obstetrics.

5. The Ultimate Results of Inducing Labor for Minor Pelvic Deformities, read before the Philadelphia Obstetrical Society, June 2, 1904.

fer to permit the patient to go to term, giving her the trial of labor, and then instituting the method of delivery most expedient.

The high fetal mortality, and the difficulty of estimating the length of gestation, has led many to follow the expectant plan. Kleinwochter, after an exhaustive study of the subject, concludes that 78.3 per cent. of the children are born alive, but that many of them die soon after birth, and only 60.4 per cent. leave the hospital in good condition.

Is the induction of premature labor justifiable admitting the difficulty of estimating the length of gestation?

My experience has not been as satisfactory as that of those who advocate this operation. Even with a clear menstrual history, we must admit the fact that the patient may have conceived at any time before the next menstrual epoch, a period covering three weeks. Then, again, in some cases it is impossible to get the menstrual history. These cases must, of course, be excluded from this method of treatment. Again, the methods of inducing labor are not always satisfactory. The Simpson method, the introduction of one or two bougies into the uterus, does not always bring on labor promptly; the bougies sometimes rupture the membranes, and in some cases necessitates hydrostatic methods by dilatation. I therefore feel that I can best serve my patient by permitting her to go to term.

How frequently we have all prepared for a difficult forceps operation, version, symphysiotomy, and even cesarean section, only to have the patient spontaneously deliver herself. Admitting this fact, how, then, can one, four weeks before the end of gestation, feel sure that the induction of premature labor is indicated? Each case must be a study in itself. In the primipara the course to pursue will be more intricate than in the multipara, where we have the history of the previous labor to guide us. In the majority of cases the forceps will suffice; failing in this method, version is indicated, or cesarean section in the exceptional cases.

In reviewing my eleven cesarean sections, I find that in seven of the cases they were given the test of labor. The twelfth case, with the following history, was an elective operation:

Mrs. —, a negro and primipara, aged 18 years, an American, was admitted to the Medico-Chirurgical Hospital, Oct. 3, 1903.

Her last menstrual period was Feb. 22, 1903, and from her own calculation she expected her confinement November 29. The patient showed marked evidences of congenital rickets and gave a clear history of same. She had the characteristic general bony and pelvic deformities.

The following measurements of the pelvis were made: Interspina measurement, 22 cm.; intercrestal measurement, 22 cm.; external conjugate measurement, 16 cm.; diagonal conjugate measurement, 7.5 cm.; true conjugate measurement, 6 cm.

The elective cesarean section was performed for the absolute indication. The patient made an uneventful recovery and left the hospital Dec. 15, 1903, in good condition.

CONCLUSIONS.

In conclusion I would say:

1. The fetal head is the only trustworthy pelvimeter.
2. It is essential to give the patient the test of labor in the majority of cases of moderate pelvic deformity.

3. It is the duty of the practitioner in attendance on a multipara with the history of one or more dead children to be prepared to perform cesarean section. If he does not possess the necessary surgical training, he should call to his assistance the obstetric surgeon.

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DISCUSSION.

DR. C. S. BACON, Chicago.—The most important point in Dr. Boyd's paper is the objection to the induction of labor for contracted pelvis. The objections that he makes to the operation of inducing labor are the difficulty of determining the length of gestation, the difficulty of the operation and the unsatisfactory results. In regard to the length of gestation, I believe that is not so difficult as Dr. Boyd intimates. In the majority of cases we know the date of the last menstruation, and, if we take a careful history, we can often find the date of conception. If we will note the time of the beginning of the morning sickness, and the time of the first fetal movements, we have two very important data. It is not usual for the morning sickness to begin before the third or fourth week after conception, and it is uncommon for it to begin very much after the seventh or eighth week. That gives us a period of uncertainty of only two or four weeks. Then, as a rule, the fetal movements begin about the eighteenth or nineteenth week of pregnancy. And if we have this date we are not more than two or three weeks away from the date of the termination of the labor, provided it terminates at the usual time. With regard to inducing labor, the use of the bougie frequently is slow, but the bougie, combined with the metreuxyter, after the first twelve or twenty-four hours, is a reasonably rapid method, and it is no real objection to the operation. With regard to the results, the mortality of the children often is high, but principally because they are not taken care of properly. No one should induce labor in contracted pelvis without taking all precautions to save the child. With a good incubator and a trained nurse there is little difficulty in raising the child, if it is thirty-four weeks old, and often when it is only thirty-three or thirty-two weeks old. With such results to be obtained, it would seem that this method should not be abandoned. Of course, there is the test of labor which Dr. Boyd mentioned. That is always necessary. One should not induce labor for the first child. But with a moderate degree of contraction, with the history of the first labor, where, perhaps, a dead child was delivered with forceps, the induction of labor at any time between the thirty-second and thirty-sixth week is a method worth considering. Those who will follow this out carefully will have results that will not justify the conclusions at which Dr. Boyd has arrived.

DR. ROSA WISS, Meridian, Miss.—I am glad to hear Dr. Boyd say that it is only fair to the patient to give nature a chance. Some time ago I was called to a case when the labor was in progress. The patient was 40 years old and had never had a child. She had been married three times, and this was her first pregnancy. She lived in a squalid home, and I had nothing at hand for the performance of a radical operation. I made an examination and found a masculine contracted pelvis. I told her husband that I had little hope, but would do all I could. I sent for the nearest physician to help me. The labor progressed rapidly but with severe pains until the head reached the floor of the pelvis, when we had trouble. While the physician was preparing his instruments in the next room I introduced my hand and pressed on the child's head. While I was doing this the woman had a very hard pain and the head came down a little. I continued the pressure, and, much to my surprise, the woman delivered herself of an eight and a half pound child, which began to cry before the whole body was delivered. The perineum was not torn, and the patient made a rapid and uneventful recovery. Two years later I was called again, but before I could reach the house the child had been born.

DR. FRANK CARY, Chicago.—I was very much pleased to hear Dr. Boyd advocate the expectant plan; there are, however, a few points that he did not mention and which are important. We know that cases with quite contracted pelvis frequently deliver themselves normally, sufficient time being allowed. I have in mind a case I saw in Schauta's clinic on which a cesarean section was performed successfully. Within two years she presented herself again, but refused absolutely to have another section. After a long and tedious labor she was delivered of a living child, showing that these cases can

terminate normally. I want to put in a plea for this, i. e., consider the relative size of the child's head and degree of ossification of cranial bones before resorting to cesarean section on pelvic measurements alone.

DR. GEORGE BOYD—I do not wish to condemn the induction of labor, but I maintain that I am unable to judge when it is right to perform the operation, because I can not measure the length of gestation, and, I believe, we never will be able to do so. A miscalculation of two or three weeks means much. In one way the induction of labor is of no value, and in the other the baby has not reached the stage of viability and will not live, even with the best of care. Only recently I saw a photograph of a patient in whom there existed a degree of pelvic deformity so great that the attendant felt that it was beyond the induction of labor, and that there might be a necessity for performing a cesarean section. That same patient was delivered in easy labor. If premature labor had been instituted that operation would have received the credit for the delivery. I can not decide what to do before the patient comes to term, and particularly in cases of moderate degree of contraction. Dr. Cary speaks of the necessity of studying the size of the head. I mentioned Mueller's method, which consists of pressing the head into the pelvis, in that way hoping to approximate the amount of disproportion between the fetal head and the pelvis. I have always tried to study the size of the child's head, but even with that precaution, in a case in which the head is high and apparently movable at the brim, or high and not movable, give that patient five or six, or even eight hours labor, and you will be surprised to find the head in some cases well down in the pelvis.

IS CESAREAN SECTION A RATIONAL METHOD OF TREATMENT IN PLACENTA PREVIA?*

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The importance of this subject is not from its frequency, but from the emergency of the situation, which demands early recognition and prompt decision by the physician, in that it involves the lives of both mother and unborn child, and, as regards himself, points of professional honor and conscience. In the complications that confront the obstetrician there is none that is fraught with more danger or attended with greater anxiety than placenta previa, save, perhaps, eclampsia. Its sudden onset, often alarming hemorrhage and consequent anemia, shock, and possible sepsis present a formidable array of difficulties that even in the hands of the most skillful has been attended with a high maternal and fetal mortality. It is true that in recent years, with more definite method of treatment and advances in asepsis and antiseptics, the maternal death rate has been greatly lessened, but the extraordinarily high proportion of infants lost remains unchanged.

If we analyze the statistics, we can not fail to recognize that it is the lateral and marginal varieties that have contributed largely to this improved showing by directly sacrificing the life of the child by using it as a plug to control the hemorrhage. In central implantation, modern methods have not materially affected the death rate. It was quite natural, then, that other measures would be evolved with the hope of reducing the frightful infant mortality, while still not decreasing, if not improving, the chances of the mother. Hence for more than a decade from time to time the justifiability

of cesarean section in certain cases of placenta previa, in the interest of the child as well as of the mother, has claimed the attention of the medical profession. Ford,¹ Dudley,² Zinke,³ Boyd⁴ and others have recommended it on theoretical grounds, with the conclusion that it is not only justifiable, but indicated in central implantation of the placenta. On the other hand, there are those who are equally positive in their belief that cesarean section has no legitimate field in placenta previa, contending that the mother's life is of paramount importance; and further, that many of the infants will of necessity be born prematurely and likely to succumb shortly after birth. The physician has no moral right to decide between the value of two lives, nor is he in conscience capable of determining whether the child will survive or not. Both are his patients, entitled to his best skill, and he is in honor bound not to deliberately sacrifice the life of one to save the other.

It has been contended also that there is danger of postpartum hemorrhage after section, as the placenta occupies the lower or passive segment of the uterus, which will interfere with its retractility, which, together with the muscular contractility of the uterus, controls hemorrhage under normal conditions. I have carefully studied all of the cases, and find but one instance where it was necessary after doing a Sanger operation to follow it by a Porro on account of hemorrhage. Donohue says that the hemorrhage may be prevented by allowing the uterus to contract and retract, and permitting the centrally or marginally implanted placenta to separate spontaneously. It is also suggested that the same end might be accomplished by packing the uterus with gauze. In a case in which I recently performed cesarean section for contracted pelvis complicated with inertia uteri, in which the uterus remained relaxed, I adopted the latter procedure in conjunction with normal salt solution with excellent results.

My only personal experience with this method of intervention in placenta previa is a case I saw in consultation:

The patient was 31 years of age, had been married nine years and was pregnant for the first time. At four and a half months she bled, again at five and a half months, and again at six months, when she had labor pains. Examination under chloroform disclosed a small vagina, cervix not effaced, and placenta covering the internal os. The vagina was tamponed and patient carried to the hospital. Labor pains increased. The tampon was removed, cervix found to be shorter but os about the same, and the vagina was repacked on account of hemorrhage. Owing to age of patient, small vagina and undilated cervix, I had no hesitation in assenting to section, as in my judgment she would suffer less shock, hemorrhage and traumatism than if attempt was made to deliver per vaginam. The child and placenta were removed through the incision and uterus contracted satisfactorily. The mother made an uneventful recovery.

If any lesson is to be learned from this, it is that the weighing of the factors in each case and decision as to operation should be prompt, and the method of relief performed as speedily as circumstances may permit.

SUMMARY OF CASES REPORTED.

In looking over the literature for placenta previa, I have been able to collect twenty-four cases of cesarean section, performed by twenty-one operators. Seventeen of these were of the complete implantation, two lateral,

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

1. Ford: Amer. Gyn. Jour., September, 1892.
2. Dudley: N. Y. Med. Jour., 1900, lxxli.
3. Zinke: St. Louis Med. Review, 1901, xlv.
4. Boyd: Proceedings Philadelphia Med. Soc., Philadelphia, 1901, xxli.

and in five the variety is not mentioned. Fourteen were operated on according to the Sanger method, seven by the Porro, and three not stated. The majority of these were emergency cases, and were in unfavorable condition from repeated hemorrhage and were operated on after other methods had failed. Of the mothers who died, three died within twenty-four hours of shock; one on fourth day after secondary operation for obstruction of the bowel, and the other of septic peritonitis fifty-six hours after operation.

Nineteen mothers and eleven infants recovered, a mortality of 20.8 per cent. and 54.3 per cent., respectively. Eight of the infants were operated on before viability, or were dead before extraction, and five died from various causes in from several hours to four days after delivery. It is reasonable to suppose that the five that died after birth would have shared the same fate after delivery *per vias naturales*, or might have perished during delivery, though certainly their chances of life were increased by section. This 54 per cent. should not properly be taken as the statistical basis of the operation of the future. In selective cases, when pregnancy is far enough advanced for a viable child, and where the operation is done at once and before protracted bleeding has taken place, the figures will be far better than this.

These cases and the references to the records thereof may be briefly given as follows:

- HYPES and HURLBERT: *Am. Jour. Obstet.*, 1892. Variety of previa and method of operation not given. Mother died; child died.
- SLIGH: *Am. Jour. Obstet.*, February, 1892. Carcinoma of cervix with complete previa. Sanger method. Mother died 12 hours after operation; child lived two days.
- BERNAYS: *The Journal*, May 12, 1894. Complete previa. Sanger method. Mother recovered; child died in 4 hours from asphyxia.
- LODEMAN: *Centralblatt f. Gyn.*, 1893. Osteomalacic pelvis and previa (fairly not given). Method not given. Mother recovered; child died, both from asphyxia from a very early operation.
- LANEHEAR: *Am. Jour. of Surg. and Gyn.*, 1902, vol. xiv, p. 132. Porro operation for infected placenta (4 mos.). Mother recovered; fetus not viable.
- TAIT: *Lancet*, London, Feb. 6, 1899. Porro for placenta previa. Both mother and child recovered.
- MORRIS: Lecture on Appendicitis, N. Y., 1895, p. 155. Porro operation for marginal placenta previa with alarming hemorrhage. Uterus removed with contained fetus. Mother recovered.
- MAYO: *Archivio Italiano di Ostet. e Gyn.*, 1899, No. 4, p. 305. Sanger method for complete previa. Mother recovered; child dead before extraction.
- MACCALLA: *Medical Sentinel*, 1900, vol. viii, p. 55. Porro operation for complete previa. Mother recovered; child dead of inanition several days after birth.
- DONOGHUE: *Boston Med. and Surg. Jour.*, 1900, No. 11, p. 571. Sanger operation for complete previa. Mother and child recovered.
- HARE: *Ibid.*, 1901, No. 1, p. 151. Sanger operation for complete previa. Mother died eleven hours after operation; child died of inanition twelve days after birth.
- COVINGTON: *Cincinnati Lancet Clinic*, 1901, No. 1, p. 558. Sanger operation for complete previa. Both mother and child recovered.
- GILLETTE: *Boston Med. and Surg. Jour.*, 1901, vol. 41, p. 9. Porro for complete previa. Both mother and child recovered.
- WEBSTER: *Am. Jour. of Obstet.*, 1901, vol. xliii, p. 158. Sanger operation for lateral previa with profuse hemorrhage in a mother 13 weeks of age. Child well developed. Eight months gestation. Mother recovered; child's fate unknown.
- CORBONELLI: *El Progresso Med.*, Torino, 1902, No. 1, p. 158. Porro for complete previa. Both mother and child recovered.
- CORBONELLI: *Ibid.*. Sanger method for complete previa. Both mother and child recovered.
- CORBONELLI: *Ibid.*. Porro for complete previa. Mother died 56 hours after operation of septic peritonitis; child stillborn.
- CONROY: *Boston Med. and Surg. Jour.*, 1902, vol. cxvii, p. 634. Sanger method for complete previa. Mother recovered; child stillborn.
- DONOGHUE: *Ibid.*, 1902, No. 1, p. 18. Sanger operation for complete previa. Mother died on fourth day after secondary operation for obstruction of bowels; child lived.
- OWEN: *Pract. Obstet. Med.*, 1902, vol. xvi, p. 258. Sanger operation for complete previa. Mother and child both recovered.
- HOPKINSON: *Amer. Med.*, 1902, No. 1, p. 140. Lateral previa with contracted pelvis. Two previous pregnancies terminated by cesarean. Both mother and child recovered.
- TRUESDALE: *Boston Med. and Surg. Jour.*, April, 1903. Placenta previa. Mother recovered; child died.
- FRY: *Maryland Med. Jour.*, July, 1903. Sanger operation for complete previa (4 mos.). Mother recovered; child lived 5 hours.
- DEAVER: *The Journal*, April, 1904. Sanger operation for complete previa. Both mother and child recovered.
- GILLETTE: *The Journal*, August, 1901, p. 495.
- SCHAUTA: *Interstate Med. Jour.*, St. Louis, 1902.

Those who advocate cesarean section for placenta previa seek to justify their contention by the brilliant

results obtained by the classical methods in elective cases of contracted pelvis by Reynolds, Zweifel, Leopold, Evert and others, who have reduced the mortality below 2 per cent. This is unfair, however, because the pathologic condition is essentially different, the choice of operation and even diagnosis of lesion radically different, and the results must vary materially. We should only compare section in placenta previa with the results obtained by other methods of intervention, and further, class the latter according as the case was of the partial or complete implantation. This is a difficult matter, however, since statistics are usually gathered from all varieties, and in partial and marginal cases the mortality should not be high. Gillette, in 216 cases collected from various sources, found 88 of the central variety, and in 20 of these the mothers died, or 22.8 per cent.; infants, 66, or 70.5 per cent. Shauta, in 234 cases occurring in his clinic reports, 50 complete implantations with a maternal mortality of 9, or 18 per cent.; infants, 35, or 70 per cent. In 16 cases occurring at Columbia Hospital, 3 were of the complete variety, one patient died, or 33 1/3 per cent. I have had 7 cases, 2 occurring in the same patient; 3 of these were of the central variety. One of the mothers died, and all of the infants of the latter were dead before the cases came under my observation.

From the foregoing figures it will be seen, then, that there is very little difference in the maternal mortality of cesarean section as compared with the various other methods of intervention, while the mortality of the infant has been reduced from 70 per cent. to 53 per cent., and can be still further reduced.

These statistics are yet too small to formulate any fixed rule for guidance regarding the absolute and relative indications of cesarean section for placenta previa; future experience alone can determine. Whether they will be improved on will depend on a more thorough study of the cases during pregnancy, early recognition and prompt action while the patient is still in good condition.

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DISCUSSION.

DR. GEORGE T. HARRISON, New York City—Modern gynecology has gained many triumphs, especially in the direction of surgery, and so successful have modern gynecologic surgeons become that they have brought within the domain of surgery a class of cases to which surgery is really not applicable, so I classify the treatment of placenta previa by cesarean section. I have had a large practice in obstetrics for many years, in lying-in hospitals and in private practice, and I have yet to see the case of placenta previa where any such surgical interference was indicated. I want to plant myself fairly and squarely on the side of the opponents to this operation. There are two dangers that assail a woman when she has placenta previa; death may occur from hemorrhage and from sepsis. With the methods at our command for dilating the uterus, it is an easy matter to bring down a foot, and the hemorrhage is completely under control. The great objection to this method is that you must deliver very slowly. Of course, the child runs some risk, but that risk has been diminished by the use of the balloon, either the Champetier de Ribes, or its modification. I have found that it is better for both mother and child if we ignore the latter. With these methods at our command, I can not see any indication for cesarean section. In a recent number of *THE JOURNAL*, Dr. Deaver tells us that he was called in consultation in a case of placenta previa, and performed the operation of cesarean section. He said that he thought that operation was indicated, but the second reason that induced him to operate was sublime. He said he operated because he was more familiar with the technic of abdominal

surgery than with the methods of podalic version. It is only necessary for a man to give such a reason to confute himself.

DR. A. PALMER DUDLEY, New York City—Dr. Harrison said that he has never seen a case of placenta previa in which cesarean section was justifiable. Let me tell you a story. A poor woman, a few months ago, was expecting her confinement. She felt that there was something wrong about it, and she consulted a physician. He brought in his assistant and they discovered that she had placenta previa. They told her that she was in some danger, but they would watch her and one of them would be ready any moment. In the early morning she was cooking her husband's breakfast when she had a hemorrhage, and before a physician could be called, the woman was dead. There was a case where cesarean section was justifiable, and those two physicians were guilty of criminal neglect. They knew that the woman had placenta previa, and yet they failed to do what they should have done. Every obstetrician should have his obstetric "kit" ready, and in it should be the instruments necessary to make a cesarean section—a knife, a pair of forceps, a ligature, a needle and some silk. Every obstetrician of to-day should be equal to a cesarean section, else he is remiss in his duty. I contend that Dr. Moran has touched a note that will sound over the country. It can not be stopped. The one incident I cited will be sufficient to emphasize my position.

DR. F. F. LAWRENCE, Columbus, Ohio—No reformation ever was effected without there being radical men on both sides. The radical fellow rubbing against other radical fellows wears off the rough edges. However, one thing we must remember, and that is, that the statistics of the best methods of treating placenta previa, as compared with the statistics of cesarean section for placenta previa, makes a very unjust comparison. Why? Because comparatively few of the cases of placenta previa that bled themselves into the grave have been reported. Comparatively few of those who have died out in country towns, or even in the city, from attempts at manual or instrumental dilatation, have been reported. Why? Because the stigma of death in ordinary obstetric practice is felt most keenly by every physician; it is one of the things that will damn the physician quicker than anything else, and it will, therefore, not be reported. But let the case be taken to the hospital for cesarean section or operated on at home, and everybody in the neighborhood knows of it, and the doctor is compelled to place the case on record as an argument in his defense. I wish each and every one of you would take this position: If this were my wife, my daughter, my sister or my mother, what would I want done? We know that the operation of cesarean section can be performed in a very few minutes, and that hemorrhage is under the control of the operator, as is also the matter of sepsis to a great extent. I would not want my wife or daughter—if the victim of this condition—to be denied the life-saving properties of a cesarean section done by a skillful man. One speaker says bring the foot down and the hemorrhage is absolutely controlled. I have been unfortunate enough to see three or four cases in which bringing the foot down did not control the hemorrhage. And why? Because the patient had bled so much before the presenting part was brought into position to act as a plug, that there was inertia of the uterus. These are things that we must consider. It requires only a few minutes for a woman to bleed to such an extent that the uterine muscle will not contract. In placenta previa centralis, cesarean section should in my opinion be the procedure.

DR. RUDOLPH W. HOLMES, Chicago—Dr. Ehrenfest of St. Louis published a paper on this subject a few years ago, in which he stated that the mortality of placenta previa was not so high as was generally believed, and that the mortality of the cesarean operation was greater than we are led to believe by reported statistics. In fact, nearly all the quoted statistics of cesarean section are those with the "corrected" mortality, which, while it eliminates the operations on the unfavorable cases followed by death, does not eliminate like cases which had the good fortune of recovering. For example: Zweifel had 76 conservative sections, with 1 death—by

exclusion he makes it 75, with no death; Schanta, 58 cases, with 6 deaths—by exclusion he has 56, with 4 deaths; Leopold, 71 cases, with 7 deaths—by exclusion he makes it 68, with 4 deaths. As placenta previa is rarely diagnosed until the hemorrhage manifests itself, which should not necessarily be the case, the woman is very unfavorably placed for a cesarean section on this indication; therefore, the mortality of placenta previa from infection, when treated by section, will necessarily always be high in comparison to the mortality in sections performed in women with contracted pelvis in which a timely diagnosis is made. I believe there is a place for cesarean section in placenta previa, but I am glad to say it is a very small place indeed. If there be a rigid cervix one may want to consider a cesarean section, but a rigid cervix in the practice of obstetricians is very rare in previa, even though our surgeons and general practitioners would have us believe differently. If the attendant on a placenta previa case will treat the case intelligently and properly with a slow extraction, or perhaps spontaneous expulsion, a rigid os will be rarely found by them, as it is seldom encountered by obstetricians. Braun, Schroeder and Strassmann do not consider such a complication in this connection. There can be no question that in contracted pelvis one should do a cesarean section when placenta previa exists—but it is the pelvic distortion which indicates the operation, not the placenta previa. The indications for the cesarean section in placenta previa offer very pertinent hints as to the stand of obstetricians: of twenty-five cases operated on and reported, the professional rank is obtainable of nineteen operators of twenty-two cases; the indications were:

Five general practitioners, one rigid os.

Three gynecologists, one rigid os.

Five surgeons (6 cases), one rigid os; one where the operator knew how to do the section, but did not know the technic of a version.

Six obstetricians (8 cases), all complicated: one rupture of the uterus; one rigid cervix tympani uteri, fibroids; one rigid os with infection; four contracted pelvis; one in which the cesarean was done for contracted pelvis—incidentally in delivering the placenta it was found to be a low lateral previa.

In other words, this operation is done by men not versed in obstetrics; to-day not one obstetrician of repute and of large obstetric experience has countenanced the operation, *per se*: if the operation, to repeat, is done on the indication of a contracted pelvis with the presence of hemorrhage, the hemorrhage did not call forth the indication. When men like Lawson Tait and Deaver, men who stand at the top of their respective specialties, recommend cesarean section for placenta previa, when they candidly admit they know nothing about obstetrics, they stultify themselves and belittle the ideals of medical practice. Tait's says: "I have all my life avoided in every possible way contact with obstetric practice, and for thirty years have had no personal association with it save in occasional consultations." No wonder his placenta previa mortality was 50 per cent., yet he, with statistics such as these, recommended treating by surgical means what should be treated obstetrically.

Surely there were enough obstetricians obtainable in Philadelphia who could have treated the above-mentioned surgeon's case obstetrically and relieved him of the necessity of doing a surgical operation when a version, whose technic he did not know, was indicated. The case cited by Dr. Dudley was an indication for the attending physicians to be up and doing: that only does it suggest. Imagine the outlook for a poor woman after such neglect treated by cesarean section. The time for the section is due before the procrastinating general practitioner wastes valuable time, not after. To analyze the mortality as was done for the indications of the section in previa gives these results:

Five general practitioners: maternal deaths, 40 per cent.; fetal, 60 per cent.

Three gynecologists: maternal deaths, 33 per cent.; fetal, 0 per cent.

Five surgeons (6 cases): maternal deaths, 16 per cent.; fetal, 50 per cent.

Six obstetricians (8 cases): maternal deaths, 12.5 per cent.; fetal, 87.5 per cent.

Two of the obstetricians' cases had non-viable children, the same being true of one of the surgeon's cases. The gross mortality was 5 deaths of 24—20.8 per cent.—fetal, 70.8 per cent.

There are three dangers that confront women with placenta previa—antepartum and intrapartum hemorrhage, postpartum hemorrhage and sepsis, rupture of the uterus and emboli not being considered in this connection. These are of great importance if the woman be treated by section as by operations through the vagina, and more, too; in addition there are two others, hemorrhage from the uterine incision and shock from peritoneal manipulations in the section cases. If cesarean section is forced on the operator he should not stop short of removing the uterus; a Porro, or its modifications, will safeguard the woman against puerperal complications in a great measure. Of the cases reported six recovered, 100 per cent.

DR. F. B. DORSEY, Keokuk, Iowa—Unfortunately, we can not always elect as to the performance of a cesarean section. If it is our privilege to examine patients early in their pregnancy, and we then discover the placenta previa, we have an opportunity to elect what course we will pursue. My personal experience leads me to believe that it is jeopardizing the life of the patient to allow her pregnancy to proceed many days after the discovery of the presence of an abnormal implantation of the placenta. We know that often it is very difficult to effect dilatation of the os, and it is also extremely difficult at times to control the hemorrhage, particularly if we find inertia, and we are very apt to lose our patient. My practice and teaching has been that when we discover placenta previa in the early months of gestation, we are justified in producing an abortion or a premature labor. Of course, if the progress of the pregnancy is advanced to the period when the child is viable, we are justified in electing cesarean section inasmuch as the vast majority of children are lost in the delivery through the vagina. In most cases we must elect to do that which is indicated according to the condition of the patient at the time she presents herself. Often we are called to see a woman in labor who is losing blood, and on examination we find some form of faulty implantation of the placenta. What is there to be done? If we elect to perform a cesarean section the woman may die while we are preparing for the operation. That is not a time for preparation but for immediate action, and the only justifiable procedure to be carried out at that time is podalic version and immediate delivery.

DR. CHARLES J. HASTINGS, Toronto, Canada—I think that the cases of placenta previa that justify cesarean section are very few indeed and are practically limited to primipara with alarming hemorrhage, or evidence that an alarming hemorrhage has occurred, and a rigid os that will barely admit one finger. If there is one thing more than another that these discussions impress on us, it is the lack of ballast in the medical profession. A glance over the past decade will quickly show us the tendency of the pendulum to rapidly swing from one extreme to another. Another point that we must consider is that what would be a rational treatment in hospital practice would not be such in private practice, and the operation should only be undertaken by an experienced operator, and these cases usually demand rapid action. Dr. Dudley cited a very pathetic case, but I did not take the moral from it that he did, that is, that cesarean section should have been done. The moral is that any physician who will leave the house of a patient who is in labor and who has had a hemorrhage where he has diagnosed placenta previa, is guilty of criminal neglect. Had those physicians kept their patient in bed, remained with her and as soon as possible brought down a foot, they would, in all probability, have saved the woman's life. For the benefit of the young practitioner especially I endorse as heartily as I can the statement made by Schroder—that the physician who has the least regard for the life of the infant will have the lowest maternal mortality.

DR. HENRY D. FRY, Washington, D. C.—I performed one cesarean section for placenta previa. The woman did not know that she had been operated on until a week afterward, when I removed some stitches. Her convalescence was normal, as much so as if her labor had been natural. In 1901 I read a paper on placenta previa at the gynecologic meeting in Chicago. At that time I was opposed to cesarean section in any case, because I reported at that time 14 cases of placenta

previa without a single maternal death. Since that time I have had five others, making 19. In the discussion on that paper Dr. DeLee of Chicago reported 25 cases of placenta previa delivered in the natural way with only one death. In another paper which I read later on the same subject, I reported my cases, Dr. DeLee's and Dr. Harris', some seventy odd, with only one death, a mortality of less than 2 per cent. The position I took at that time was that if we could treat this complication with such a low death rate, we had no right to do a cesarean section. Afterward I looked into the matter more carefully, looked up the statistics, wrote another paper and said that I thought there was a limited field for cesarean section. I mentioned that the woman must be a primipara, that the vagina must be small, the cervix undilated and undilatable. With these conditions, and a placenta previa centralis, you have the indications for a cesarean section. Most of the statistics for placenta previa are worthless because they do not mention the variety of placenta previa, a matter of great importance. The death rate in the marginal variety is low, whereas in the central variety it is high; statistics say 20 per cent. What would be the death rate if we performed an elective operation? Not over 5 or 6 per cent., for one which ceases 20 per cent. Dr. Holmes says that a rigid os is a very rare finding in placenta previa. Books on obstetrics tell you that it occurs in 15 per cent. of all cases. I have seen several. I remember one very distinctly. The os was so rigid that I had to begin dilatation with steel instruments, following with rubber dilators of graduated size, and finally my finger. I brought down the foot, and it took five hours of labor pains to dilate the cervix. Much will be said for and against cesarean section in placenta previa, but after a while it will find its proper place. It is really one of the simplest operations and every practitioner ought to be able to do it. Dr. Deaver's case was not one for cesarean section, but for podalic version.

DR. P. E. TRUESDALE, Fall River, Mass.—At no time in the career of the obstetrician does his courage receive such a severe test as when he is brought face to face with a case of placenta previa, almost exsanguinated, with the fetus in the uterus. I had one such case in which I did a cesarean section. The baby died an hour after the operation, but the mother recovered. I reported this case before the Obstetrical Society of Boston in 1903, and was then criticised by some for having performed the operation. Among the statistics quoted favoring the vaginal method of delivery were those of Dr. Fry, and it affords me great pleasure to hear him say now, that there is a limited field for the operation of cesarean section for placenta previa. My case was a multipara eight months pregnant. The os was dilated about the size of a silver quarter. She had had frequent hemorrhages for two months, and after each examination there was a violent hemorrhage. She was an ideal patient for cesarean section: thin abdominal walls, good recuperative powers and good resistance. After transfusing saline solution I operated, and I believe that by saving her the loss of any more blood I saved her life. In all our operations the recovery of the patient depends largely on the amount of shock produced, and this shock is materially in proportion to the amount of blood lost.

DR. I. S. STONE, Washington, D. C.—I believe that Drs. Moran and Fry are doing nearly all the cesarean sections done in Washington. I think what has been done by all the rest of us has never been and, perhaps, never will be reported. Less than a year ago Dr. Fry was not willing to admit that the statistics of placenta previa warranted cesarean section. Not more than two months after that, however, he began to work the question out in his own mind, and then formulated the views which he has announced to-day. I want to take issue with Dr. Harrison. Dr. Moran is not the only man who has been criticised by Dr. Harrison. Some years ago I reported cases before the Virginia Medical Society and was severely criticised by Dr. Harrison, but he found in a little while that the world was moving on, and that he had to change his position. I think no medical question would be discussed properly unless Dr. Harrison waved the flag of con-

servatism. I admire conservatism, but when a gynecologist is sent for in a case requiring cesarean section he is better prepared to do that operation and save the life of both mother and child than by the old-fashioned way of bringing down a leg. With regard to the question of election in surgery: The time was when in a case of appendicitis three-fourths of the profession advocated conservatism. Now we operate in every case. The time was when we waited for a woman with placenta previa to bleed herself almost into the grave before we attempted to do anything. Now we are coming the other way. I realize that there is a place for this operation, and whenever the indications point that way we should not hesitate to undertake it.

DR. JOHN F. MORAN—The three great dangers in placenta previa are hemorrhage, sepsis and rupture of the uterus. To my mind, these three dangers can be met better in complete previa with cesarean section than by any other method of delivery. Although I have not gone into the details of these methods, yet I believe that they have a place; how much remains to be seen. At the present time, however, we can but say that with a rigid os, a small vagina and an aged primipara, cesarean section is indicated, rather than the exposure of the patient to the dangers of sepsis, increased hemorrhage and traumatism, which follow an attempt to deliver by podalic version or any other method. Dr. Harrison certainly did not mean to say that he would use bags in a central placenta previa. If he does, he must perforate the placenta and thereby diminish, if not entirely destroy, the chance of the child. We have two persons to consider, for the unborn child has some rights. As to who should operate, if you want your eye examined you would not go to a gynecologist. You want a competent man. When this paper was written it was not to advocate that it should be done by the general practitioner. A competent obstetrician should be called in to take care of a case of placenta previa, particularly when cesarean section is indicated. There is a field for this operation; whether it will be broadened will depend on future experience. With it we can obviate sepsis, hemorrhage and rupture of the uterus, and we also increase the chances of the child without decreasing the chances of the mother.

PROSTATECTOMY IN GENERAL. ESPECIALLY BY THE PERINEAL ROUTE.*

GEORGE GOODFELLOW, M.D.
SAN FRANCISCO.

Indubitably the sufferer from the effects of prostatic disease, especially hypertrophy, is just now in the "lime-light" of the surgical theater, while around him are grouped the performers, each avidly anxious to assure him that his ails may be bettered, his anguish assuaged by some particular method.

Not so many years ago the catheter was the implement in the surgical armamentarium most relied on to alleviate the almost unendurable pangs experienced day and night by those unfortunates afflicted with the results of prostatic hypertrophy; but in a large proportion of cases the catheter ultimately added to their torments, although temporarily of benefit. Taken usually from some unclean repository, once or oftener during the twenty-four hours, it was thrust into the ailing penis, the patient writhing in agony while the urine was withdrawn from its fleshy environment.

While the question as to the precise method of dealing with hypertrophied prostate is still an exigent one, the answer is rapidly formulating, so swiftly that we can feel confident even now to assure patients that no

longer need they lie "from weary chime to chime," longing for, yet dreading the death that is to release them. That that class of invalids can now be assured of permanent relief is certainly a testimonial to the brilliant work of modern surgeons.

The first systematic operation for the removal of hypertrophied prostate was the suprapubic in the mid 80's, recommended by Belfield and McGill. That passed gradually into desuetude, while divers blind cutting and puncturing methods, to a great extent, took its place. Finally, removal through the perineum came to elicit discussion, provoke opposition, stimulate investigation, and I believe eventually to become the operation of election for all except unusual cases.

The necessity for thorough preliminary examination before operation—as thorough as in all contemplated operations on the individual—is patent, and nothing suggesting itself to the experience of the operator should be neglected.

Palpation, wherever used, as we all know, even to the most skilled, holds an element of uncertainty that should be eliminated by instrumental aids so far as possible without risk to the patient; yet even with finger and instruments in all pelvic troubles, the information gained is many times far from accurate; nevertheless, that should not prevent us from availing ourselves of every aid to diagnosis. But here I must utter a word of caution; instrumentation of the urethra and bladder has been productive of great harm, and the greater experience I gain leads me to say that unless great urgency exists, for explorative purposes, an instrument should not be entered into a virgin bladder. In this I refer especially to the cystoscope and kindred instruments. What tactile dexterity in this condition fails to elucidate an instrument can rarely, if ever, be expected to find.

The indications for prostatectomy lie in the urinary difficulties that by processes of exclusion can be placed nowhere else than in the neck of the bladder; there are no contraindications if the patient's condition is such that any operation would be within the jurisdiction of prudence. Age is no bar—a man of 80 may be potentially younger than a man of 60. Not always, as is the generally accepted idea, is there residual urine with an enlarged prostate; contrariwise, there may be residual urine where the prostate is little if at all enlarged, where the condition that I have elsewhere called "doughnut hypertrophy" or hyperplasia exists; where, when the finger enters the bladder, merely an extremely tight ring of thickened tissue strongly elastic constricts the finger, and from which a very small nodule, if any, can be removed. Operative interference is as urgently demanded in such cases as in those wherein the volume of the prostate has attained palpable and obstructive dimensions.

There is another class of cases usually unappreciable to touch, and not always distinguishable by instruments, wherein may or may not be retained urine, but which cause irritative symptoms, i. e., moderate median lobe hypertrophy, wherein operation is required.

So far as known, the prostate has no physiologic function commensurate with its importance as a pathologic factor. The secretion is presumed to impart motility to and vivify the spermatozoa. I have tried to verify that hypothesis in several patients from whom the gland has been removed, but without success; the length of time intervening between the emission and examination making the latter futile.

The moot question as to whether the prostate has a

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee; Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

The joints of the lower extremities finally became painful and other signs observed that induced a course of K. I., 30 grains every two hours. In two weeks the wound closed, the patient was up, and in six weeks after the operation he left the hospital feeling and acting well.

CASE 2.—Referred by Dr. DeVecchi. Male, Italian, 66; married. Eight children; all healthy but neurotic. For many weeks preceding had been having hematuria constantly, with symptoms of obstruction at vesical neck; residual urine, catheter used every four hours or oftener. Both epididymes enlarged and fluctuating, skin over them discolored. No temperature. Although venereal infection was denied, some scars in each inguinal region and the condition of the testicles led to specific treatment, with the result of inducing rapid subsidence of all symptoms and apparent recovery. The testicular swellings were incised and a grumous fluid discharged from each. The first impression given was that of sarcoma of prostate and testicles.

CASE 3.—Male, 68. Usual symptoms of prostatic obstruction with hematuria. Prostate enlarged. Residual urine, 6 to 8 ounces. Denied venereal history, but cicatrices in groins, a tumor on scapula, with other minor evidences, caused him to be placed on specific treatment. The enlargement both of the scapula and of the prostate disappeared, control of the bladder was regained and when last heard from he was enjoying as good health as any man of his years.

Syphilis of the prostate is an unusual form of prostatic trouble, concerning which little has been written. Careful search through the literature on prostatic disease has failed to bring to light any mention of syphilitic affections of that organ, and I shall be pleased if any of my readers can direct me to publications wherein is mention of such complication. French, German and English periodicals and text-books covering the past ten years have been unavailingly investigated. Objection may be made that the diagnosis was not accurate or precise. The criticism is a good one, to which only one reply can be made; that the test of treatment is the only test of the nature of the malady. If pronounced symptoms of cerebral tumor are present and a course of specific medication is followed, by virtual recovery, it is assumed, however unjustly, that the cause of the trouble primarily was syphilis. Likewise with other obscure pathologic manifestations of that disease, the protean forms of which are as the sands of the sea; if in doubt, specific treatment is tried; if the result be favorable, the presumptive accuracy of our guess is assumed, as demonstrated.

One only of these cases being operated on, no specimens are available for examination. In that one the specimen was lost. The patient died some months later from some cerebral difficulty, presumably apoplexy. The other two remain in good health, with control of urinary functions. Perceptible enlargement of the prostate remains, but with no residual urine. They have continued the treatment intermittently to the present time.

The history of the foregoing cases compels the query: Are not a larger proportion of enlarged prostates than heretofore supposed sequelæ of syphilis? The term sequel is here used as suggested by Hutchinson, who looked on all tertiary manifestations of syphilis as sequelæ and not complications, a view with which I agree. Obviously immutable certainty of diagnosis is not assured, because enlargements disappear under iodids, but as said, such result makes strong testimony amounting almost to evidence.

PROSTATECTOMY.

IS IT WISE TO TRY TO MAKE ANY ONE OPERATIVE METHOD APPLY TO ALL CASES?*

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The excellent results which follow the radical removal of obstructing prostatic hypertrophy have caused the profession as a body to change its position of skepticism, or I might say almost open hostility toward the radical operation, to one of lukewarm favor. Before the time of McGill's operative work a surgeon called in one of these cases had nothing to suggest aside from the catheter. After that time, however, it becoming more or less generally known that operative surgery at the hands of a few pioneers had effected cures in these cases, a surgeon in consultation no longer felt safe in confining his discussion entirely to the catheter. He had to bring up the subject of radical operation, if only to condemn it, so far as that particular case was concerned. Next in order came the various surgical makeshifts devised to get around the troublesome subject of radical operation. Beside being easy of surgical accomplishment, it was hoped by their originators that thereby relief, with a less degree of mortality, would be attained. Most of these makeshifts have already passed, or are now fast passing into oblivion, and this has been due to two causes: (1) The unsatisfactory results attending them; and (2) the increasingly better results following prostatectomy at skilled hands. All this has made it evident to thoughtful surgeons interested in this particular, that the time has come to study and to master the operative problem and no longer to try to get around it or to discredit it. The operative problem includes the following points: The removal of the prostatic obstruction, the avoidance of mishaps and subsequent surgical complications, the complete restoration of the vesical function, and the preservation or improvement of the sexual function. At the present time most writers on the subject concern themselves with little aside from the operative removal of the obstruction; and in this connection also there is a strong tendency shown for each writer to advocate some special and exact operative procedure which he advises adopted in all cases, other methods of operation to accomplish the same purpose being either condemned or ignored.

All prostatectomies can be grouped under three headings: (1) Where the hypertrophy is removed through the employment of a suprapubic cystotomy; (2) where it is removed through the employment of a perineal cystotomy; and (3) where it is extracted along the path of a perineal dissection, the aim of which is to avoid opening the urinary tract or the rectum.

So far as the mere accomplishment of the removal is concerned, I think I am safe in saying that I can do it in any case through the employment of any one of the three general methods. If I should, however, undertake to use one method for all cases, I should feel that I was violating an important principle of surgery, in that I had neglected in each particular instance to consider the choice of operative method; and I also feel certain should I do so that my record of mortality would be much greater than it is. In making the above statement I do not wish it to be inferred that I should

Opium Smokers in the United States.—Opium smoking is not so purely an oriental vice as is generally supposed. It is estimated that there are at least 1,000,000 opium smokers in the United States.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

not expect to invite surgical mishap in connection with my prostatectomies should I, for instance, try to remove obstruction in all instances by the third method. For, take a case as illustration wherein the prostatic hypertrophy is surrounded by old inflammatory adhesions which bind an attenuated bladder wall firmly to that structure. In such a case it would be impossible to radically remove the obstruction extravesically without at the same time opening the bladder at least by a rent, and in all probability by tearing away a piece. The third method of operation will, in my opinion, never become the one generally employed. In order to explain why I hold that opinion I will enumerate the class of cases in which I consider it contraindicated, together with my reasons for so thinking.

The operation requires for its accomplishment more time, on the average, than the other procedures. With many elderly and feeble individuals the time spent on the operating table is an important element. It should be for such as short as possible. The danger of meeting with the surgical mishap of tearing the urethra and bladder is great, as has already been mentioned, except, perhaps, in hypertrophies uncomplicated by an inflammatory element, which practically means hypertrophies which admit of easy enucleation. There is no way in which a surgeon can positively determine beforehand that in a given case a condition susceptible of easy enucleation will be encountered. In quite a number of the cases reported wherein this method has been employed the rectal wall has been torn during the operative procedure, an accident which threatens to establish rectovesical fistula. In order to combat these surgical objections, some advocates of this method have begun to advise that it be employed only as a partial operation, or in other words, that the attempt should be made through it to remove only a portion of the hypertrophy, the operator avoiding the part lying too near the urethra, bladder or rectum. The fatal objections to such an operation are that it would only partially relieve a patient of his vesical obstructive symptoms, and would, in all probability, only temporarily effect even that much relief. This operation does not provide vesical drainage, and so is contraindicated in all cases wherein complications of the urinary tract have resulted from prostatic obstruction, conditions which require for their cure vesical drainage and rest. Such complications are purulent cystitis, urethritis, generally associated with dilatation of the canal, pyelitis, bacillary nephritis and the lesions of the bladder wall induced by long-continued overdistension or resistance to obstruction, such as atony, diverticula and ulcerations. It will be seen that the above enumeration excludes practically all of the complicated and severe instances of prostatic obstruction.

The second method, which relates to prostatectomy through the medium of a perineal cystotomy, has, at the present time, the greatest number of advocates. It is a very feasible operation, and one that I am constantly employing. I must say, however, that I do not use it to-day on as large a percentage of cases as last year or the year before. In connection with the operation itself, I feel that much that has been written lately regarding it serves only to make the procedure seem complicated and to mislead the reader. In the first place, if the thighs of the patient are sufficiently flexed, there is no need of a complicated perineal dissection extending laterally to either side of the median raphe, such as so many writers have described, all that

is necessary being a small median incision which enters the perineum just above the rectal sphincter and which extends above the rectal wall to the prostatic urethra. The tissues in this region are very elastic, consequently this narrow incision can be dilated sufficiently for purposes of extraction. It dilates, in fact, much as does the vagina at childbirth. In the clinic I have frequently called attention not only to this fact, but also to the similarity in instrumental manipulation between the forceps extraction of the baby and of the prostatic hypertrophy. In this form of operation, if the prostatic mass is found to be too large to admit of easy extraction, it should be broken into two or more pieces.

It is urged against this method of operation that the incision I have described does not allow the operator to see the prostatic obstruction and to detach it under the guidance of his eye. It surely does not; neither do I use my eyes in the accomplishment of detachment or of enucleation. I use that which is much surer and much better in this particular, my sense of touch. With my trained finger I can map out the hypertrophy and separate it from its attachments to the bladder and seminal vesicles without in most instances inflicting injury on either of those organs. In some instances, where I have found great difficulty in separating the hypertrophy from the bladder, I have thought best to abandon the attempt by the perineal route, completing the operation by suprapubic cystotomy; but this subject I will mention later.

Perineal prostatectomy by this method, when thoroughly performed, as it should be, radically removes all obstruction, and leaves the patient able, easily and voluntarily, to completely empty his bladder. Convalescence from this operation—by that I mean the time in hospital—averages some days, though considerably less than a week shorter than after the suprapubic operation. If a prostatic has a good expulsive force to his bladder, I am inclined, in most instances, to advocate prostatectomy through perineal cystotomy. Bladders which have their expulsive force represent those whose walls are normal, and those whose walls are thickened and strong through muscular hypertrophy which has been developed to overcome a slowly progressive state of prostatic obstruction. The size of the hypertrophy does not, as a rule, influence me. If, however, the prostatic hypertrophy lies surrounded by a mass of dense tissue, the result of repeated attacks of inflammation, I might then, especially if I were in any doubt as to the strength of the bladder walls, decide against the perineal operation.

In cases complicated with very foul cystitis, associated with attacks of vesical hemorrhage and phosphatic calculus formation, I should decide against the perineal operation, as I should then consider a suprapubic vesical opening necessary, as well as the perineal one, in order to secure for the bladder the requisite degree of rest and drainage. The same reasoning would likewise decide me in cases where the renal pelvis and structure had become secondarily involved to any marked degree. The reason why I should decide against the perineal operation in cases where the bladder wall is lacking in expulsive force, lies in the danger which such a patient so operated on runs should much blood clot accumulate in the bladder after the operation; for if, under such conditions, blood clot accumulates, the bladder has no force to expel it, the perineal tube becomes blocked, the continuance of bleeding is then encouraged by the incessant though ineffectual tenesmus which the lack of drainage encourages, urine accumulates behind the blood clot, and overdistension of the

bladder results. In such a contingency artificial suction through the perineal tube or removal of the tube and of some of the clot by means of forceps may result in effectual relief; still, in my experience, the safest method of remedying such a complication is by immediately opening the bladder suprapubically, emptying it of clot and establishing counter-drainage in that part.

Not long since I lost a case from this accident which, owing to its interest, I will briefly detail. The case was an old prostatic, whose bladder was atonic and diverticulated. The cystoscope showed the ureteral orifices dilated sufficiently to admit the tip of the little finger. This state of affairs, to my mind, contraindicated perineal prostatectomy. The patient refused to take an anesthetic, but was willing to have an operation under spinal cocainein. He had chronic bronchitis, and that, of course, favored the cocaine. I did the perineal operation without difficulty. Six hours after operation his bladder filled with clot, causing much tenesmus. The hospital staff succeeded after a time in freeing the bladder by removing the tube and extracting clot so that perineal drainage was re-established. The patient gradually developed uremic symptoms, together with tenderness over the right kidney. At the end of two weeks, the patient gradually getting worse and the tenderness over the right kidney increasing, I performed nephrotomy, and on opening the renal pelvis found it packed with old decomposing and partially deliquescent blood clot. Aside from some dilatation, the mucous lining of the pelvis did not show lesions, and as the patient had never in his previous history had renal hemorrhage, I was forced to the conclusion that the blood clot I found there was made up of a bloody reflux from the bladder along the dilated ureter, which had occurred at the time of the vesical hemorrhage just subsequent to his operation. Had a suprapubic vesical vent been left in the case at the time of operation, I have no doubt recovery would have followed.

In the performance of my suprapubic prostatectomies, it is my practice to leave a perineal as well as a suprapubic vesical vent, in order to establish perfectly free drainage. On numerous occasions wherein I have been in some doubt as to choice of operation, I have first made my usual perineal opening, through which I have inserted my finger, in order, by means of the sense of touch, to more exactly study existing conditions. If, after such study, I have decided against extraction of the prostate through the perineal incision, I have then done my customary suprapubic operation, using the perineal incision for drainage purposes only. Should I find, owing, perhaps, to dense adhesions, that I could not complete the enucleation of a prostatic hypertrophy through the perineum without resorting to a degree of traction or force greater than might be safe for the patient, it is also a simple matter to abandon that operation, leaving its incision for vesical drainage only, and complete the extraction by the suprapubic route.

Suprapubic prostatectomy I consider the operation of choice in practically all cases which do not fulfill the requirements I have enumerated for the perineal operation. In the majority of instances in which I choose that operation, I really employ it chiefly for its suprapubic vesical vent, a feature of so much importance where the freest urine drainage and the greatest vesical rest is necessary. In other words, it is the method of choice in advanced cases of prostatic disease, complicated by the resulting lesions of the urinary tract.

There is also little danger of injuring the sexual apparatus in the performance of this operation. Yet the majority of surgeons at present are inclined to condemn it as operatively dangerous, for the good reason, apparently, that much mortality can be attached to it. Still, if certain rules are observed in the performance of this operation, if the incision is properly sutured and drained, and if the surgical supervision of the after-treatment is efficient, the suprapubic operation should in itself give no extra mortality.

I first published my operation relating to suprapubic enucleation of prostatic hypertrophy in June, 1895,¹ so it is not here necessary to reiterate it in detail. It is the same operation in everything essential that Freyer two years or so ago published as his own. The gentleman's attention was, however, called to that fact at the time by signed communications, which several English surgeons as well as myself published.

My experience to date with prostatectomy is somewhat over 300 cases. I feel that if cases complicated with very marked uremia are excluded, I can operate with an average risk to the patient of not more and probably under 5 per cent. Death from the operation itself is practically *nil*.

CONCLUSIONS.

I wish, in conclusion, to enter a protest against classing as true prostatectomy, or at least prostatectomy as the profession understands it, which relates to senile hypertrophy only, cases of middle-aged or even younger men seemingly from their histories, to represent simply inflammatory effusions in connection with the prostate or its periphery. Some time since a report came to my notice which seemed to merit this objection. In it the remark was made that the finding of any hypertrophy which could be enucleated was very unusual. Hypertrophies which can be enucleated do not exist in connection with simple inflammations.

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DISCUSSION

ON PAPERS BY DRs. SYMS,* GOODFELLOW AND FULLER.

DR. ORVILLE HORWITZ, Philadelphia—An unusual opportunity to study a large number of cases of senile hypertrophy of the prostate gland during the past two years has convinced me of two facts. First: The danger to the patient commences as soon as it becomes necessary to resort to the daily use of the catheter. A radical operation performed as soon as the symptoms of obstruction begin to appear, with the low mortality which attends such cases, offers the individual a better chance for health, comfort and prolongation of life than the unfortunate patient who leads a catheter life. Second: A routine method is not applicable to the treatment of prostatic hypertrophy. Every case is a law unto itself, and the treatment will depend on the various conditions treated in each individual case. The earlier the operation is performed, the less is apt to be the mortality. It will be found that the mortality of 6 per cent. is usually obtained in those patients who are operated on at the outset of the prostatic obstruction; between 15 and 16 per cent. The Bottini operation is of real surgical merit. Accumulated evidence shows that in suitable cases it is capable of giving better results than cutting operations with much less danger to life, and therefore should always be resorted to in cases suitable for its employment. My experience with this method of treatment is based on 99 cases with 3 deaths, 86 per cent. of cures, 10 per cent. unimproved. In 1892 I tabulated 886 Bottini operations

1. Jour. of Cut. and Genito-Urinary Dis., N. Y., and later in my book, Diseases of the Genito-Urinary System, The Macmillan Co.

* The paper by Dr. Parker Syms appeared in THE JOURNAL November 5.

by 48 operators. Of this number of operations, 84.3 per cent. were cured or improved, the mortality being 5.7 per cent. The genitourinary surgeon who desires to maintain his position in the front rank of the profession can no longer afford to treat this operation in a contemptuous manner and refuse to acquire the skill which is necessary in order to perform it. This operation is indicated principally in those cases in which there is a contracture of the neck of the bladder, associated with a thickening of the prostatic isthmus joining the lateral lobes. Prostatectomy is as much the subject of controversy as is the Botini operation. My experience with this method of operating is 9 complete suprapubic prostatectomies with 2 deaths; 7 partial suprapubic prostatectomies, with 1 death; 39 perineal prostatectomies with 6 deaths. In the latter series of cases, two were unimproved, two had dribbling of urine, and in one a recto-urethral fistula formed.

Those who advocate some one of the various methods of operating by means of an extensive dissection of the perineum claim that so performed the operator can see to perform the various steps of the operation, and the bleeding vessels can be seen and ligated. Unfortunately, the advantages just enumerated are more theoretical than practical. Special instruments are required; the extensive dissection necessary in order that the various steps of the operation may be seen, occupies a much longer time than where the median perineal incision is employed; more blood is lost, the shock is greater and the anesthetic prolonged; the danger of wounding the rectum enhanced. When we take into consideration the fact that the individuals requiring prostatectomy are usually advanced in years, it becomes evident at once that the lowest mortality will be found on the side of the surgeon who adopts the median incision in preference to the extensive dissection. That the danger of the formation of a recto-urethral fistula in those cases in which an extensive dissection of the perineal tissues is made is a real one, at once becomes apparent on consulting the recent literature of the subject, where it will be found that this unfortunate accident has occurred in quite a large number of cases. Ninety-five per cent. of cases of hypertrophy of the prostate gland can be reached by median perineal incision. I have never found it necessary to employ either the inverted Y or the transverse perineal incision. The gland can be excoculated, as a rule, by means of the index finger, in from seven to fifteen minutes with little or no loss of blood and with slight shock. The only instruments required for the operation are a scalpel, grooved urethral staff, half a dozen hemostatic forceps, a small pair of laparotomy forceps, a pair of scissors and a uterine dilator. It has been found that after the membranous urethra has been opened, if a uterine dilator is inserted into the prostatic portion of the canal and the parts thoroughly dilated, this relaxes the anterior leaflet of the triangular ligament, thus permitting the gland to be brought well down into the wound so that it is easily accessible and can be readily enucleated. A perineal prostatectomy is best suited for those cases where the enlargement of the lateral lobes has a tendency to progress towards the rectum or obstruct the urethra. When the growth projects well back into the bladder, a suprapubic prostatectomy is the operation of choice. It is claimed that it is impossible to remove a small fibrous prostate without dissecting away almost the entire prostatic urethra, and I have found this necessary on five occasions; in every instance recovery was uninterrupted and a new urethra was formed without difficulty. It has recently been claimed by some surgeons, that when performing perineal prostatectomy, if the technic suggested by them be adopted, the gland can be enucleated without injury to the ejaculatory ducts. This is cited as one of the great advantages of selecting the perineal route. Curiously enough, Fryer makes the same claim for his suprapubic method of excoculation. It is stated that injury to the ejaculatory ducts gives rise not only to sterility, but impotence. This last condition is the most important one to avoid.

DR. ROBERT H. M. DAWBARN, New York City—Where we can spare the patient an additional week we should do so. If we can determine that there is a stone and remove it, then

I approve of Dr. Syms' instrument. I used it once and it burst in the bladder. I have not tried it with the canvas lining which he now uses. Where one does not think there is a stone or sacculation I advise the method I have used in 3 cases with recovery. It is simply a distention of the bladder used as Dr. Kean advises in suprapubic cystotomy. The bladder may be dilated by passing a catheter into the urethra. The urethra may be constricted and the bladder distended until the latter can be felt in the abdomen, the patient being in a sitting position. This position suffices to make the bladder firm, and without difficulty the prostate gland may be dissected out, the patient subsequently urinating without any need of an instrument in the perineum.

DR. JOHN C. MUNRO, Boston—Dr. Bottomley and I have done only 36 of these operations and have used mainly the method of operating in two stages, because most of the cases that have come to us seem too ill for us to complete the operation at one step. We open the bladder over the pubes and drain for a few days, until the urine clears up, then enucleate through a median incision in the perineum. Of the 36 cases, 3 were carcinoma, one patient died, but not of the operation. Of the benign cases one man died of suppression during convalescence. I believe in some of the cases of foul bladders that come to us it is the part of caution to do the operation in two stages rather than to undertake the entire operation at one sitting. Dr. Young's operation has proven an immense step in advance and I shall adopt it in suitable cases at once.

DR. MARTIN B. TINKER, Ithaca, N. Y.—To save these very feeble, old patients the danger of general anesthesia. I have adopted local anesthesia, using infiltration of the nerves supplying the parts in conjunction with the massive infiltration method of Matas. I employ eucaïn B, 1 to 500, and adrenalin, 1 to 120,000. From a large number of dissections I found that the entire perineum is supplied mainly by two nerves, the pudic and the long pudendal. In these very thin old men it is not usually difficult to strike the nerves approximately with a long hypodermic needle. The adrenalin reduces bleeding to almost nothing, prevents absorption and thus lessens the danger of poisoning from eucaïn. In a perineal prostatectomy recently performed by this method the patient's only complaint was of the cramped position on the operating table. The very small amount of blood lost and the use of local instead of general anesthesia often makes the difference between life and death for these very feeble old men.

DR. D. N. EISENDRATH, Chicago—I believe that it is of the utmost importance to know whether a cystitis is present at the time of operation, and I am greatly interested to know what proportion of the cases reported had an advanced cystitis at the time of operation, and also what percentage was followed by a permanent perineal fistula. One of my own deaths following prostatectomy was due to a septic condition of the perineal wound and a phlegmon in the prevesical space resulting in a severe intoxication and death from urosepsis. In this case the patient had a severe cystitis, with marked ammoniacal odor of the urine. Unfortunately, the case was not seen by me until two days before the time set for the operation, which latter it was impossible to postpone on account of other reasons. I believe that in such cases, especially in men above the age of 60, it would be far better to drain the bladder for some weeks prior to an operation through a suprapubic opening.

DR. HUGH H. YOUNG, Baltimore—Drs. Syms and Goodfellow pretended to have a holy fear of "the big dissecting operation" which they say I do. One glance at the description and the plates of my article in *THE JOURNAL*, Oct. 26, 1903, will show that no important structures are injured and that the entire exposure of the prostate is by incising the skin and dividing the central tendon and the insignificant recto-urethralis muscle beneath it in the median line—(both of which are necessarily severed in all perineal exposures of the prostate) the remainder of the procedure is done by blunt dissection with the forefingers. The levator ani muscles and other important structures are merely separated and held apart by retractors so that no more injury (and perhaps less) is done than in those blind opera-

tions done by touch alone. Why these gentlemen should prefer darkness to light and object to a technic carried out under full visual control is incomprehensible. There was a time when the subcutaneous ligature of varicocele and of hernia and of fractured patella were considered ideal procedures, and other forms of blind surgery were much in vogue, but who to-day would countenance such procedures? The same rule would seem to hold good with the prostate and, in my opinion, the near future will see the surgery of the prostate on the same rational basis of careful technic under visual inspection as that of other parts of the body. Who to-day would merely amputate the breast for carcinoma for fear of the time consumed in a modern, careful dissecting operation? The much vaunted difference of time consumed in our methods of prostatectomy does not count for much in view of the absence of mortality in my 50 cases and its presence in theirs. In fact, one can easily employ careful, intelligent technic, seeing what he is doing and still not consume more than 10 or 12 minutes in exposing and removing the prostatic lobes; and when the operation is finished he has the satisfaction of feeling that he has done no unnecessary mutilation. The presence of mortality (two deaths each in the list of Syms and Goodfellow) shows that there is no excuse for the desire to tear out the prostate as rapidly as possible, blindly and without regard to such innocent but important structures as the prostatic urethra and the ejaculatory ducts, both of which are in no way concerned in the obstruction to urination.

DR. PARKER SYMS—There were 78 cases reported by Goodfellow, 58 by Young and 33 by myself, being a total of 169 cases, with only 4 deaths. This certainly speaks well for perineal prostatectomy, showing as it does a mortality of only 2.33 per cent. Especially is this true when we consider that perineal prostatectomy is not a half way procedure, for it removes the whole trouble. The practical question as to operating in two stages is very important. Among my own cases I have resorted to this procedure in several instances. It has not always been on account of local conditions present, but usually on account of the patient's lack of strength and vitality. In some instances it has been resorted to when patients have been brought to the hospital with complete retention and with complete obstruction to the introduction of the catheter or with false passages, which had been made by attempts at catheterization before the patient came to the hospital. Under such circumstances I do not allow the patients to even await my arrival, but I have my assistant do an external perineal urethrotomy at once, and a few days later I remove the prostate through the original wound.

DR. GEORGE GOODFELLOW—The external incision, or the extent thereof, whether it be an inverted Y, cruciform, or sigmoid, is of little importance, it is the subsequent dissection that counts. Dr. Young thinks we have not studied the question of impotence sufficiently, and this may be true. However, there is no patient on whom I have operated that I have not carefully questioned concerning his sexual powers, and all say they have power, but it is probable that pride of occupation leads them to make statements inconsistent with actual phenomena. I have had two temporary, but no permanent, perineal fistulae, but no rectal fistulae. Spinal anesthesia has been used exclusively of late.

DR. EUGENE FULLER—I think there is a great deal in what Dr. Young has said about the sexual function. I do not think sufficient general attention has been paid to this matter. I have always operated to avoid injury to these parts, and if one is careful it is rarely necessary to injure the sexual apparatus. How many patients are able to procreate after prostatectomy I do not know. Most men are through raising families by that time. As to the cystoscope, I do not condemn it nor put much stress on it, but it may at times be a good preliminary to the operation. I was somewhat surprised at Dr. Syms' philippic against the suprapubic operation. It hardly seems to me that a person can condemn the operation as he does if he knows anything at all about it. If one has not mastered the operation, results are naturally bad. One must be able to do suprapubic work at the present time if he is doing serious

genitourinary surgery. As to the troublesome cystitis following prostatectomy, there should not be any, provided there is good drainage. No phosphatic decomposition must be allowed to occur.

ERYTHEMA NODOSUM.*

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Erythema nodosum is a disease of childhood which is of interest to the dermatologist as well as to the practitioner who treats sick children. The disease was first termed erythema nodosum by the French physician, Robert Willan. In his text-book on "Diseases of the Skin and Their Treatment," which appeared in the year 1799, the foregoing name is applied to this disease. The older authors, however, paid little heed to the constitutional symptoms which were present; they were more particularly concerned about the lesion of the skin. They believed that this was a variety of the erythema group. Trousseau pointed out that erythema nodosum differed from the general erythema group in its form, location and in its clinical course. Modern dermatologists differ among themselves as to the relation of erythema multiforme and erythema nodosum; for example, Lesser believes that the two are to be distinctly separated. In the same manner Jarisch, writing in the Nothnagel system, separates the two diseases. On the other hand, Joseph of Berlin does not believe that the two varieties can be separated; he believes that both symptom groups may occur combined in a single individual.

THE ETIOLOGY OF THE DISEASE.

The disease should be classified as one of the exanthematous fevers, on account of the typical course, the prodromata and complications; among the latter may be mentioned conjunctivitis, pharyngitis, joint lesions and, more rarely, endocarditis or pericarditis. Lewin, who conceded the foregoing facts, was nevertheless inclined to believe that the disease occurred on an angioneurotic basis. When the severe constitutional symptoms, the persistently high temperature and the complications just mentioned are considered, one is inclined to the first-mentioned view. Finger, who made a special investigation of this disease, came to the conclusion that it was the expression of a septic process; he found from histologic studies that, aside from localized edema, round-cell infiltration occurred in the cutis, and streptococci were present in the inflammatory tissue. The disease is particularly liable to attack anemic, debilitated or scrofulous children, though perfectly normal and healthy children are not immune. The disease may occur after one of the infectious diseases, or after rheumatism or malaria, or it may occur in the midst of perfect health.

THE CLINICAL COURSE.

The patients are for the most part children from the second to the fourteenth year. The disease usually begins with vague pains, gastrointestinal disturbances and fever. The temperature is usually continuous; the disease rarely runs its course without some fever. The fever in some cases is remittent, usually falls by lysis, and lasts, as a rule, from two to seven days; in the relapsing cases it may last two to three weeks. After several days of vague pains about the joints, especially of the lower

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

extremity, and some pain and tenderness over the tibia, the eruption makes its appearance; it occurs in the form of node-like swellings. It is most frequently located on the shinbones, though in some cases it occurs on the dorsal surfaces of the feet, on the forearms and on the thighs; it rarely occurs on the tongue and on the face. The lesions are usually distributed symmetrically, and come out in crops of two or three at a time, or a large number may appear at once.

The swellings are usually round or somewhat oval—a long axis, corresponding to the axis of the limb. They vary in size from a walnut to a hen's egg. These nodules are not distinctly circumscribed; that is, they have no well-defined border. Two or more nodules never coalesce to form a larger one; they tend to merge gradually into the surrounding skin; the swellings are tense and firm, at first painful and tender to touch; they do not cause itching, nor do they tend to suppurate. They are of a bright red color; the skin over the surrounding area is swollen and tense; the red nodule itself is glossy, as though it had been polished. In the majority of cases the nodes disappear in from eight to fourteen days, though the duration of the disease varies according to the intensity of the eruption. Sometimes the disease is terminated by a single crop of nodes in a very few days; in other cases, the repeated occurrence of the eruption in succeeding crops, prolongs the disease, so that it may last three, four or even eight weeks.

It has been maintained that erythema nodosum is in a sense infectious. Moussons¹ observed that a child who was admitted with erythema nodosum seemed to infect another child in an adjoining bed in a hospital ward. Heim² reported that a child who fell sick with erythema nodosum seemed to communicate the disease to a little sister, in whom the usual symptoms developed.

THE ASSOCIATION OF ERYTHEMA NODOSUM WITH OTHER DISEASES.

In the seventeenth and eighteenth centuries many of the writers considered rheumatism the cause of erythema nodosum. Among others, Sydenham, Boerhave, Andraen and Sauvages spoke of an exanthematous arthritis. One of the writers, Piffard, believed that the retrograde products of metabolism, such as uric acid, oxalic acid, kreatin and kreatinin, were excreted through the skin and caused disturbance in this localization. Clinical observations do not confirm the rheumatic views of the older writers concerning this disease. It is true that these patients complained of arthritic pains, but that does not necessarily signify that they are rheumatic in character. Joint pains are common in other infectious diseases, as, for example, scarlet fever, measles, typhoid, also in scurvy.

Stephen Mackenzie,³ quoted by Cheadle, records 108 cases of erythema nodosum. In two of the cases endocarditis occurred with the eruption, without joint affection. Cheadle, however, continues to believe that erythema nodosum is of rheumatic origin in many cases. To prove this, he points out the tendency of the erythema nodosum to occur in young girls who are most liable to rheumatic arthritis, as well as to endocarditis and chorea; he believes that this is in agreement with a view of its rheumatic nature. Later on he says: "The fact that erythema occurs in cholera and septicemia, as the result of some form of toxic absorption, would lead me to believe that erythema depended on the ex-

istence of some irritant matter which is in circulation, acting either directly or by reflection on the skin."

The pains which occur during the prodromal stage, and during the height of the disease, are readily explained by the infiltration and inflammation in the skin.

HEART LESIONS.

A more frequent complication than rheumatism is endocarditis in association with erythema nodosum. The endocardium, pericardium and myocardium may be involved; that is, heart lesions need not necessarily be looked on as rheumatic inflammations; they may be considered infectious in nature, depending on the same cause which produces the erythema nodosum.

THE RELATION OF ERYTHEMA NODOSUM TO TUBERCULOSIS.

In one of my own cases, the history of which is given in this paper, a seven-year-old boy developed tubercular meningitis after an attack of erythema nodosum. In 1872 Uffelmann observed several children who, after having suffered from erythema nodosum, were attacked with general tuberculosis and died. It is true that clinicians of wide experience with this disease claim never to have seen a tubercular complication or sequela, notably among whom may be mentioned Baginsky, Bohn and Pfeiffer. Philip Kuhn,⁴ who had opportunity to study 22 cases of erythema nodosum, found that eight children—that is, 36 per cent.—came from families in whom a tubercular history could be obtained, though he remarks that these figures would not permit him to conclude that tuberculosis was causally connected with erythema nodosum, because tuberculosis is very prevalent in Berlin, and it occurs many times without erythema nodosum. One of Kuhn's patients died of tubercular meningitis six weeks after the erythema. Another little fellow developed tubercular pleurisy three months after an attack of this skin affection. Kuhn concluded, however, that, because tuberculosis followed erythema nodosum in two cases out of 22, it is not proof sufficient to justify the belief that erythema nodosum is concerned in the production of tuberculosis. He goes on to say that it has been conceded by clinicians that erythema nodosum is an infectious disease.

Other infectious diseases, like measles and whooping-cough, frequently prepare a soil for tubercular infections, particularly the miliary type. Perhaps the erythema nodosum acts in the same way. The indisputable fact remains that in some cases, after longer or shorter period, erythema nodosum has been followed by symptoms of tubercular infection.

Erythema nodosum has been noted during an attack of scarlet fever, in a child 3 years of age. It has also been noted as a complication of measles, the erythema occurring four weeks after the measles disappeared. Moncorvo has seen the disease follow malaria. It is to be particularly noted that in quite a number of the reported cases sore throat has preceded by several days the development of the disease. In one of my own cases this course was observed.

COMPLICATIONS.

The question of heart disease and tuberculosis has already been discussed. Curschmann observed hemorrhagic nephritis; Lewin reported neuralgias; Quinke has reported cases of bilateral paralysis of the perineal nerves in a case of erythema nodosum. Multiple neuritis, involving the cranial nerves and those of the ex-

1. Arch. de Med. des Enfants.

2. Med.-Chir. Presse, 1902.

3. Lectures on the Practice of Medicine.

4. Archiv für Kinderheilkunde, 1903.

termitics, has been reported by Baumber. Psychoses in the form of mania and melancholia have been described by Jolly. Most children suffer from anemia after the disappearance of the disease.

HISTORIES OF CASES.

CASE 1.—James H., aged 7 years, was brought into my service at the County Hospital from St. Joseph's Orphans' Home; admitted on Nov. 27, 1903.

History.—Mother dead, cause unknown; father and one brother are alive. The patient is said to have had typhoid fever and pneumonia during the past summer.

Present Illness.—The little fellow took sick five days previous. The disease started with fever, headache, nausea and anorexia, pains in the legs, followed later by swelling and redness. On entering the hospital he reported that the swelling was increasing steadily, and that the pains in his legs persisted. He complains at present of swelling and tenderness and some pain in both legs, also a slight cough. His appetite is good, bowels are regular, he sleeps well, sight and hearing normal. The little fellow is small for 7 years of age; looks poorly nourished; seems bright mentally.

Examination.—Examination of the head, face and thorax was negative; the examination of the abdomen showed the spleen somewhat enlarged; liver negative; on the anterior surface of both legs were from seven to ten raised, red, tender areas; they were firm in consistency, painful on pressure, irregular in shape, not well circumscribed, some the size of a half dollar and considerably raised. Other nodes were scarcely raised at all; one, over the tibia of the left leg, was the largest of all, though it did not differ in general appearance from those already described. On the external surface of the right arm were two round, red nodes, the size of a nickel; they were not elevated, though the surrounding skin was infiltrated, and the nodes themselves tender to the touch. For three days after his admission, however, the temperature increased, he complained of not feeling well, and in a very short time new eruptions were observed over the extensor surface on the upper and also on the lower extremities. A few eruptions also occurred on the flexor surface of the legs. The anterior tibial surfaces of both legs showed considerable swelling and glossiness of the skin, and the nodes themselves continued tender. The urinary examination showed a trace of albumin and a few hyaline casts. Widal examination was negative; there were 11,000 leucocytes per cm. The patient was discharged on Dec. 18, 1903, somewhat anemic, though fully recovered from his disease. The Orphans' Home reports at this writing, May 24, 1904, that the little fellow has been perfectly well since his discharge from the hospital; he has had no return of the disorder and has improved in general health.

CASE 2.—Frank C., aged 5½ years, was brought into my office by his mother, after having been sick for three or four days.

History.—The mother gave the following history: The patient is the second child. Her little girl, three years older, is not robust in health, though she does not suffer from any chronic disease; the father and mother are both healthy; the little patient suffered from measles one year ago and had a sharp attack of lobar pneumonia when he was two years old. For three or four days before he came to see me he complained greatly of pains in the legs, difficulty of walking, fever, chilliness and headache.

Examination.—Examination showed that the little fellow was intensely pale, his pulse rapid, temperature 101, and he seemed exhausted; examination of the heart, lungs and abdomen was negative. On his legs, over the tibia, were noted several well-defined, red, infiltrated nodes, with the usual shining and swollen appearance of the skin. There was pain and tenderness on pressure.

Course of the Disease.—After three days in bed the spots began gradually to disappear, the infiltration became less, the red gradually faded, the color became fainter and fainter till it appeared like a slight pigmentation over the area of the previous nodular swelling. It was noted, however, that the temper-

ature continued, in spite of the fact that the lesions over the tibia had disappeared. The morning temperature was from 99 to 101, while his evening temperature was frequently as high as 104. The little fellow was extremely irritable and was restless in bed. This febrile condition, with irregularity of the pulse and an occasional vomiting attack, continued for two weeks.

He refused food, lost in weight and in strength, the pallor increased, and at the end of the second week a convulsive seizure occurred. After this he passed into a comatose or stuporous state, which continued for ten days, until his death. No convulsions occurred after the initial attack. The eyes and ears were examined with negative result; the urinary analysis was without positive findings. Widal examination was negative; rigidity of the neck became marked, slight facial paralysis occurred, pulse and respiration were manifestly irregular, paresis of the extremities occurred, the abdomen became retracted, *Tache cérébrale* marked, Babinski sign present, bowels constipated, urine was passed involuntarily. As stated, he remained in this condition for ten days. For hours he would lie perfectly quiet; then, in turn, he would arouse for a very short time, become extremely restless and delirious, and sink back into this comatose state. Toward the end the respirations were extremely irregular, approaching the Cheyne-Stokes variety; the picture was typical of basilar or tubercular meningitis.

CASE 3.—Another little patient, Cecil W., aged 11, father and mother living and well.

History.—The patient lost a younger sister one year ago from a malignant scarlet fever; the patient himself has suffered several times within the past five years from attacks which have been diagnosed as meningitis. He is large for his age, but has a well-marked scoliosis; in other respects the physical examination was negative. About the last of December, 1903, I treated him for a well-marked membranous tonsillitis, which proved on bacteriologic examination to be a streptococcus infection (no antitoxin was administered). He was confined to the bed in the house for nearly a week.

Present Illness.—About ten days after his recovery from the tonsillitis I was again called to see him, because he was suffering from severe pains in the lower extremities. His temperature was 103, pulse rapid, he was drowsy, desired no food, and gave the impression of being severely ill. On the second or third day, the eruption began to appear on his leg; later, also, on the extensor surfaces of his arms; the temperature continued high, pulse rapid. After a week the rash tended to disappear and made its usual involution; the patient felt well and asked for his discharge.

I have seen him frequently since the illness; he has suffered no complication as a result of his erythema nodosum.

DISCUSSION.

DR. DAVID LIEBERTHAL, Chicago, declared that pediatricians have as much opportunity to see this rare affection as do the dermatologists. Unfortunately there is much confusion in medical nomenclature, especially of diseases of the skin, and although older writers claim that erythema nodosum and erythema exudativum are identical, there are many features of distinction. Pharyngitis, pleuritis, pericarditis and endocarditis can not be considered as sequelae of erythema nodosum, but must be looked on as concomitant symptoms. We have little certain knowledge of the etiology of the disease, as knowledge of its bacteriology has not led to any positive conclusions. The pathologic conditions present are serous infiltration of all the layers of the skin, engorgement of the lymphatic vessels and spaces, vascular stasis, moderate cellular infiltration and extravascular foci of red corpuscles—findings similar to those observed in simple urticaria.

Chloral.—From an experimental research published in *L'Echo Medical du Nord* Oct. 23, 1903, Dubois concludes that chloral possesses a cholagogue action which is due to its special action on the upper intestine and also to some extent by its absorption by the vessels.

PROPHYLAXIS OF TUBERCULOSIS IN CHILDREN.*

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In order that we can intelligently apply the proper treatment for the prevention of the disease, an inquiry into the method of its propagation must be made. The postmortem examinations of hundreds of cases of tuberculosis show that it is a rarity to find primary intestinal tuberculosis.

Heubner's results in a series of studies were as follows:

844 nurslings, age 1 day to 3 months,	tuberculosis none.
218 nurslings, age 3 to 6 months,	3.6 per cent.
Age 6 to 9 months,	11.8 per cent.
Age 9 to 12 months,	26.6 per cent.
Age 2 to 3 years,	14.2 per cent.
Age 3 to 4 years,	13.4 per cent.
Age 4 to 5 years,	11.1 per cent.
Age 10 to 11 years,	5.0 per cent.

Heubner argues that, as not one single case appeared in a series of 800 nurslings during the first three months, the disease was acquired and not transmitted by inheritance.

Küss proved anatomically that primary tuberculous lesions are most frequently found in the bronchial glands. This corresponds with inhalation tuberculosis in animal experiments; hence it must be presumed that the inhalation of the *Bacillus tuberculosis* may cause this infection. Infants are constantly exposed to infection when in the same room with adults affected with tuberculosis. Heubner describes a case of a child with sound parentage that succumbed to tubercular meningitis after being exposed to a tuberculous adult.

It is impossible to trace by distinct means the source of infection in any case of tuberculosis. We know that tubercle bacilli abound in dust, in the form of dried sputum, and that these pathogenic bacteria can easily be disseminated by drafts of air. We know that mats and carpets are the hiding places of millions of these germs.

STATISTICS OF NECROPSIES.

Latent tuberculosis is frequently found in children at autopsy. Bollinger studied a series of 500 autopsies in children up to the fifteenth year. He found lesions of tuberculosis, either inactive or latent, in 218 cadavers. Küss, in studying tuberculous lesions in children, found that the maximum number of deaths appears between the second and fourth years.

Dr. Walter Carr reports statistics of necropsies on tuberculous children at the Victoria Hospital. He found 79 in which the disease most probably started in the chest, and 20 in which it seemed to have begun in the abdomen. Here the relation between the two forms of infection is as 1 to 4. In 26 children of early or limited tuberculosis, the thorax alone was affected in 12 cases, the abdomen in 7, being in the proportion of 1 to 1.7. Of 53 tuberculous children under 2 years of age, the disease most probably began in the chest in 43, and in only 5 certainly in the abdomen, the proportion in this case being as 1 to 8.4. Out of 27 children over 5 years of age, the disease began in the chest in 12, in the abdomen in 6, the relation being as 1 to 2.

These statistics, being all from English sources, are fairly comparable, and it appears to me they sustain Dr. Thorn's contention that the returns in England of tabes

mesenterica represent with fair accuracy the abdominal tuberculosis of children.

Bollinger, in his address at the International Tuberculosis Congress of Berlin, in 1899, quoted with approval the record of autopsies by Heller (Kiel) of 248 tuberculous children, which showed in 45.5 per cent. of the cases tuberculosis of the mesenteric glands. From these, it was concluded that milk played a leading rôle in the so-called transmitted tuberculosis of children.

BOVINE TUBERCULOSIS.

It is plain from what has been said that in some countries where bovine tuberculosis is very frequent there is also a frequency of tuberculosis in children. Bollinger concludes that "although the tuberculosis of cattle and swine do not stand in the first line as source and starting point of human tuberculosis, nevertheless, considering their enormous distribution and progressive additions, and the great danger from the ingestion of the milk of tuberculous cows, they are certainly for humanity the most important and the most dangerous of all animal plagues, and deserve the most earnest attention from the sanitarian and the state."

The question as to the transmissibility of tuberculosis by means of drinking milk from cows whose udders are tuberculous is admitted by a great many authors. Koch, however, is authority for the statement that "bovine tuberculosis is an entirely different disease from human tuberculosis, and can not be transmitted from a cow to a human being." He, therefore, insists that raw milk may be taken *ad libitum* without any risk of infection. There must be a certain disposition or predisposition to the development of this disease.

OTHER PREDISPOSING FACTORS.

Other factors which are prominent in this connection are poor hygienic apartments, rooms in which sunshine is absent, and in which foul air stagnates, will certainly lower the normal resisting power of any and all individuals.

When a child has passed through an acute infectious disease which has already lowered its vitality, then an infection of tuberculosis more easily takes place.

Among the diseases which predispose to the development of tuberculosis are whooping cough and measles. The same is also true in exhaustive diseases which drain the vitality of children for a long time, as, for example, a prolonged attack of summer complaint.

The disease frequently accompanies the nursing period, hence even the youngest child may become infected. Baginsky reports eight cases of tuberculosis among 871 nurslings which died at his hospital. These were all under 10 months of age. On the other hand, he found, among 266 children in the second year, 13 died of military tuberculosis.

Out of 611 children between the second and fourth years, 182 died of military tuberculosis.

Out of 152 children examined between the fourth and sixth year, 6 had military tuberculosis.

ENGLISH STATISTICS.

Still¹ considers these facts and offers some interesting statistics, based not on clinical observation, but on post-mortem findings, for the solution of this problem. In 769 autopsies of children, tubercle was found in 269, or 35.2 per cent. Tuberculosis was the actual cause of death in 252, or 32.8 per cent. From these statistics, therefore, it can be roughly estimated that about one-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClenahan and John C. Cook.

third of the deaths in childhood are due to tuberculosis in one form or other. While children are thus shown to be specially subject to this disease, they are equally so at all ages, for Still shows that up to the age of 4 the percentage is as high as 71, and between 4 and 8 is still 22.5; after 8 it diminishes to 6.5. Moreover, the greater part of the tuberculosis under the age of 4, 43.4 of the 71 per cent. occurred in children under 2 years of age. This great frequency of tuberculosis in infancy has been used as an argument in favor of the idea of infection through milk, the primary lesion being in the digestive tract. It is true, Still says, that intestinal tuberculosis is exceedingly common in children; it existed in 52 per cent. of his cases examined, but also in that of the brain and meninges, 48 per cent., and that of the lungs is far more frequent, 78 per cent.

AUTOINFECTION BY THE SPUTUM.

Tuberculosis has so great a tendency to generalize itself in children that the question of the primary infection is not to be settled by the mere frequency of the lesions. The fact that children swallow their sputa is to be kept in mind. There is no question as to its infectiousness, while that of ingested milk in the human species has not been absolutely demonstrated. He finds that his statistics show that in 25 cases taken consecutively of children under 3 years, who did not expectorate, intestinal lesions were found in 19, while in a similar series, aged between 3 and 12, they were found in only 10. It would thus appear that autoinfection by the sputa in infants is a matter of serious importance.

DIFFERENCE OF OPINIONS OF VARIOUS AUTHORITIES.

It is interesting to note the difference of opinion held by various writers on this subject; for example, Osler believes that the point of entrance is the respiratory tract. The opposite view is expressed by Delépine. This observer states that tuberculosis gains entrance to the body through the intestine, hence milk is the source of danger. He cites postmortem evidences of mesenteric glands showing tuberculous lesions. Sims Woodhead published a series of statistics showing that tuberculosis was rare during the first year of life. He then points out that from year to year the number of cases increases. He believes that milk causes intestinal and mesenteric tuberculosis, the transmitting agent being milk. George F. Still of London does not believe that inhalation is the most frequent means of infection, hence the reason for the frequency of lung tuberculosis is apparent. Still argues that the reason for the prevalence of intestinal lesions is due to the swallowing of the sputum, so that primary tuberculosis of the lung can be followed by secondary tuberculosis of the intestine.

Friedman studied a series of palatine tonsils derived from 91 autopsy cases and 54 living subjects. The examinations were histologic and bacteriologic. His object sought was to study the entrance point in tuberculous cases. As the result of his work he found that tonsillar tuberculosis exists as, *a*, primary infection from food; *b*, secondary infection from sputum containing bacilli.

Lewin² describes a series of children having serofulous glands and lupus. These cases invariably suffered from adenoids. It was impossible to discover tubercles in the adenoids.

A series of interesting animal experiments are recorded by this writer. Lewin used adenoids from 20 cases and introduced them into the peritoneal cavity of guinea-pigs. Nineteen were failures and one guinea-

pig was infected. The child from whom the adenoid tissue was taken that infected the guinea-pig seemed to be in good health.

STATISTICS OF AUTHOR'S CASES.

The statistics of my cases of tuberculosis from the children's service of the German Poliklinik in New York City are very interesting. Five thousand children were examined at random for the presence of tubercular lesions. More than 4,900 cases out of this number showed no sign of pulmonary disease; 1,700 of these cases have suffered with adenoids, pharyngeal disease, catarrh of the nasopharyngeal tract, or infectious conditions due to poor ventilation and general insanitary surroundings. The cases were taken in children from the first to the tenth year, inclusive; 59 cases out of this whole number showed distinct evidence of pulmonary tuberculosis. Only 9 cases of this whole number showed the presence of tubercular bacilli in the sputum. The difficulty in procuring sputum was an obstacle in making more frequent examinations. Forty-three cases of this number had bone and joint tuberculosis in addition to distinct evidences in the lungs. In two cases tubercular empyema was found. Five of these 59 cases had Pott's disease.

Feeding.—Two cases were breast-fed. Their mothers were very anemic and dyspeptic and suffered with general evidences of malnutrition. Thirty-seven of these cases were bottle-fed. The food consisted of grocer's milk. Eighteen cases were fed on condensed milk exclusively. Two were fed on modified cow's milk.

CASE 1.—Abie W., 8 years old, was brought to my children's clinic five years ago with the history of cough, fever and emaciation. There were general evidences of malnutrition.

Diagnosis and Treatment.—The diagnosis of capillary bronchitis was made and the child given restorative treatment. The cough continued. The sputum was examined at least once a week for a period of two months, and no tubercle bacilli were found. The child was sent to the country, and showed some improvement. He had a recurring winter cough for three successive years. When 7 years old a pleurisy developed, followed by an effusion. The effusion did not disappear, and an exploratory puncture revealed pus.

Operation and Results.—The case was operated on by a surgeon, but in spite of careful attention to asepsis a fistula remained for months. Tubercle bacilli were present in the discharge. Restorative treatment was given and the child removed to the country, and finally cured. The pythorax remained about fifteen months.

The father of this child, I learned, was an inmate of the Montefiore Home for Incurables, suffering with pulmonary tuberculosis. Here a distinct family tuberculosis was found.

CASE 2.—Michael J., 5 years old, was referred to me by Dr. Mehrenlander with a history of cough, fever and emaciation.

Diagnosis and Treatment.—The diagnosis of empyema was made, and an exploratory puncture showed the presence of pus. With assistance of Dr. Mehrenlander, I performed a thoracotomy. As there were thick, croupous masses, two ribs were resected and a drainage tube inserted. In this case the wound discharged several months, and an examination of the pus showed the presence of tubercle bacilli. With the aid of fresh air and restorative treatment, such as cod liver oil, creosote, carbonate and special attention to the outdoor life, the child recovered.

Family History.—The child's father and mother are living. Their occupation as janitor in a tenement house gives them very insanitary surroundings. The bedrooms are dark and very insanitary. An older brother, 17 years of age, has acute apical tuberculosis. This older brother, when brought to me for a slight cough, showed no evidence of disease; in fact, he appeared well-nourished. His sputum contained tubercle bacilli.

2. Archiv f. Laryngologie und Rhinologie, 1899, vol. ix, part III.

We, therefore, have in the two cases just described empyema associated with family tuberculosis.

The co-existence of empyema and a family history of tuberculosis strengthened my opinion that, living under the same insanitary conditions and associating together, these cases were most probably transmitted or communicated.

ETIOLOGY.

Two agents must be held responsible for the transmission of the disease—human sputum and the milk of animals. It is a difficult matter to trace the causal relation between infected milk and infantile tuberculosis. Pathologists state that in from 90 to 95 per cent. the bronchial glands contain the oldest foci, and, therefore, they reason that the point of entry of the bacilli must have been by inhalation into the bronchi. Primary intestinal tuberculosis is rarely seen. Bovaird has reported this condition in this country. Dupont reported a large number of infected school children in whom a tuberculous teacher was believed to be the source of infection.

In a series of tuberculous children studied by me, the interesting point noted was that the large majority suffered with rickets. Tracing these rickets back to infancy, it was found that these children were one and all bottle-fed. As bottle-feeding means cow's milk feeding, *ergo*, there may be a possible association, i. e., cause and effect.

That environment is an important factor can be seen when we consider that all cases seen are in the densely crowded tenement districts. I have seen three distinct cases of tuberculosis in one family, all bottle-fed children.

It is rare to find tuberculosis in breast-fed children. There seems to be an immunity conveyed through the serum in breast milk. Another point, and one which has frequently been noted, is the co-existence of pharyngeal catarrh and tonsillar enlargement. This point is of more importance than one would consider off hand. In a discussion on tuberculosis before the Eastern Medical Society of New York City, I called attention to the fact that mechanical obstruction due to the presence of adenoids and enlarged tonsils interferes with respiration. This interference causes defective oxygenation of the lungs, and hence invites pulmonary disease. Pigeon-breast is one of the deformities frequently seen as a result of disease of the upper air passages.

PREVENTIVE MEASURES.

What preventive measures can be applied to check infantile tuberculosis?

1. Insist on each infant being breast-fed; in other words, start the baby right. Have a good foundation.

2. If the mother can not nurse her child, secure a wet-nurse. Let the wet-nurse nurse her own child in addition to her foster child, and give both infants alternate bottle-feeding. This mixed form of infant feeding is very successful.

3. In foundling asylums and day nurseries a wet-nurse can be procured who will nurse two infants. In this way we lessen the danger of tuberculosis.

The secret of health and the vitality and endurance of the enormous tenement house population is that they are or have been breast-fed.

Compare the bottle or cow's milk babies with the breast-fed babies, and you will find that the ratio of death is 9 in 10, whereas the breast-fed child dies in the ratio of 1 in 10.

CONCLUSIONS.

To sum up, we have two prophylactic measures for infantile tuberculosis. They are:

1. Breast milk.
2. Fresh air and sunshine.

Remember that the serum of breast milk contains an immunizing substance which accounts for the rarity of infectious diseases in the newborn.

65 East Ninetieth Street.

DISCUSSION.

DR. A. JACOBI, New York City, asked what we shall do with a tenement-house baby whose mother is tubercular. How shall such a child be fed, with breast milk, or artificially? If the mother is tubercular, he would forbid her to nurse the baby, not so much, perhaps, because he believes that her milk is dangerous, but because, by holding the child in her lap, etc., there is a distinct danger while the mother is coughing of its becoming infected through the sputum. If such a child can be taken away from its tubercular mother, and kept in a healthy environment, tuberculosis need not be feared, because there is almost no such thing as hereditary tuberculosis. On the other hand, a healthy infant is known to become tubercular when raised in the tubercular family. So far as tubercular milk or the milk of tubercular cows is concerned, Dr. Jacobi thinks that there is one safeguard that probably many have the advantage of, without knowing it. The milk of a single tubercular cow is undoubtedly dangerous; the milk of a tubercular cow that forms one of a herd of thirty or more is not dangerous. This has apparently been settled experimentally. Tubercular milk, when diluted to a sufficient extent, becomes innocuous.

Tuberculosis is transmitted by inhalation, but there is also intestinal tuberculosis. It is not necessary that tubercle bacilli in the intestinal tract should limit themselves to that locality; they will perforate not only diseased, but healthy mucous membrane. This is certainly so in the lung and it seems to be so in the intestines. Some writers insist that when the bacilli get into the mouth or nose, they are not inhaled directly into the lungs, but are absorbed in the posterior nares and tonsils. These observers claim that the first deposit of the tuberculosis is in the glands of the neck; from there it travels downward through the three tiers of lymphatic bodies into the mediastinum. If this explanation is the correct one, then it would appear that every conglomeration of lymphatic bodies is dangerous, for they may harbor tubercle bacilli.

DR. W. B. ULRICH, Chester, Pa., agrees that tuberculosis, *per se*, is not transmitted from parent to child, but he believes that the tendency, the weakness, the diathesis, is transmitted, and that on the least exciting cause or provocation tuberculosis may develop. Prophylactic treatment should be in the direction of reforming or controlling the marriages of the world. People rush into wedlock through their emotions rather than through their reason. As long as forty years ago the Kentucky farmers appreciated the wisdom of careful selection in the breeding of their horses. At least as much care should be taken in the breeding of children as in the breeding of horses, but unfortunately it is not.

A child should be removed from a tubercular mother. Tubercle bacilli may exist in the lungs for years without doing any harm. An autopsy on a man who had died accidentally while apparently in the enjoyment of perfect health, showed the lungs to be filled with miliary tubercles that had probably been there for years, and yet the man was strong and well-nourished and had shown no symptoms of tuberculosis. Dr. Ulrich has known more children to be injured by overfeeding than by underfeeding, and he thinks that children are given the breast too often. Every time a child cries, it is nursed, even as frequently as every half hour. Educate mothers how to feed children.

In the treatment of tuberculosis, however, forced feeding and out-of-door life, plenty of sunshine, and pure air, are important. Dr. Ulrich referred to a little girl, about five years

old who had tuberculosis of the ankle. The child's father was in Denver, suffering from pulmonary tuberculosis. There are many similar instances, and they show a transmission of the disease, perhaps not directly, but through its tendency or diathesis.

DR. CHARLES C. BROWNING, Highland, Cal., called attention to the fact that isolating a child from its tubercular mother is, among the poorer class, impracticable. Parents are not able to put their children out; in many instances, they are unwilling to do so; we can not compel them to and Dr. Browning said that he was not sure that it would be right if we could. Recently, in looking up this subject, which is a vital one in southern California, he found that in a series of autopsies held previous to the first month of life, less than 0.1 per cent. of the deaths were due to tuberculosis. The percentage of deaths from tuberculosis increased rapidly from the third month until about the eighteenth month, then rapidly declined. The manner of infection of those children, he believes, is largely due to the tubercle bacilli being inhaled and admitted through the mouth during the time children are creeping about the floors. The decrease in tuberculosis begins with the period of walking and the increase of independent existence of the child. We can teach parents to keep the floors clean.

DR. R. B. GILBERT, Louisville, asked Dr. Fischer if he agreed with Dr. Koch that tuberculosis is not transmissible through cow's milk. He said that when Dr. Jacobi made the statement that tuberculosis is not directly communicable by the mother's milk, it came to him as a sort of revelation. He thought that such a method of infection was possible, and has always strongly advised against tubercular mothers nursing their children.

DR. A. JACOBI, New York City, said that he meant to say that the transmission of tuberculosis from a tubercular mother was less due to her milk than to the inhalation of her sputum. He certainly did not exclude the possibility or even the probability of the milk being directly injurious. Children have been taken away from tuberculous parents, put into public institutions and have remained well, while on the other hand, healthy children have been placed in tuberculous families and became infected, simply from their surroundings.

DR. C. F. WAHNER, Fort Madison, Iowa, gave it as his opinion that if a child born of two healthy parents was exchanged for a child born of one or two diseased parents, so that the healthy parents were to take care of the child born of diseased parents, and the diseased parents were to care for the child born of healthy parents, the child that is reared by the healthy parents will have a far better chance of life, notwithstanding its inheritance, than the child that was born of healthy parents but reared in unhealthy environment. Every mother should be instructed how to feed her child intelligently, not by food prepared in the chemical workshops, according to the latest fads, but by using common sense methods as agreed on by the best pediatricists. Few mothers will consent to give up a child, and in many instances it is well-nigh impossible. No one knows whether mother's milk will transmit tuberculosis or not. It is not heredity that we must teach people to fear so much as the constant exposure of the child to the infection from its diseased parents.

DR. PAULUS A. IRVING, Richmond, Va., gave a striking illustration of the possibility of bovine infection. In his city there is an infant asylum accommodating about 30 infants. A public-spirited citizen gave it what he thought was a very fine cow, whose milk was sufficient for the entire need of the institution. Soon after the cow was received, it was noticed that the infants began to droop and pine away, and in less than a year only one infant survived. The cause of this high mortality was vainly sought for. Finally, the milk from the cow was suspected. A veterinarian examined the cow and found that she was tubercular. When the animal was killed unmistakable evidences of the disease were found. Such an example furnishes very strong evidence of the transmission of bovine tuberculosis to the human family.

DR. LOUIS FISCHER thinks that the tubercular mother should not only be isolated from her healthy child, but also from her husband and from everyone else who is receptive to tuberculosis. Among 5,000 cases taken at random he found that 1,709 suffered from adenoids, pharyngeal disease and catarrh of the nasopharyngeal tract, 59 showed evidence of pulmonary tuberculosis, and 5 had Pot's disease in addition to the pulmonary manifestations. Of these 59 tuberculous cases, only 2 were breast fed; the rest were bottle fed, the food consisting of grocer's milk, condensed milk and modified cow's milk. The great immunity of breast-fed children from tuberculosis is certainly worth noting. He thinks that condensed milk furnishes the poorest foundation for the child. It is deficient in proteids, contains a great deal of sugar and develops fat in place of muscle. It consists largely of cane sugar, which is put in to preserve it. Many of the children fed on condensed milk suffer from constipation, which is often an early manifestation of rickets. It is largely used by the poorer people, because it is cheap and sold in a convenient form for use. It is this poor form of infant feeding, added to insanitary living apartments without sunshine and fresh air that devalorizes and invites tuberculous infection. There are two usual modes of entrance of the tubercle bacillus: (a) By inhalation. (b) By food. In inhalation tuberculosis the tubercle bacillus is carried into the nose, throat, bronchi and lungs by means of dust or dried sputum from a tubercular patient.

The tubercle bacillus can also enter the system by means of the lymph channel if inhaled and so enter the circulation.

In food tuberculosis, when infected milk or meat or any article of food containing tubercle bacilli enters the body an infection takes place primarily in the intestine, and enters the circulation by means of the lymph channels.

Dr. Fischer does not believe that we can prove to-day that milk alone is a causative factor of tuberculosis. He believes that there are other conditions which predispose to infection and that there are thousands of people who have tubercle bacilli in their throats, together with all sorts of pathogenic bacteria, and still remain unaffected because their bodies are not in a receptive condition. When, for some reason or other, they get into a subnormal condition, then they are receptive to anything under the sun. He believes that we must await further evidence before we can say that milk alone is a factor that transmits tubercle bacilli to the baby, as it is difficult to trace the bacilli into the body. We have no other theory at the present day than to associate the bacilli in the cow's milk with their effect on the infantile respiratory and digestive tract.

THE PRESENT STATUS OF THE TREATMENT FOR DEAFNESS DUE TO CHRONIC CATARRHAL OTITIS MEDIA.*

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In responding to your committee's invitation to prepare a paper on this particular subject, my first impulse was to decline the task as presenting too many difficulties. The subject is manifestly too broad to be adequately outlined in a single paper. I hope, however, that my paper may serve the purpose of inducing a larger and more useful discussion by others.

Chronic catarrhal otitis media is an elastic term, rather indefinitely applied to a variety of tympanic conditions, which are, perhaps, best considered under the following headings:

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otolology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

1. Chronic tubal catarrh, without marked tympanic changes other than those due to retraction of the membrana tympani.

2. Chronic hypertrophic otitis media.

3. Chronic hyperplastic otitis media; dry middle ear catarrh; otosclerosis.

Obviously no classification is of practical value which divides these cases into groups which can not be recognized clinically. The differential diagnosis is not easily reduced to any system of rules. In the early stages the functional reactions do not greatly aid us, serving merely to locate the lesion in some part of the conducting apparatus. Nor do the physical appearances of the drum membrane, considered alone, afford as reliable data as might be expected. Thus marked retraction of the drum membrane may be found either in simple tubal catarrh, chronic hypertrophic otitis media, or in cases of sclerosis secondary to hypertrophic otitis media. Calcareous deposits may occur in either the hypertrophic or hyperplastic form of otitis.

DIFFERENTIAL DIAGNOSIS.

The differential diagnosis should take into account, therefore, not only the type and duration of the deafness, and the physical defects of the drum membrane and tubes, but also the history of the patient, and, perhaps, most important of all, the manner in which the deafness responds to treatment.

Previous History.—With deafness of one or more years' duration, the patient should be interrogated as to the following predisposing conditions:

(a) A history of a preceding obstructive lesion within the nose or nasopharynx is somewhat suggestive of the hypertrophic form of chronic otitis media.

(b) Frequently recurring attacks of acute otitis media, whether of mild or severe type, predispose markedly to the development of chronic hypertrophic otitis media.

(c) Rheumatism is said not infrequently to be accompanied by local manifestations within the ear. Obviously such lesions, especially in recurrent attacks, might act as a predisposing cause of chronic hypertrophic otitis.

(d) Gout, on the other hand, is said to frequently co-exist with sclerotic changes within the ear, and to this extent the gouty diathesis should be considered in arriving at a diagnosis.

Constitutional syphilis, either congenital or acquired, is regarded by German otologists as one of the causes of otosclerosis.

As the time at our disposal is limited, it may be well to bring together briefly the characteristic or distinguishing features—so far as we are able to recognize them—of the three classes of cases under discussion.

In chronic tubal catarrh, the deafness is of tympanic type,¹ and usually of several months' or a year's duration. The past history may be negative or may include an account of chronic nasal catarrh or recurrent attacks of acute rhinitis. The degree of deafness is variable, sometimes clearing up for days or weeks, only to return with a fresh attack or exacerbation of nasopharyngeal catarrh.

Physical Examination.—This usually shows the nose or pharynx to be more or less inflamed. The drum membrane is markedly retracted, but may be otherwise normal. The otoscope during inflation usually gives characteristic signs of tubal congestion or narrowing.

If, after inflation, the drum membrane is seen to have resumed in part its normal position, and the hearing is markedly improved, the diagnosis would seem to be complete.

In chronic hypertrophic otitis media, the impairment of hearing may have been noticeable to the patient during several months or as many years. The deafness is of the same character as in tubal catarrh, but is less subject to variations in degree. There may be a previous history of nasal obstruction of long standing; of rheumatic attacks of the usual articular type, or occurring as recurrent attacks of acute tonsillitis. The ear may have been the seat of prolonged suppuration in childhood, or of repeated attacks of acute catarrhal otitis.

Examination.—Inspection usually reveals considerable retraction of the drum membrane, which may exhibit uniform thickening, localized calcareous deposits or the cicatrices resulting from old perforations. It may, on the other hand, be nearly normal in appearance. Evidences of tubal narrowing or obstruction are invariably present.

In such cases inflation should result in moderate but appreciable improvement in hearing, which would confirm the diagnosis of chronic hypertrophic otitis media.

In chronic hyperplastic otitis media the progress of the deafness is often slow and insidious, it being in many cases difficult to obtain from the patient a reliable statement as to its duration. The previous history may include gout or constitutional syphilis, or may be absolutely negative. The eustachian tubes are patent and may be abnormally wide. The physical signs of the drum membrane may be absolutely normal, or may show calcareous deposits. But slight functional gain, if any, results from inflation. Excluding a primary labyrinthine lesion, the above picture would justify the diagnosis of chronic hyperplastic otitis media.

From the above notes, it will be seen that in all these cases the immediate effect of inflation on the deafness is regarded as an important test.

FUNCTIONAL REACTIONS AND THEIR BEARING ON PROGNOSIS.

I would like also to be allowed a word as to the value of certain functional reactions as affecting prognosis.

The deductions to be drawn from the tone limits—i. e., relative impairment of hearing for the upper or lower tones of the musical scale—do not appear to be as reliable as they were formerly thought to be. While loss of hearing for the upper tones undoubtedly points in a general way to labyrinthine disturbance, such impairment may be greatly increased by an obstructive lesion within the tympanum. In certain depressed conditions of the general nervous system, and also with advancing years, the auditory nerves become less responsive to sound waves of every description, and most notably in the two extremes of the range of normal hearing. When such a patient develops an obstructive tympanic lesion, it is not surprising that the range of audition may be curtailed in the upper as well as the lower limit. It is only on the above hypothesis that one is able to explain certain cases in which considerable loss of hearing for the higher tones is found side by side with normal or perhaps slightly increased bone conduction. With such reactions to functional tests, it has not been unusual in my experience to obtain a considerable improvement in the upper tone limit as a result of simple measures directed against a tympanic lesion. Obviously in such a case the change in the upper tone

1. Presenting functional reactions characteristic of disease of the conducting apparatus.

limit is not to be regarded as an evidence of grave labyrinthine disease, and should not of itself be made the basis of an unfavorable prognosis.

Of much greater prognostic value are marked changes in the perception of sound by bone conduction which, when considered in their relation to other functional tests, furnish our best guides as to what may be expected from treatment. Thus in any case of chronic deafness marked diminution in bone conduction must be regarded as an unfavorable prognostic sign. With this condition the upper tone limit is often considerably lowered, and in this connection the latter is an important sign as further pointing to serious labyrinthine involvement. Marked increase of bone conduction, i. e., increase to the point where a fork of 256 D. V. is heard longer by bone conduction than by air conduction, is also an unfavorable sign to the extent that it usually indicates an advanced tympanic lesion in which the hearing may be considerably improved, but will not be restored to the normal standard. On the other hand, moderate increase of bone conduction is often in cases of slight deafness a sign of good omen as indicating a stage of tympanic disease, for which local measures should be followed by good results.

Before taking up, briefly, the subject of treatment, I wish to state very frankly my belief that there are comparatively few therapeutic measures which have any value in these cases; and that our success in any case will depend on our skill and judgment in the use of these, rather than a resort to many remedies of less known value.

CHRONIC TUBAL CATARRH.

Obviously a catarrhal condition of the tubes may exist for a considerable period without producing ear symptoms. Only those cases, therefore, are of interest to the otologist in which the caliber of the tubes is so reduced as to interfere with the passage of air to the tympanum. The result of such occlusion is always mechanically the same, viz., absorption or rarefaction of the air within the tympanum, with consequent retraction of the drum membrane. The deafness, then, is a mechanical one, and due, not to pathologic changes within the middle ear, but to partial fixation of the membrane and ossicles by atmospheric pressure from without.

Under chronic tubal catarrh, it is, perhaps, admissible for therapeutic purposes to recognize three conditions causing retraction of the drum membrane, viz.: (a) Nasal obstruction; (b) tubal congestion; (c) tubal constriction or stenosis.

Nasal Obstruction.—There are certain cases in which, as a result of an obstructive nasal lesion, the air in the nasopharynx is more or less rarefied with each inspiration. In consequence of this the air pressure within the tympanum becomes constantly negative.

The history is usually that of deafness characterized by periods of amelioration. Interrogation elicits the fact that the patient is at times a mouth breather. On physical examination the drum membrane is found markedly retracted. The physical evidences of nasal obstruction are more or less pronounced. Inflation per catheter, however, results in a fairly good current of air to the tympanum, partial or complete replacement of the drum membrane and prompt relief of the subjective symptoms. The relief thus afforded may last a few hours or several days, when the deafness returns. Closer observation of the patient may now disclose a faulty method of breathing. While not a typical mouth

breather, the mouth is frequently opened to compensate the nasal difficulty. Obviously in such a case no amount of treatment by sprays, inflations, pneumatic massage or what not will be of any permanent value until the nasal lesion has received attention.

Chronic Tubal Congestion.—Belonging more properly to this group are those cases in which the tubal mucous membrane is the seat of a chronic venous congestion. These patients present symptoms and physical signs almost identical with those just described. Inflation, however, gives unmistakable signs of obstruction due to congestion, the sounds through the otoscope being at first muffled, rasping or accompanied by rales, then becoming clearer as air enters the tympanum in greater volume. Inflation results in marked temporary relief of the symptoms, and the rapid improvement in the auscultatory signs shows more or less clearly that the lesion is chiefly one of chronic venous congestion.

TREATMENT.

These cases usually respond readily to proper treatment. This should include correction of any condition within the nose or nasopharynx which may act as an exciting cause of tubal catarrh; application of astringents to the inflamed pharyngeal mouth of the tube; regular inflation of the middle ear, at first on alternate days and then at longer intervals.

For adult patients, inflation per catheter possesses the following advantages over the Politzer method: It enables one by means of the clearer otoscopic sounds and the force required in propelling air to the tympanum, to determine with greater accuracy the condition of the tube; to regulate the force of the current of air, and to inflate only the diseased ear. It eliminates the danger—where one ear only is diseased—of producing undue relaxation of the opposite drum membrane.

Many of these cases require no other treatment than regular inflations, with appropriate measures to relieve congestion within the nose or pharynx.

Tubal Constriction.—There is still another class of tubal cases in which the obstruction depends not only on chronic venous congestion, but also to some extent on the formation of new connective tissue. The hyperplasia may occur as a uniform thickening of the tubal mucosa, or as localized deposits having a tendency to contract. During inflation the sounds through the otoscope are insufficient, high-pitched or whistling, clearly indicating the reduced caliber of the tube. With such a lesion we are justified in classifying under tubal catarrh those cases of moderate deafness which show sufficient improvement after inflation to exclude serious lesions elsewhere.

The indications for treatment include those already described under tubal congestion, plus active measures for the restoration of the tube to its normal caliber. While considerable improvement often results from inflation, it usually becomes necessary to resort to some form of mechanical dilatation to overcome the constriction within the tube.

THE EUSTACHIAN BOUGIE.

The technic of introducing the eustachian bougie begins with the proper placing of the catheter within the pharyngeal mouth of the tube. Beyond this there are, in my opinion, two points of major importance in this method of dilatation, viz.: First, the selection of a small rather than a large bougie; and second, that it be al-

lowed to find its own way through the stricture or constriction, rather than be made the subject of force.

When the tube is not actually stenosed, it is probably the contact of the bougie with the diseased mucous membrane rather than its action as a forcible dilator which is of value in overcoming the obstruction. Only in this way can be explained the improvement which sometimes follows the introduction of a small bougie which has met with no appreciable resistance. The eustachian tube is not, like the urethra, a distensible canal. Surrounded in its narrowest part by firm unyielding walls, attempts at forcible dilatation can result only in compression of its mucosa between the dilating instrument and the osseous walls of the canal. When the bougie meets with obstinate resistance at the isthmus, it must be explained on one of three hypotheses, viz.: Either that (1) the bougie is not exactly following the direction of the tube; that (2) the caliber of the bony tube is too small for the bougie; or that (3) a firm fibrous stricture exists at this point. Even in the latter instance the application of force might result in serious injury.

The points which I wish to emphasize are: The danger of attempting to force a large bougie through a small and rigid channel lined with mucous membrane; and the importance of avoiding force in its manipulation.

In my opinion a bougie, the terminal bulb of which measures not more than one mm. in diameter, is as large as should be used in the great majority of cases. The particular style of bougie that should be used is largely a matter of personal choice. Those of whalebone or celluloid are most satisfactory.

DILATATION BY ELECTROLYSIS.

No discussion of this subject would be complete without mention of the electrolytic method of dilatation devised by Dr. Duel of New York. In hospital practice this method has been thoroughly tested by Drs. Brandegee and Kenefick, in the New York Eye and Ear Infirmary; and their reports would seem to leave little doubt as to its value in properly selected cases. In my experience there have been many cases of tubal narrowing or stenosis which have yielded more readily and favorably to treatment by this method than by any other.

When, in a case of simple tubal catarrh, the obstruction has been overcome and a satisfactory gain in hearing attained, the end of local treatment should be considered accomplished.

CHRONIC HYPERTROPHIC OTITIS MEDIA.

Pathologically, these cases are characterized by morbid changes within the eustachian tubes and also within the tympanum. They resemble those described under the last heading in that tubes are usually abnormally narrow and may be practically closed. The middle ear is the seat of a productive inflammation involving primarily the tympanic mucosa. The new connective tissue may be evenly distributed throughout the tympanum, may be massed chiefly in the region of the labyrinthine windows, or may occur as fibrous bands passing between the ossicles and adjacent structures.

Obviously the deafness is dependent on two distinct lesions, either of which alone might cause impairment of hearing, viz., chronic tubal catarrh, with consequent retraction of the drum membrane, and the hypertrophic changes within the tympanum.

TREATMENT.

The indications for treatment are: (1) To re-estab-

lish the normal patency of the tubes; and (2) to restore as nearly as may be a normal condition within the middle ear.

The treatment of tubal catarrh has already been described and need not be repeated. Since the tympanic disease is usually secondary to the tubal lesion, the importance of fully meeting the first indication hardly requires argument. The restoration of the balance in air pressure on both sides of the drum membrane is almost invariably followed by a very considerable increase in hearing power. From this point the improvement is usually slow, and will depend on the gradual restoration of the intratympanic structures to their normal condition. To this end nothing is more important than the automatic ventilation of the tympanum through the eustachian tube. Occasional gentle inflation may serve to relieve congestion, to free the ear of accumulations of mucus, and to maintain the drum membrane in its normal position. The employment of stimulating vapors, e. g., of iodine, chloroform, menthol, etc., thrown into the middle ear through the eustachian catheter, seems often to add to the patient's comfort, and may have a restorative influence on the diseased mucosa. Occasional pneumatic massage is of advantage in certain cases. It should be practiced only with the drum membrane under direct observation and with an apparatus producing the smallest excursions of the membrane that the eye can appreciate. These measures should at first be tried tentatively, and continued only so long as continuous improvement in function can be demonstrated.

So much for the plan of local treatment which, in a general way, may be applicable to any case of chronic catarrhal otitis media. There are certain conditions, however, which should be noted as calling for some modification of this routine. The drum membrane, for instance, may be held in an abnormal position by intratympanic adhesions. During pneumatic massage by means of the Siegel otoscope, the excursions of the membrane are seen to be exceedingly limited, and without influence on the hammer handle, the lower end of which may remain in apparent contact with the promontory. In such cases it is evident that inflation will not result in replacement of the drum membrane; and that unless practiced with gentleness and judgment, it may result in further alterations of tension, very seriously influencing the patient's hearing.

Atony of the drum membrane is another condition which should not pass unnoticed. The drum membrane may appear slightly thickened or fairly normal in texture. During pneumatic massage, however, the posterior segment is seen to make unusually wide excursions, clearly indicating a condition of undue relaxation. As a result of this loss of tension, sound waves expend themselves on the relaxed posterior segment, and are not adequately communicated to the ossicular chain.

The practice of making multiple incisions through the relaxed drum membrane has not generally given good results, its failure depending on the fact that the resulting cicatricial tissue eventually weakens the membrane, rather than adding to its tone. Application of paper discs to the relaxed posterior segment increases the hearing power in certain cases. More often no functional gain results. Occasional application of contractile collodion to the posterior segment will sometimes result in a considerable gain in hearing. Its efficacy may be enhanced by inflating the ear immediately before the collodion is applied. Even where no immediate functional gain results from this procedure,

it is sometimes of service in preventing further relaxation of the drum membrane during inflation or pneumatic massage.

ATROPHY OF THE DRUM MEMBRANE.

There are other cases in which the membrane has undergone extreme atrophy, having somewhat the appearance of thin tissue paper. In two cases coming under my observation during the past two years, the drum membrane was so attenuated as to be easily ruptured by inflation under ordinary pressure. It is difficult to suggest any rational treatment for the relief of such patients. They have seemed to me most favorable cases, if any there be, in which to perform the operation of ossiculectomy for the improvement of function.

Fortunately, a fair degree of hearing is not incompatible with marked changes within the tympanum. In the treatment of all these cases the point of first importance is the recognition—when it exists—of a tubal stricture or constriction, and the employment of adequate measures for its correction.

Other than tonics, drugs have no value in this disease, except as they influence some constitutional condition or diathesis.

CHRONIC HYPERPLASTIC OTITIS MEDIA.

Dry middle ear catarrh; otosclerosis.

Under this group the following lesions have been recognized:

1. In typical cases there is a productive inflammation which originates within the tympanum, and in which congestion at no time plays a prominent part. It is, therefore, subacute or chronic from the start. There is an abundant deposition of new connective tissue within the substance of the tympanic mucosa, which is converted into a thickened, dry, sclerotic membrane, closely adherent to underlying structures. This hyperplasia is often most marked in the region of the oval window. The same changes occurring within the eustachian tubes, these passages are often unusually wide. The drum membrane is, therefore, not retracted.

2. There are other cases in which, independently of or in addition to the above changes, a true osseous ankylosis exists. There is a proliferation of new bone in the vicinity of the oval window resulting in osseous union between its margins and the foot plate of the stapes. The hyperostosis may spring from the promontory, from the margin of the oval window, or may be confined to the labyrinthine surfaces of this region. In the latter case, proliferative changes are not uncommon in contiguous portions of the membranous labyrinth.

3. A third class of cases belonging to this group are those in which sclerotic changes occur as a final stage of chronic hypertrophic otitis media.

TREATMENT.

The results of treatment are not encouraging. The prediction of Politzer that the deafness occurring in advanced stages of the disease will remain forever beyond the ability of the otologist to cure, is one which few at the present time will care to contradict.

Inasmuch as it is impossible clinically to exclude osseous changes in the stapedia region local treatment is to be entered on tentatively. Were the diagnosis made early there is probably no class of cases in which constitutional treatment would give better results. The patient should be placed in the best possible hygienic surroundings. Tobacco and alcoholic drinks should be used in the greatest moderation, or not at all. Constitutional syphilis should receive thorough and

persistent treatment. Gout or rheumatism, or in fact any constitutional diathesis, should receive due attention. Occasional exhibition of potassium iodid is thought by many to be helpful in these cases, and is made a part of the general routine.

LOCAL TREATMENT.

In the early stages benefit may result from simple measures aiming to prevent ossicular fixation. To this end occasional pneumatic massage may be employed. Forceful inflation at long intervals may also be of service. Local medication in the form of stimulating vapors may be used to increase the local blood supply, a result favoring the restoration of the mucous membrane to its normal condition. Obviously these measures can have no beneficial influence in those cases complicated by osseous changes at the oval window.

There is a later stage of the disease in which the drum membrane, malleus and incus, instead of aiding in the conduction of sound, seem to act rather as a barrier to the passage of sound waves to the inner ear. Palliative measures are powerless to relieve this condition.

SURGICAL MEASURES FOR THE IMPROVEMENT OF HEARING.

Various operative procedures have from time to time been proposed for the relief of deafness due to intratympanic adhesions. Division of the posterior fold; of the tensor tympani tendon; of the stapedius; severance of adhesions between the umbo and promontory; any of these measures, plus division of adhesions between the crura of the stapes and the walls of the oval niche, are among the operations which have been performed for the improvement of function. The fact that they are now seldom discussed in otologic literature is perhaps a sufficient commentary on their value.

The operation of ossiculectomy, i. e., removal of the drum membrane, malleus and incus—is practically the only surgical measure which is now considered for the improvement of hearing. As the results of this operation have been subjected to the crucial test of time, the number of its advocates have diminished.

Among recent expressions of opinion as to its value, we find the following:

Politzer¹ says "the results of this operation were so unsatisfactory that it is hardly spoken of at the present time." He states that he has seen cases in which the operation was "followed by great loss of hearing, ending in deafness."

A. H. Cheate² of London, considers the operation justifiable, the patient being made to understand that it is more or less of an experimental nature.

Dench³ records favorable results and considers the operation a useful one for appropriate cases.

The operation is based on the hypothesis that the drum membrane, malleus and incus are no longer of value in the conduction of sound, and proposes their removal in order that the stapes acting alone may be permitted to take up sound waves from without and transmit them to the inner ear.

Unfortunately the subsequent effective mobilization of the stapes is often difficult or impossible. This difficulty and the tendency of adhesions to reform between stapes and adjacent structures, have led many to condemn the operation *in toto*.

The good results reported by Dr. Dench are presuma-

1. Politzer: Diseases of Ear, p. 323.

2. Wright: Diseases of Ear, pp. 1191-3.

3. Dench: Medical News, February, 1903.

bly explainable by a very happy and fortunate selection of cases.

In considering the uncertainties of the operation it must be remembered that in the class of cases for which it is proposed, the condition so far as the hearing is concerned is usually a desperate one.

58 West Fifty-sixth Street.

THE HOT-WATER DOUCHE IN TREATMENT OF CHRONIC CATARRHAL DEAFNESS.*

GUSTAVUS P. HEAD, M.D.

CHICAGO.

So many factors enter into the causation of the deafness accompanying chronic middle ear catarrh that any treatment looking to the relief of the condition must be directed along several different lines. For this reason when any new treatment is presented it is, as a rule, mentioned that it is to be used in connection with the usually practiced measures. Therefore, in presenting the method I shall suggest, it is to be understood that the treatment of nasal and nasopharyngeal disease and of tubal disease will be carried out as seems necessary in each case.

Recognizing the value of heat in causing the absorption of inflammatory exudates even when such exudates have become partially organized, there has been a persistent effort on the part of otologists to devise some practical method by which this active agent may be utilized in the treatment of diseases of the middle ear. With this object in view a number of instruments have been devised for the purpose of applying a stream of hot air either to the drum membrane through the external canal, or else to the middle ear through the eustachian tube.

There is no doubt of the possibility of applying a stream of hot air to the drum membrane through the external canal, but many who have tried the application through the eustachian catheter have expressed grave doubts as to the possibility of delivering a stream of air through the catheter so that it may reach the tympanic cavity hot enough to be of much value. With the various instruments used by me I have been unable to satisfy myself of any good results secured by the eustachian hot-air douche. Although practiced in a number of cases during a period of several years, it was invariably abandoned because of lack of results commensurate with the time and labor expended by the operator and the expense to the patient.

Considering that the tympanic cavity is the part which we usually desire to reach by the absorbent agents, and that this cavity is a shallow one, separated from the external canal by a thin membrane only, it would certainly seem that sufficient heat might be conducted to the cavity from the external canal without the necessity of resorting to the more difficult, doubtful and not always harmless expedient of forcing the heat through the eustachian tube. That the effect of the heat on the more or less occluded eustachian canal should be of benefit regardless of the effect in the tympanic cavity can not be denied, but that I have seen any individual case so benefited I am not able to assert.

In the use of the hot-air douche through the external canal, several difficulties present themselves: It is al-

most impossible to deliver a stream of air at an even temperature hot enough to be of value. The patient will either complain of the burning and draw away, or else the air soon ceases to be hot enough to be effective.

The treatment must remain wholly in the physician's hands. This means that it can not be used more than two or three times a week in the case of the average patient on account of the expense. It also means a great loss of time to the otologist. The douche should be in operation ten minutes for each ear, so that with other necessary treatment, preliminaries and delays, not less than thirty minutes will be required for each patient.

A trial of the hot-air treatment in which the heat is applied through a canvas tube attached to cover the ear, impressed me that this is a most clumsy way of reaching the part which we really desire to reach, and I was very uncertain as to how much heat reached the tympanic cavity. The same objections apply, though to a lesser degree, to this method as to the hot-air douche.

With the objections to the treatment in vogue and looking for a method whereby as good or better results might be attained in a more simple way, the use of hot water suggested itself.

In the course of a general practice, having so often seen the melting away of the exudates, inflammatory and non-inflammatory, from the pelvic cavity through the agency of the hot douche, it occurred to me that in the tympanic cavity we had a region far more easily reached by the douche and one in which the exudation lay much nearer the stream of hot water than in the pelvic cavity. Although the hot-water douche is in almost universal use in the acute inflammations of the tympanic cavity, I could find no literature on the use of this agent in chronic catarrhal conditions. When first experimenting with the use of hot water in the ear I invariably began the treatment in the worse ear, after having treated both ears sufficiently by the ordinary methods to ascertain about what rate of improvement might be expected.

In these cases the ear treated with the hot douche immediately showed a greater improvement than the other ear, and in no case was there any injury shown in the ear thus treated.

In the use of hot water the difficulties attending the hot-air treatment were not encountered. In the first place, this branch of the treatment is placed entirely in the patient's hands, thus allowing it to be used twice daily if so desired.

Secondly, the doctor is spared the necessity of devoting so great an amount of time to each treatment, the patient coming to the office only to have the usual treatment applied, and now with the stimulating effect of the heat on the contents of the tympanum and attic, the air or vapor douche through the eustachian tube or the external meatus becomes much more effective in loosening adhesions.

TECHNIC OF DOUCHE.

The patient readily adapts the heat of the water to his comfort. My instructions are to use the water as hot as can be borne without burning. A specially small tip is ordered, or a straight glass medicine dropper may be inserted into the tube of the fountain syringe, the patient being instructed just how to hold the tip and how deep to insert it. The fountain bag is hung from 18 to 24 inches above the ear, or just high enough that the water will be surely carried to the drum membrane.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

If the tip be small and the bag not too high, two quarts of water will run for about ten minutes and will remain hot enough through that time. Allowance must always be made for the cooling of the water in passing through the tube, so that the water in the bag itself must be too hot for comfort. If the matter is fully explained to the patient he will soon learn to make proper allowance.

It must be insisted that the patient feel the continual impact of the stream of water against the membrane, for it is easy for the outcoming and ingoing streams to neutralize each other so that only a small portion of the water reaches the membrane. I am informed that Dr. T. W. Chambers has devised an ear tip with a return tube which much simplifies the treatment in the hands of the patient. The treatment has usually been used once a day, ten minutes for each ear.

Some patients will complain of dizziness from the injections, in which case the force of the stream is too great, the water too hot or the treatment too long, and these various points may be investigated.

In some cases it has been found more satisfactory to have the patient use a demulcent solution in the ear after douching to prevent the unnatural dryness which results from the frequent washing. Glycerin and water, one or two drams of glycerin to the ounce, or one of the simple hydrocarbons, as albolene or benzoïnol, has been found to meet the indication.

LIMITATIONS OF THIS TREATMENT.

This treatment will necessarily have its limitations. Cases in which the source of deafness lies in the internal ear are not very likely to be benefited. It is particularly adapted to those cases in which there is evident congestion and inflammation of the drum membrane. A drum membrane displaying considerable patches of sclerosis is very likely to show improvement. Tinnitus when due to intratympanic causes has been readily relieved by the hot-water douche. When due to conditions in the internal ear, it is not to be expected that treatment directed to the middle ear will relieve it, though it is quite possible that the internal ear may be affected to some degree by application of heat in such close proximity to it. In nearly all cases there is tubal occlusion of greater or less degree; this, of course, will be affected only indirectly by treatment through the external canal. That improvement of the health of the tympanic lining and contents will necessarily cause some response in the eustachian tube is obvious, although the response may be but slight.

I will cite two cases of deafness and one of tinnitus as illustrative of the results attained. I will state that I have no miraculous improvement to report. Were I to make such a report, you would be justified in dismissing the matter as too evident a fabrication for further consideration. I could wish that the improvement had been greater, and I confidently expect further treatment in the same cases will give additional improvement:

CASE 1.—Miss F. E., age 20 years, Dec. 5, 1903.

History.—The patient had deafness of 10 years' standing. Had earache in infancy, but never any rupture of drum membrane. Moderate sclerosis of both tympanic membranes. Nasal passages somewhat obstructed up to three years ago, when they were cleared out by removal of bone and are now in a fairly normal condition. Received considerable treatment for the ears by an expert otologist at the time of nasal operations, but with practically no results.

Examination.—Hearing, left, watch, 3 inches; whisper, 24; right, watch, contact; whisper, 12. (I would say that unless

specially stated otherwise I use the loudest whisper possible.) Tuning fork, bone conduction excellent on both sides. After inflation, left, watch, 3 inches, and whisper, 30; right, watch, 1 inch; whisper, 24.

Treatment and Result.—After treatment with nebulized mentholated oil through catheter December 5, 8 and 11, no particular improvement noted except that right ear gave watch one-half inch before inflation. Also used moderate massage with Siegle's otoscope. December 11 ordered hot-water douche in right ear. Two weeks later ordered hot water in both ears. January 27, stopped hot water. Under two treatments a week with catheter and massage there was fairly steady improvement, which continued after stopping hot water, so that by February 2, after inflation, the hearing was: Left, watch, 5 inches; whisper, 9 feet; right, watch, 4 inches; whisper, 3 feet. Hot water was again used for three weeks and on March 12 the test showed: Left, watch, 10 inches; whisper, 9 feet; right, watch, 7 inches; whisper, 3 feet.

While the improvement in this case was not great, yet it was quite marked. The patient stated that under the treatment three years ago she received no benefit, while now she realized a very encouraging improvement, and that so far as she could judge, the treatment was exactly the same both times except for the hot douche.

CASE 2.—Miss L. I., age 26, May, 1903.

History.—Deafness in both ears increasing for past three years, but had existed some years before. Both tympanic membranes considerably sclerosed, nose and throat in fair condition except septal thickening on left side. Has had treatment for one or two years by Politizerization and mechanical massage, with no improvement.

Examination.—Test, left, watch, 1 inch; whisper, 8 feet; right, watch, 1 inch; whisper, 8 feet. Bone conduction better than air.

Treatment and Result.—Removed septal thickening and used nebulizer with catheter, with some improvement—watch increasing to 6 inches for left and 4 inches for right; whisper, 15 feet.

Patient was away during the summer. In the fall occasional inflation kept up hearing to about the same standard except that the right ear showed only 2 inches for the watch. January began the use of hot-water douche. January 21 hearing showed: Watch, left, 9 inches; right, 5 inches; whisper best that it has ever been. This condition has been maintained under occasional inflation after use of the hot water for about four weeks. In this case inflation by catheter has been continued once or twice a week up to the present and the last test, May 31, showed: Watch, left, 20 inches; right, 11 inches; soft whisper, 15 feet, both ears.

In judging of improvement, I always insist that the patient shall make home tests as a control for the office tests. The watch test is not at all a sure indication as to voice hearing, and the patient becomes accustomed to the physician's voice, thus often showing an improvement which may be apparent instead of real. Both these patients, as well as the others having this treatment, brought very satisfactory reports as to improvement in hearing in their ordinary environment.

CASE 3.—A. C. F., age 40, April 23, 1904.

History.—The patient has had ringing in his right ear for the past three or four years. When ringing is bad, confuses him. Has had attacks of vertigo at various times. Sometimes six months without attack. Family history bad; father, grandfather, uncle and aunt died from apoplexy, one uncle of tabes. Examination: Right tympanic membrane sclerosed and somewhat congested along manubrium. Tuning fork C 2048 heard in air, but not on bone. C 128 heard better on bone.

Treatment.—Under hot douche tinnitus improved at once. Patient left city after second examination to be gone some time and I can not report as to effect on hearing. I am satisfied

the vertigo, and to a great extent the tinnitus, are due to digestive disorders and may be controlled by the patient by proper diet.

REMARKS.

A number of patients have shown decided improvement in hearing, and relief of tinnitus on using the hot douche after improvement had ceased under the usual treatment without hot water.

After the use of this method of treatment in suitable cases for the past five months, I have no hesitancy in recommending it with considerable confidence as a valuable addition to the ordinary measures used in treatment of chronic catarrhal deafness. While the period in which it has been used is not long, and the number of patients treated has not been large, yet hydrotherapy is so old and well established in other regions of the body, and is so especially adapted to the region under consideration that it has seemed to me quite proper to bring the method before the Section for discussion and criticism.

DISCUSSION

ON PAPERS BY DRs. KERRISON AND HEAD.

DR. W. S. BAYANT, New York City.—The term chronic catarrhal otitis media covers nearly everything except suppuration that occurs in the middle ear. It is impracticable to treat all these pathologic changes as one condition which can be handled as suppuration can. The long list of remedies mentioned are all well known and have a certain standing with the profession. The pathology should be better worked out and generally understood. How this is to be done in this country it would be hard to say, on account of the difficulty met with in getting pathologic material. Dr. Head has made an important suggestion in treatment, in line with experiences I have had in gynecology, and one which offers a reasonable hope of success. The dangers, if there are any, aside from the distress of the patient due to too hot or too forcible injection, are those of starting up a low-grade inflammation in the tympanum, with an increase of deafness.

DR. S. F. SNOW, Syracuse, N. Y.—It has been my experience that all bad cases of catarrhal deafness are due to well-defined causes and that if we can determine these causes and remove them the problem of treatment is much easier than generally supposed. We must not forget that the olfactory regions of the head are often much occluded, deflecting the current of air into the lower part of the nostril, the current taking its course along the floor of the nose and escaping by the eustachian orifice. If we wish to get the eustachian tube in normal condition we must alter the course of that current of air, and this will require nasal surgery. We must get the nose as nearly physiologically perfect as possible, as a preliminary step in all cases. Then, if this is done, it is not well to forget the systemic disturbances which, in many cases, are the all-important factors. If our patient is one with a turbid liver, whose system is infected by auto-intoxication from the bowels, that factor must be taken care of. If this is done, the process of absorption from inflammatory products may be facilitated by hot water or stimulating vapor. Beautiful results are often obtained, not in the cases with osseous changes around the stapes, but in that multitude of cases in other stages. Here our results will depend largely on the amount of work we do. I have had a large experience with this class of cases, though I confess that I have been slow to put hydrotherapy into practice. I intend to try it.

DR. W. H. F. FITZGERALD, Hartford, Conn.—It seems to me that instead of looking for something in the mechanical line or for new therapeutic measures, we should allow Nature to help us a little in this direction. We all know that from 80 to 90 per cent. of aural difficulty is due to the fact that the individual does not use his nose as he ought to. The first thing to be corrected is the habit of mouth breathing. I venture that there are not half a dozen members of this Section present this morning who breathe as Nature intended they should. Those

who are not absolute mouth breathers talk, sing, whistle and take most of their air through the mouth. Every breath taken through the mouth is at the expense of the ear and the entire respiratory tract. I have followed this up carefully for two years and a half and have given up nasal douching, and teach my patients how to breathe physiologically. I should hesitate about telling you the splendid results I am getting in this way. I have followed this line of work for a number of years, having worked in Europe with Professor Politzer and others for nearly three years, and in the Boston City Hospital for two years and a half, so that I think I am in a position to criticize the usual methods of treatment. In the *Medical Record*, September 5, I made a note of this method, and I am told that it was the first time it ever appeared in print. I can not understand why this important point has been neglected. Normally we know the nose was intended to breathe through, and if the nose is not normal it should be made so and these patients should be taught to breathe properly.

DR. H. E. SMYTHE, Bridgeport, Conn.—I wish to call attention in this connection to the use of vibratory massage on the mastoid. While in charge of the dry middle ear cases in Dr. Wendell C. Phillips' clinic at the Manhattan Hospital, New York City, I employed vibratory massage extensively, and although the treatment was not confined to massage alone, the subjective noises were unquestionably benefited by it, the hearing in some cases seemed improved, and the progressive secondary dullness of the auditory nerve, so common in these cases from lack of use, was, I believe, retarded. An inexpensive apparatus which I have made use of in my office for the past year for this purpose is attained by attaching a pad to a Black nasal saw handle in place of the saw blade and using it with a flexible shaft and motor. The vibrations are not so rapid as with a more expensive apparatus, but the results have been very satisfactory.

DR. J. A. STUCKY, Lexington, Ky.—We come here to present our failures as well as our successes. I want to say that I have practically disregarded pneumatic massage except in very carefully selected cases. I think that there is danger of increasing the relaxation of the drum membrane. Our average case of chronic catarrhal middle ear trouble is overtreated locally. I think a great deal is to be expected from constitutional treatment. I want to speak in favor of the massage method mentioned by Dr. Smythe, for it will undoubtedly give good results. It takes a little time and we can teach an assistant how to give it. It should always be given in the recumbent position and with an apparatus capable of giving a stroke felt through the whole head. Patients with this trouble soon become listless, and it is a good plan to get them to test their hearing and acquire the habit of listening, paying attention with the ear as well as the eye. I will try the hot-water treatment.

DR. J. M. RAY, Louisville, Ky.—It seems to me that the whole question of the treatment of chronic catarrhal middle ear disease depends primarily on the diagnosis. Before any line of treatment is instituted a thorough functional test of the case should be made. As Roosa and others have pointed out, the ear possesses a surplus amount of hearing and a great deal of this can be lost before the patient begins to think about his ear: this is especially true in cases without tinnitus. Thus in most cases the disease has passed beyond the eustachian tube and pathologic changes have occurred before they come to us. I believe there are quite a number of cases of the kind known as oto-sclerosis, in which there is no change at all in the mucous membrane of the middle ear, the process being primarily a disease of the bony wall of the labyrinthine capsule. I fully agree that cases of tubal catarrh are, as a rule, well managed by nasal treatment, inflations and injections of solutions through the catheter. When we come to catarrhal middle ear disease proper we have a more difficult proposition to encounter. When we look around on the number of patients in our offices with nose and throat trouble, and see the number of cases of deviated septi, nasal polypi, etc., without any ear disease at all, there is a reason why we must consider what influence the nose has on these cases. I do not believe that we

ever see cases of well-defined middle ear disease influenced by nasal surgery. It is well to bring about the normal function of the nose, but if the characteristic changes are once fairly established in the middle ear I doubt very much if we gain anything at all by nasal surgery.

DR. R. W. SEISS, Philadelphia—We often lose sight of the fact that many forms of middle ear catarrh are an extension of one process, and our anatomy and physiology are often weak. These are all cases of fibrosis, beginning as a simple exudation of inflammatory cells; hence, we should avoid any thing that would cause fresh migration of leucocytes. The eustachian tube is not a dilatable canal; I have absolutely abandoned the use of the bougie, and I do not see how it can be introduced without rubbing off the ciliated epithelium, and if this is done it is replaced by the squamous variety, serious results following. As to the dependence of ear disease on the nose and throat, it starts there in all cases, but the immediate connection is often not apparent. We have no idea why certain catarrhal patients have ear disease and other persons do not. As to pneumatic massage, we are familiar with the good effects of massage on other parts of the body, and its value in causing absorption has been proved experimentally on the rabbit. The reason some men do not get good results from it may be because they do not use it properly. The advanced cases of sclerosis are as absolutely hopeless as is locomotor ataxia. All that can be done is to help the patient along. I use external vibration and that does some good, but it is simply another string to our bow and is not curative. As to excision, I was among the first to operate, some eighteen years ago, but I have never seen any good results from it in anyone's hands in aural catarrh. One case was recently shown me as being "successful," but the patient told me he was "nearly crazy" with tinnitus.

DR. E. PYNCHON, Chicago—This condition is far more prevalent than we recognize. We usually do not consider that we have catarrhal deafness to deal with until the patient complains of deafness. We ought to make a functional test of the hearing in each nose and throat case treated. I make a practice of so doing and find in about 75 per cent. of cases presenting themselves for nose and throat treatment some impairment of hearing, and often unrecognized by the patient. These chronic catarrhal cases are much more amenable to treatment in the early stages, and it is our duty to discover them in time to benefit them. I am in the habit of doing very little in the way of ear treatment until I have corrected those conditions of the nose and throat which have preceded the ear trouble and are causative factors. One speaker said that he thought patients with marked nasal trouble had no ear disturbances. I must disagree with him. The patient may not make any complaint of it, but an examination will generally show that the hearing is below par. Another speaker mentioned the importance of introducing methods to correct mouth-breathing, which, in other words, is simply an indication of nasal stenosis. There are two conditions which I find are most often instrumental in causing tubal trouble. The first is enlargement of the middle turbinal, and the second a buried or submerged condition of the tonsil, which is usually associated with chronic pharyngitis. Just how these submerged tonsils affect the eustachian tube is problematic, but it is probably first through continuity of tissue; second, through the swallowing of the secretions; third, through the increase of circulatory disturbances; and fourth, through the bulk of the tonsil. In such cases complete removal of the tonsil leaves a cavity large enough to hold the end joint of my index finger.

DR. JOHN O. McREYNOLDS, Dallas, Tex.—I wish to report an accident which materially relieved a case of chronic catarrhal deafness which had resisted all treatment. This patient was bathing in the Gulf of Mexico and arose to the surface after diving and discovered that his hearing was perfect. A number of days later the deafness returned.

DR. S. MACCUEEN SMITH, Philadelphia—We should aim to establish free nasal respiration. I believe we should first correct the nasopharyngeal trouble which is the cause. The deaf-

ness is entirely a different matter. For a few years I used both catheter and bougie very frequently. I found later that I was doing damage in using either one too frequently, and each succeeding year I have used them less, especially the bougie. I had a case recently in which the bougie broke off in the eustachian tube and the patient developed tubal inflammation, which extended to the ear and acute suppurative resulted. The physician in charge turned the case over to me and I made a free incision in the drum membrane, but it seemed impossible to keep this open. I eventually found it necessary to remove the malleus, incus and drumhead to keep the wound open. All symptoms finally subsided and what became of the portion of the bougie I do not know. It may have been discharged at some time, but I mention the case to show what may happen with the bougie. As regards removal of the ossicles and drumhead, eight or ten years ago I performed a series of 160 operations of that character on various cases involving the ear, sclerotic cases, the majority being patients who were willing that anything be done that would relieve them of the noise and vertigo. In practically all of these cases there was considerable improvement primarily. In very few, however, was this improvement maintained; in a few weeks the improvement became less marked and eventually they arrived at the point from which they started, and probably the hearing decreased more rapidly than it otherwise would have done. There were a few cases in which the improvement was maintained, and after eight years I still see some of them with very good hearing. I believe that will bear out the experience of Dr. Dench, who, in a scientific way, has got it down to a very fine point and can select his cases for this operation much better than I can ever do. We have been using hot air with some success. About three years ago I saw a patient in a town in Pennsylvania who had chronic catarrhal deafness. I told the attending physician that I saw little to be done except correct the catarrhal condition, which he was already doing. He went home, however, and started in with irrigations of hot water in the ear, allowing three quarts to run in every second day. Six months later I was perfectly astonished to see the improvement that had taken place. All the noises and vertigo had entirely disappeared.

DR. B. A. RANDALL, Philadelphia—I have used hot air, but expect little from it. In acute inflammation I have confidence in the douche in the external ear and shall use it in these catarrhal cases. These patients are numerous in class and character, as well as in absolute numbers. The statement made fifty years ago that one adult in three is deaf in one or both ears is well borne out to-day. I do not believe the typical sclerotic cases with change in the labyrinth capsule are very numerous. The other form, which is amenable to good treatment by establishing proper nasal respiration and practice of the individual in good breathing, is undoubtedly of great importance. Harrison Allen, the father of rhinology, insisted strongly on the point of teaching patients how to breathe. When this is done the catheter treatment, carefully employed, but not kept up too long, will cure or benefit a very large proportion of these cases. The measure which I have set in dealing with this class of cases is a very practical one. We must treat the patient again before the benefit of the previous treatment is lost. When treatment after some six weeks ceases to give growing duration of benefit it is suspended; pneumatic massage should be kept up and hot gargling, by which the astringent heat is applied where the gargle itself does not go. When we begin to note relapse it is time to begin treatment again, though the course of treatment should be shorter. This is old-fashioned treatment, and not brilliant, but it is rational and commends itself to experience.

DR. E. B. DENCH, New York City—I do not think anyone will doubt the advisability of opening up the nose and establishing good breathing in these cases. Yet it is true that we find some of our most difficult cases have perfectly free nasal breathing. Every case must be treated individually and not according to any set rule. If the eustachian tube is obstructed it must be opened up mechanically and the bougie is the only thing that will do this; it does not make much difference what

kind of a bougie is used. Use anything that will go through. External massage over the mastoid does not appeal to me, but I am glad to hear of the good results. I have found massage advantageous over the eustachian tube, and I think massage of the tissues of the neck valuable in certain cases. It can be applied by the vibratory apparatus or by the hands. It seems to me that massage over the mastoid would be productive of evil results, but others have found it beneficial. I am surprised no one has mentioned massage by means of sound, the massicon. I have seen it used by other people, and in every case the result was had. Marvelous reports have been given out by some men, but I can not recall a single case where the ultimate outcome was not unsatisfactory.

I have been quoted in regard to ossiculectomy and I agree with Dr. Smythe that it is of value in selected cases. The patient must understand that the surgeon is very human and that the result may not be good even in selected cases. We are often afraid to operate on cases in the very early stages, and it would be better if we would do this early. The cases I operate on are those in which the hearing is reduced, tone conduction increased, lower tone limit elevated and the upper tone limit is normal. I never touch a case where I have diminished bone conduction or reduction of the upper tone limit. I have had some poor results, but, as a rule, they are good in selected cases. I follow Dr. Randall's plan exactly and I suppose that is why I get good results. Repetition of treatment must be governed by its effect in each case. I have often found that after these patients have reached a certain point they complain that the hearing is temporarily impaired after treatment, and then it is time to stop for a while. They can fix the length of the interval much more accurately than the physician. I think hot water may be successfully used in certain cases, but it is more applicable to hypertrophic otitis than to the hyperplastic form. There we have a condition analogous to pelvic cellulitis and hot applications may be of benefit. But I should not look for benefit in chronic hyperplastic otitis media. Where there is a history of repeated attacks of subacute inflammation following cold in the head, etc., the hot water treatment might be of decided benefit. We must remember that we are dealing with a different tissue from that of the pelvis and that this tissue is not so readily acted on by hot water.

DR. J. J. KYLE, Indianapolis—The object aimed at in the treatment with hot water and with vibration is the same, i. e., stimulating the metabolism of the middle ear and absorption of the exudate. I think the vibration treatment is better than hot water. If you leave the hand in hot water for a time, you will find that the epithelium shrinks; inject water into the nasal chamber and you get the same effect. Throw it into the ear and you have the same result. In the treatment of catarrhal conditions, it would be better to use normal salt solution to stimulate absorption. My results with the vibratory treatment have been good, but there is no one case that can be treated just like another. I have removed obstructions in the nose and throat and found the case get worse. Some cases have gone to the coast with satisfactory results. We simply have to be governed by the circumstances in each case.

DR. PHILIP D. KERRISON—As to the value of the eustachian bougie, which one of the speakers condemns as injurious to the tubal mucosa, we must remember that in the cases in which the bougie is indicated we have to deal with a mucous membrane which is already diseased. If the tube is stenosed, or considerably narrowed, the first and most positive indication is the restoration of its normal caliber. When this can not be accomplished by inflation, the bougie becomes a necessity and must be employed. After the patency of the tube has been re-established, I believe that the subsequent treatment should be continued only so long as continuous functional improvement can be demonstrated. When the hearing tests show that no functional gain is being accomplished, the treatment—for the time at least—should be discontinued. This I think is important.

DR. G. P. HEAD—When we remember the results secured in

very large joints of the body, in ankylosis, by the combined use of heat and massage, it seems to me we have not very much right at present to limit the effect we may get in hyperplastic or hypertrophic otitis media by the combined use of some form of heat and massage.

THE ELIMINATION OF DISEASE.—Surgeon-General Wyman of the United States Public Health and Marine-Hospital Service delivered an address at the University of Missouri, Columbia, Mo., Sept. 26, 1904. He took as the subject of his remarks "The Elimination of Disease." He referred first to the great epidemic diseases, such as cholera, yellow fever, bubonic plague and smallpox, and showed how, under modern methods, these diseases have lost their terrors. He declared that there was not one of them that was not amenable to treatment by scientific repressive measures, and stated that the day is not far off when the dread born of these great epidemics will be a matter of history.

He then referred to what he termed the lesser epidemic diseases, and stated they were in reality of greater importance than the others; that they caused more sorrow, a greater number of deaths, and greater physical suffering than the others, but that these, too, can be eliminated. By these lesser epidemic diseases he meant such diseases as tuberculosis, typhoid fever, measles, scarlet fever, malarial fever and diphtheria.

He spoke especially to the students of the university as the men who in the future will have the molding of public opinion from which will be crystallized the necessary laws, organizations and other means for the elimination of these diseases. He declared that while many of his audience might deem this idea Utopian, it really is not Utopian. The end would be attained through an enlightened public sentiment, by a wider and more popular diffusion of sanitary knowledge, and by the perfection of municipal, county, state and national health organizations. Already the co-ordination of these various bodies has been in a measure secured—at least, a good beginning has been made—and it devolves on the people, the voters, to make impress on their city councils, their state legislatures, and the National Congress, so that the official health organizations shall be made perfect and adequate appropriations be made.

He declared that the time is near at hand when the people themselves will be unwilling to have remain insanitary conditions which permit the development of diseases that may be prevented by improving the environments of man; so that pure air and plenty of it, sunlight, pure water supplies, and effective disposal of wastes, will be as strongly demanded as is now the cleanliness of the household.

He showed the influence of international effort to this end, through international sanitary conventions—both official and unofficial in character—and how the influence of one nation on another is becoming daily more acutely felt.

He appealed for a support of these ideas by reason of their effect in the general advance of civilization and in placing humanity on a higher plane of living; that with removal of insanitary environments and the resultant health of body and mind, all other efforts being made for advancement along lines represented in the recent World's Congress of Arts and Science would be enhanced.

He closed with an appeal for the development of public sentiment which will demand existence under more perfect conditions.

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THE ACTION OF THE X-RAYS IN LEUKEMIA.

Since the publication, in August, 1903, of Senn's report of a case of leukemia treated with the x-rays, the number of recorded cases has been increasing weekly. In March, 1904, at the time that Brown¹ published the second recorded case, we commented editorially on the subject, mentioning the fact that the way in which the rays acted was obscure, and suggesting conservatism in drawing conclusions as to the permanent effect of this form of treatment. The publication of the numerous cases above mentioned and the accumulation of certain scientific data make it worth while to draw attention to this subject once more.

The experimental work of Heineke² seems to throw some light on the *modus operandi* of the x-ray in leukemia cases. This author shows that the exposure of certain of the lower animals to the action of the x-rays leads to definite changes which affect particularly the blood-forming organs and the blood. The changes in the spleen affect the follicles, and in the lymphatic apparatus of the intestines, pharynx and other portions of the body the germinal centers are particularly affected. The changes which take place after the application of the rays are in the form of a necrosis of the cells of the affected part, the necrotic particles being removed by phagocytes. These changes begin to occur from eight to twelve hours after exposure to the x-rays, and reach their maximum at the end of about twenty-four hours. The changes in the bone-marrow are quite intense, and there may be destruction of the bone-marrow elements on a large scale with their replacement by fatty tissue. The destruction of leucocytes in the circulating blood, while it undoubtedly takes place, is slight in degree. The point of greatest importance brought out by these experiments is the specificity of this reaction, the changes being limited to the blood-forming organs, and not affecting the other tissues of the body. It seems reasonable to assume that these changes occurring in the animal body may, at any rate in part, be the same as those which occur in man. There are, however, certain difficulties in the way if we desire to assume that all the changes which occur as the result of x-ray treatment can be explained on the basis of this experimental work. The mere decrease in number of the leucocytes and the decrease in size of the

spleen can doubtless be explained by the specific destructive action of the rays, but this will not explain the qualitative changes in the white corpuscles. It is to be noted in looking over the reports on this subject that the decrease in the number of the leucocytes under x-ray treatment was sometimes accompanied by a normal differential count and sometimes not. In some cases, even after the spleen had greatly reduced in size and the number of leucocytes was normal, the differential count still showed the presence of myelocytes in the circulating blood. Evidently something else than a mere destructive agency is needed to explain such qualitative changes.

The clinical reports of the last six months, most of them of American origin, a few of French and German, show that the x-rays have a palliative effect on leukemia. In the great majority of the reported cases the patient has gained in strength and weight, the color has improved, and often the patient has regained the appearance of health. In some instances unpleasant effects have been observed, and the treatment has had to be temporarily discontinued. Aside from the unpleasant local effects of the x-rays, some patients have suffered from fever, headaches, weakness and other unpleasant symptoms, which may have been due to a too rapid destruction of leucocytes with absorption of broken-down cell products. While spontaneous improvement of this disease, similar in all respects to the improvement under x-rays, may occur, studies of series of cases which were treated before the x-ray treatment was established show without doubt that such spontaneous improvement is very much the exception under normal circumstances. If there was any doubt of the action of the rays, some of the published charts, showing decrease in leucocytes during x-ray treatment, and increase during absence of treatment, would dispel it.

Whether the apparent cure which has resulted in some cases is a permanent one is the important question, and time alone will answer it. The blood reports in the recorded cases are, unfortunately, not always scientifically impeccable; still there are many which leave nothing to be desired, and some of these hold out the hope that the cure may be permanent in some cases. In other cases, as we have stated above, the differential count of the leucocytes has shown the presence of myelocytes, even when the number of leucocytes was normal. It seems doubtful whether such patients will permanently recover; at any rate, they certainly can not be regarded as well so long as the myelocytes are present. It is well to note, too, that patients apparently recovering may die very suddenly, and in some of them the internal organs have been found to show the lesions of leukemia distinctly marked. Capps and Smith³ bring forward the fact that in no case has complete disappearance of the spleen tumor been noted as an argument against permanent cure. We would point out that in

1. THE JOURNAL A. M. A., March 26, 1904.
2. Münchener med. Woch., II, No. 18.

3. THE JOURNAL A. M. A., vol. XIII, No. 13.

chronic cases, and many of the recorded cases had lasted two years at least, there is a good deal of fibrous tissue formation in the spleen, and this could not be expected to disappear under the *x*-rays. We believe that the evidence up to the present indicates that a great deal is to be hoped for in the treatment of leukemia by the *x*-rays, so far as the palliation of the disease is concerned, and that there are reasonable grounds for the belief that such treatment may be actually curative in certain cases.

A PRELIMINARY FIFTH YEAR IN THE MEDICAL CURRICULUM.

In another column, Dr. John Rogers, the secretary of the Cornell University Medical School, suggests a plan for securing a better preparation of students for the practice of medicine, which is worthy of consideration. From the statement that there is necessity of providing more time for both pupil and teacher—of demanding a better preparation for medical work—there can be no dissent.

With the conditions existing in medicine at the present time, it is reasonable and necessary to demand a longer period of preparation than is afforded by an ordinary high-school course, plus four years in the medical college. Medicine has made more progress in the direction of scientific exactitude in the last quarter of a century than in all its previous history, and needs for its intelligent study and comprehension a broader and more thorough training in the principal facts and methods of the fundamental sciences than is afforded by the secondary schools.

We are in accord with Dr. Roger's suggestion that an added preparation should be made in the premedical branches, for it is in these that the deficiencies of our present-day students and of the profession are most obvious and of most serious import. As to the proposal, however, that the instruction in the subjects should be given in the medical school rather than in the college or university proper, there is room for difference of opinion. It would seem that in such a step the medical school would be usurping the function which belongs properly and logically to the institution for general learning. The premedical subjects enumerated by our correspondent come logically within the domain of the college proper, and, with the possible exception of bacteriology and physiology, there are few, even of the smaller colleges, which are not well prepared to teach them—better equipped, indeed, both in faculty and in teaching appliances than the majority of medical colleges.

Medicine is applied science, its study and practice consisting in the application to the investigation and treatment of disease of the principles, facts and methods of certain fundamental sciences—among them physics, chemistry and the several biologic branches. Preparation for medicine, as for any other profession,

naturally divides itself into a general education, whose chief purpose is the training of the faculties and the mastering of the fundamental subjects, and technical instruction in the application of these fundamental sciences to the specific problems of medicine.

General education is the province of the institution devoted to that purpose—the secondary schools and the college or university. The medical school should devote itself exclusively to the technical instruction, the applied science, and this it can only do to best advantage when its students have already mastered, in a broad and comprehensive manner, the principles and methods of the sciences to be applied. The curriculum of our better colleges includes those sciences fundamental to medicine. Is it a serious hardship to demand of every student intending to take up medicine that he spend one or two years in such a college? Surely a year in such an institution would be more economical and advantageous than the proposed extra year in the medical school. Such colleges are numerous in all portions of the United States, and, in the matter of tuition and cost of living, much less expensive than the majority of medical colleges.

If one year of such college work be demanded for admission to every medical school, a larger proportion of those who enter the college intending to take only this one year, will be inspired, and will find it possible to take one or two additional years—in many cases to secure the bachelor's degree and to pursue other studies which are nearly as essential to the adequate education of the successful physician as are the premedical branches above enumerated. Many medical students of the present time are unable to speak and write the English language as correctly as is befitting to the members of a learned profession; a majority have not had the training in mathematics which is essential to the thorough and intelligent comprehension of modern physics and chemistry; and a reading knowledge of German and of French is acknowledged to be of great advantage to the physician who is ambitious to be at the front. Our correspondent would hardly consider these subjects as coming within the province of the medical school, yet they are as important as some of the premedical sciences he mentions. It would be of far greater advantage, for example, for the student designing to enter the Cornell University Medical School to spend the suggested premedical year in the University at Ithaca, than in the medical department in New York City.

The time has arrived when every medical college should demand at least one year of college work, in specified, essential branches, as a prerequisite for admission. It will, however, defeat the very purpose which is sought to be accomplished, if, encroaching on the domain of the institution for general learning, the medical college attempts to give instruction in subjects entirely without its province and which it is wholly unfitted to undertake.

There is a fifth year, quite within the legitimate and logical sphere of the medical college, which, when the time is ripe, may with great advantage be required, and that is a practical clinical year, to be added to the further end of the present curriculum, and to consist of a hospital internship. When the annual enrollment of medical students has been reduced to only such proportions as are actually needed to supply the demand; when the ratio of internes to patients in the larger hospitals has been doubled, as it must be to render adequate attention to their patients, and when the hospitals which are springing up so numerously in the smaller cities and towns throughout the country have created a greatly increased demand for internes, it will be easily possible to provide every medical student who has completed his fourth year in the medical college with a hospital service. Any technical difficulties—legal, educational or administrative—which may arise will find a ready solution. No such step should be undertaken, however, until an adequate premedical education, prescribed in the requirements for admission, has been fully and universally secured.

THE CYTOLOGIC EXAMINATION OF EXUDATES AND TRANSUDATES.

Although the methods introduced by Ehrlich as a result of his classical research on the blood were well known to the profession as early as 1880, it was not till sixteen years later that any serious attempt was made to apply these methods to exudates and transudates. As a matter of fact, the attention of the entire profession was not drawn to the subject until after the work of Widal and his associates in 1900. It will be remembered that it was Widal who gave the name "cytodiagnosis" to this method, although he did not, as many suppose, originate it. In a recent editorial¹ we called attention to the value of this procedure in diseases of the central nervous system, but its value in exudates and transudates in other situations, more especially in pleural effusions, was not discussed.

Within the last few weeks two important papers bearing on this subject have appeared; that of Lewkowicz,² which deals with the subject in general, and that of Musgrave,³ which deals with cytodiagnosis in pleural effusions. As Lewkowicz points out, cytodiagnosis has gone through the same phases as did its ancestor the differential blood count. In the earlier days of blood work it was thought that each disease had its own specific blood picture, a conception which was soon shown to be false; the earlier observers in cytodiagnosis also seemed to think that they had at last found the specific diagnosticum, but time has shown that their views were based on insufficient experience, and we are now in a position to take a more rational view of the matter. As far as technic is concerned, we need add nothing

to the description given in a previous editorial, except to insist once more on uniformity in technic, without which it is useless to compare the work of the different observers.

In their discussion of the pictures observed in the smears, both Lewkowicz and Musgrave follow the classification first definitely proposed by Widal, i. e., they classify the cellular formulae according to the predominating type of cell. Thus if lymphocytes predominate in a given exudate, this comes under the head of exudates having a lymphocytic formula. In the same way we recognize the polynuclear formula, the mononuclear formula, the endothelial formula, and the erythrocytic formula. It is, of course, apparent that in many cases several varieties of cells are present, but it is the predominant cell which classifies the picture.

The class of effusions to which this form of diagnosis seems especially applicable are those occurring in the pleural cavity. In serous pleurisy particularly there would seem to be room for some method which will tell us within a short time, and with reasonable certainty, the etiology of the affection. While it is true that the probable tubercular nature of such effusions has been preached in certain quarters for some time, the proof that such is the case often depends on such slow processes as animal inoculation, or is lacking until after the death of the patient, when it is of no value. It has been shown, too, that animal inoculation frequently fails when subsequent events show without doubt the tubercular nature of the process. It is also true that a certain percentage of serous effusions are not tubercular, and it is in just such cases that cultures may be negative. The old observations of Widal and Ravaut led these observers to conclude that a lymphocytic formula meant tuberculosis, a polynuclear formula infection with some of the ordinary pus formers, and an endothelial formula either some mechanical injury or a transudate. They modified their statement regarding pleural tuberculosis somewhat by dividing the cases into primary tuberculous pleurisy, and pleurisy secondary to tuberculous lesions in the lung. In the latter class of cases they showed that the lymphocytic formula was replaced by a polynuclear one, in which the individual cells showed very marked necrotic changes. Naunyn, who confirmed these observations in the main, showed that a lymphocytic formula might occur in transudates of long standing, near the end of pyococcal pleurisies, or in pyococcal pleurisies where the infection had been mild from the beginning. It is obvious that in the case of long-standing transudates the specific gravity and percentage of albumin would serve as a differential point, while in the case of infectious pleurisies with an atypical cyto-count, the history should put one on the right track. Musgrave's work confirms conclusively the original observations of Widal and Ravaut. In twenty-three cases definitely proved to be primary tuberculous pleurisy, the lymphocytic formula was present in twenty-two, and in the twenty-third a polynuclear

1. THE JOURNAL A. M. A., Oct. 1, 1904.

2. Wiener Klin. Woch., xvii, No. 37. THE JOURNAL, page 1270.

3. Boston Med. and Surg. Jour., vol. cli, Nos. 12, 13 and 14.

formula with great cell necrosis suggested that the case was really one of secondary tuberculous pleurisy. Lewkowicz also concludes from the examination of a large number of pleural exudates that the lymphocytic formula, almost without exception, means tuberculosis. Musgrave was also able to confirm the observation that the polynuclear formula means pyococcal infection; he shows, too, that in pneumococcus infections there are generally present very large phagocytic cells; that their presence in large numbers indicates a favorable outcome, and that their absence, especially if large numbers of bacteria are present, means a subsequent empyema. The significance of the endothelial formula is somewhat changed by the work of Musgrave and Lewkowicz; while they support Widal's original statement that this formula is present in transudates and mechanical lesions, they both find that it is also present in malignant growths involving the pleura. Musgrave states that in these cases lymphocytes are also present as a rule, while Lewkowicz mentions the occasional presence of polynuclears, which he thinks indicate a secondary infection of the growth.

As far as pleural effusions are concerned, then, we think it can safely be said that this method seems to be well worthy of a more extended use. It may be of distinct value in confirming or refuting the diagnosis in some cases, while in others it may have prognostic value. In general terms it may be stated that the endothelial formula means mechanical irritation, transudation from heart or kidney disease or new growth, the polynuclear formula indicates pyococcal infection, and the lymphocytic formula infection with an organism leading to a chronic serous inflammation, such as the tubercle bacillus. Those who have had the most experience with the test are the last to claim absolute specificity for it. It must never be forgotten that medicine is, after all, as Oliver Wendell Holmes once remarked, mainly a question of probabilities. Nor must it be forgotten that all such laboratory procedures are merely aids to diagnosis, and must be used to support close clinical observation and not to supplant it.

HYPNOTISM AND INEBRIETY.

Hypnotism has had its enthusiastic advocates for the treatment of almost every ill to which mortal flesh is heir, including even the mental and moral deficiencies. Its recommendation, therefore, for the cure of alcoholism is a perfectly natural one. We can not, however, support the belief apparently held by certain physicians that it alone, applied as a purely therapeutic measure, will be found to meet the claims of its advocates. There may be cases of periodical drinking, due to organic physical defects, often hereditary, in which hypnotic suggestion properly applied at just the right time might, like any other therapeutic measure, ward off or mitigate the attack. In such cases we have a physical disease, not an acquired vice, and the will power

is ordinarily not necessarily defective during the interval.

Such cases are not hopeful ones, however, when well pronounced, under any merely medical treatment, hypnotic or otherwise. The most rational and effective method with them would be isolation and compulsory deprivation of alcohol from the first symptoms of the attack, together with such medical treatment as might be needed for supporting and toning up the system through the crisis. The great majority of inebriates have an acquired craving with weakened will power to resist it, and in most cases hypnotism or even suggestion in its wider sense, is insufficient to effect a cure, excepting under the most favorable circumstances. Only the very strongest moral stimulus, changing the whole moral nature and impulses, is effective. There are, however, many cases cured in this way. Every great temperance revival has been followed by such, but this is not hypnotism in any ordinary acceptation of the term. The alleged successes of the so-called alcohol cures are based on the honest desire of the individual to be cured of this habit, and not on the drugs, injections and other accessories of the treatment. Suggestion, of course, plays a large part in any treatment, but to be a success it must be permanent and constant, auto-suggestion reinforcing the patient's will and honest desire. The patient who puts faith in hypnotism alone and does not follow it up by earnest effort is not a hopeful case, and will sooner or later give way to the temptations that surround him.

While there are many cases that reform by auto-suggestion—started, it may be, by a hypnotic treatment, but far more frequently by some moral movement, temperance revival, etc.—in many cases, and probably in the majority, pronounced inebriates require other therapeutic measures to support the organism in throwing off the physical craving and relieving the disturbance caused by the removal of the customary stimulant. Hence the value of really scientific institutions for the treatment of these subjects where a certain amount of compulsion and removal from temptation can be provided for.

A CHINESE EDDYITE.

It is said the empress of China, once the *bête noire* of all foreigners in "The Long-Lived Empire," has succumbed to the combined influence of the wife of the American minister and of Eddyism. The former modestly refrains from any positive statement as to her conversion of the empress to the new cult, and at present the matter rests on the presumption that the liberalizing of the royal old lady's views has been accomplished by the personal efforts of the ambassador's wife. Should history record that the "yellow peril" had been diverted from "ways that are dark" to the relatively calm pursuits of occidental industrialism by the intervention of one of the morbid religious obsessions of our time, the psychologist will instantly be reminded of

the part played by the insane in ancient religions. In the light of such a possibility and in the hope of hastening the approach of the millenium, it would seem pertinent to suggest that John Alexander Dowie should at an early day be made minister to the Congo Free State. The resultant blessings would be somewhat evenly distributed between "Darkest Africa" and Zion City, Illinois.

TESTIMONY IN RAPE CASES.

In our medicolegal items this week there is quoted some new legislation in Virginia regarding testimonies in cases of rape, that seem meritorious. There is no doubt that the public examination in court of the victim in such cases is often an outrage on decency, and may inflict an injury that can never be atoned for, perhaps blighting a whole life and adding infinitely to the hardship already undergone. Under the new Virginia law this evil is largely, if not entirely, removed. There is another and a more medical aspect of the case that is worth noting; the possibility of hysterical accusations is well recognized, and the prospect of a public examination and public sympathy in such is liable to only aggravate the hysterical tendency, at least in many cases. It seems to us that the private examination, properly conducted, is far more likely to determine the actual mental state and reliability of the witness. It is within the power of the judge to have competent expert assistants in taking this testimony, and the presence and counsel of a skilled physician in such cases might be of the utmost value and would be very naturally suggested by the defense. Perhaps a specific provision for such aid might be an advantageous addition to the law.

ENDOCARDITIS AS A COMPLICATION OF MUMPS.

The belief may still prevail in some quarters that all children must at one time or another pass through the exanthematous diseases, and it may still be the practice in some families to expose all of the children to the risk of infection when any one suffers from one of those diseases, but it has been so frequently and so conclusively demonstrated that any infectious disease, no matter how apparently mild, may be attended with serious if not disastrous consequences that no intelligent physician will sustain such belief or sanction such practice. Of the exanthemata, as of other infectious diseases, it has been shown that endocarditis is by no means a rare complication. Among these, mumps or epidemic parotitis is considered so insignificant a disorder that often a physician is not called in attendance, and, as a matter of fact, the disease usually pursues its course without more serious complication than suppuration of the parotid gland. At times, however, orchitis or ovaritis or mastitis occurs in the course of the disease. Less commonly metastasis apparently takes place to other structures, such as the nervous system, the organs of special sense, the mucous membranes, the serous membranes. Endocarditis has been recorded as a rare complication, the number of cases reported being small and the references in current literature and text-books to

this association being few. On this account the recital by Rudolf Taschner¹ of four cases in one family must be considered as extraordinary. The children were 11, 9, 7 and 5 years old, respectively, and each had an attack of mumps at a time when the disease was epidemic in the community. In all there developed symptoms of endocarditis, which it seemed reasonable to attribute to the attack of mumps, inasmuch as, among other things, the presence of any other infectious disease appeared to be excluded. This observation suggests that endocarditis may be a more frequent complication of mumps than has heretofore been suspected, and it should likewise carry with it the admonition that an attack of mumps ought not to be neglected, but, on the contrary, the possibility of the occurrence of endocarditis as a complication should not be ignored, and precautions be taken to lessen the likelihood of its development.

LOW RATES FOR THE PORTLAND SESSION.

We are glad to announce that very low rates have already been agreed on by the western railroads for the Portland session. The round trip rate will be \$45 from all Missouri River points. The passenger associations that have thus far acted have agreed on a half rate from their eastern territory to Missouri River points. This will make the rate from Chicago, for instance, \$56.50. From present indications, half rates will be given from all points South and East, with the possible exception of the New England Passenger Association territory. The time will be practically unlimited, terminating late in the fall. Thus those who desire can make the trip to Portland their summer vacation. Arrangements are being considered whereby a special train or trains will run a week before the session by way of Yellowstone Park, giving a chance to spend a week there on the way West. Similar arrangements can be made by individuals or parties for the return trip. Members will be able to go by one route and return by another. In future issues of THE JOURNAL we hope to be able to give a description of the various routes and their attractions.

FAMILIAL TABES DORSALIS.

There will probably be no dissent from the view that syphilis, if not the sole cause, is at least the most important etiologic factor in the development of tabes dorsalis. Further, while the definitive demonstration is as yet wanting, there is no reasonable doubt that syphilis is an infectious disease. Strictly speaking, syphilis can not be considered an hereditary disease, the transmission to the fetus in the uterus taking place, as a rule, by way of the maternal blood through the placenta. We have, under such circumstances, to deal rather with a difference in the medium than in the mode of transmission, and the acquisition of the disease on the part of the fetus is entirely comparable with that which takes place in postnatal existence. A number of diseases are known to exhibit at times a familiar distribution, and it is to be inferred that this fact is dependent on some inherent vice of development or is indi-

1. Wiener med. Woch., No. 31, 1904, p. 1453.

cative of a susceptibility to the specific exciting causes of the respective disorders in question. Cases are on record in which several members of the same family, although exposed to different conditions, have presented symptoms of tabes dorsalis. Dr. M. Nonne¹ has only recently reported the occurrence of tabes in a mother and two daughters, the latter on close scrutiny being found to exhibit stigmata of congenital syphilis. The cases, apart from occurring in women, were interesting further, because of the presence of optic atrophy, in conjunction with a slight degree of ataxia. A healthy child was born between two infected children. Nonne refers also to other cases in his experience illustrating a familial distribution, due possibly under varying circumstances to different causes. Thus a child, its mother and its father all developed tabes in the sequence of extragenital infection with syphilis. In another instance, a syphilitic husband, his wife and a child born five years after the infection of the father all became tabetic. It seems probable that in the cases cited and in others of similar character different factors may be operative in different cases. In some there may be a familial predisposition or susceptibility. In others, perhaps the syphilitic virus may have a specific activity with reference to the nervous system, especially the posterior roots and columns; while in still other cases other influences may be at play. Altogether the subject is one deserving of further investigation.

Medical News.

CONNECTICUT.

Thousands to City Hospital.—Miss Mary Terry, who died in Venice a month ago, left \$300,000 to the City Hospital of Hartford, Conn.

Infectious Diseases.—The State Board of Health received reports during September of 2 cases of smallpox, 4 of measles, 44 of scarlet fever, 1 of cerebrospinal fever, 115 of diphtheria, 3 of whooping cough, 138 of typhoid fever and 16 of consumption.

School Inspection at Waterbury.—The Waterbury Board of Health has decided to appoint two medical inspectors, who shall inspect all schools in the city once every two weeks. Drs. Charles A. Monagan and William A. Goodrich have been appointed the medical inspectors.

September Deaths.—During September 1,167 deaths were reported, equivalent to an annual death rate of 14.3 per 1,000. Of these 158 were due to diarrhea in children under 5, 134 to diseases of the nervous system, 111 to heart diseases, 103 to consumption, 68 to violence and 31 to pneumonia.

ILLINOIS.

Recovering.—Dr. Ira Brown, Milford, who was seriously injured by falling from a bicycle, is making a satisfactory recovery.

Smallpox.—The inspector of the State Board of Health reports that he has found 7 cases of smallpox in a mining camp near O'Fallon.

Bequests to Peoria Hospitals.—By the will of the late Henry Schwabacher, Peoria, bequests of \$200 each are made to the Cottage and St. Francis hospitals.

Diphtheria Epidemic.—It is reported that diphtheria is raging in Deerfield, that three deaths have occurred, and that the village school has been closed.—The disease has spread from East Peoria to Wesley City where six families are under rigid quarantine.

Chicago.

Praises Interne System.—At the annual banquet of the Cook County Hospital Alumni Association Dr. William E. Quine was toastmaster, and Dr. Frank Billings declared the interne system at the hospital to be the best in the world.

A Healthy Year Thus Far.—The Health Department Bulletin states that at the close of October there had been 22,058 deaths from all causes since the first of the year. This total is 1,817 fewer than for the corresponding period of 1903. The rate for 1904 may be even lower than that of the year 1901, which now holds the record with a rate of 13.88 per 1,000 of population.

Charities.—The Schwabenverein at its annual meeting donated \$150 each to the German Hospital, Alexian Brothers' Hospital, St. Elizabeth's Hospital, Michael Reese Hospital, South Chicago Hospital, St. Joseph's Hospital and St. Anne's Consumption Hospital, and \$50 to St. Francis' Hospital, Park Ridge.—The will of Moses Bensinger devises \$1,000 to Michael Reese Hospital and \$500 to Alexian Brothers' Hospital.

A Low Death Rate.—The average annual October death rate from 1893 to 1903 was 14.24, the lowest 11.98 in 1898, and the highest 17.89 in 1893. For October, 1904, the rate was 11.58—3.3 per cent. lower than the record lowest, 18.6 per cent. less than the average for thirteen years, and more than 35 per cent. lower than the highest of that period. Diphtheria deaths were 38 less (exactly one-half), heart disease 20 less, nervous diseases 29 less, pneumonia 47 less, scarlet fever 8 less, suicide 11 less, and typhoid fever 12 less than in October, 1903.

Unripe Vaccine.—On account of the extraordinary demand for vaccine virus, which has caused some producers to place "unripe" lymph on the market, the health commissioner has tendered to all producers of vaccine the services and facilities of the laboratory of the Health Department, and of its expert clinicians, in the bacterial and clinical examinations of their vaccine products offered for sale and use in Chicago. All vaccine submitted for such examinations, and found to be pure—that is, free from disease-producing organisms, and potent—that is, producing not less than 90 per cent. of successful primary vaccinations—will be so certified by the department. Defects in either respect will be duly notified.

MARYLAND.

Granted New Trial.—Dr. Joseph Ohlendorf, adjudged guilty a few days ago at Upper Marlboro of manslaughter in committing criminal abortion, has been granted a new trial and released on bail for \$7,000.

Personal.—Dr. B. Curtis Miller, surgeon in charge of the Western Maryland Hospital, Cumberland, has resigned and has been succeeded by Dr. Clinton Brotemarkle, formerly of Lonacoring.—Dr. William J. G. Whiteford of Baltimore County is on a visit to St. Louis.

Seeks Restraining Order.—Dr. Basil B. Crawford of Montgomery County has filed a bill asking that a Mr. Dorsey be restrained from suing him for damages. A temporary injunction was granted. In November, 1903, Dorsey brought suit against Dr. Crawford, alleging malpractice in the treatment of a fracture of the leg, and last March the case was nolle prossed.

A Maryland Abortionist Gets No Pardon.—Mention has been made of a petition to the governor for the pardon of Dr. George C. Worthington, a convicted abortionist now serving a ten years' sentence in the Maryland penitentiary for manslaughter by criminal malpractice. On this petition were the names of state senators and representatives, a member or two of Congress, lawyers, merchants, clergymen, women and doctors. November 2, backing this appeal, a large delegation appeared before the governor at Annapolis. The spokesman, an ex-state senator, appeared in behalf of "the citizens of Baltimore and the state of Maryland." The object of the appeal, he said, had become a physical wreck since his incarceration; his financial condition was also a wreck; his wife and daughter were without means of support; a mother in her eighty-ninth year awaited him; the majesty of the law had been vindicated, and transgressors taught that they would be punished for their offenses; a multitude of people desired the pardon; the jury had unanimously signed a petition for his release; he would henceforth live beyond the confines of the state; while he may have done wrong, who shall cast the first stone? If the operation had been successful and shame had been saved the woman's family, nothing would have been said, etc. A state senator said that at least one-half of the members of the house of delegates and a majority of the members of the senate had signed the

1. Berliner klin. Wochenschrift, Aug. 8, 1904, p. 845.

petition. A physician is reported to have stated to the governor "that he had practiced medicine eighteen years and could readily understand how Dr. Worthington had fallen into an indiscretion, and while the law had been violated, it would be well to remember that by his acts he had saved many a young woman from going forth marked with disgrace and shame." Silence ensued, broken only by a sob from near the door. This evidence of grief was supposed to come from some of Dr. Worthington's friends. "Is there anything further to be said?" asked the governor. There was silence for a few seconds when, in a half-hesitating way, the slight figure of a woman approached the governor, who turned and looked inquiringly. A convulsion of grief shook her from head to foot. It was but for an instant. Then, throwing her head erect, with both hands outstretched, she cried: "I am the mother of the dead girl!" A storm of pent-up grief burst forth while the members of the delegation stood aghast. Controlling herself as best she could, the woman continued: "I object to this pardon. I am a Christian woman. I have lived eighteen years in my neighborhood and you may ask any of my neighbors concerning my respectability. I am not responsible for the death of my poor girl. I tried to rear her properly. She told me on her dying bed that Algive was responsible for her condition and that Dr. George C. Worthington had performed the operation which later caused her death. I could tell you more that she said, but on account of this frightful crime I have keenly felt the disgrace which it has brought to me and my family, and on these grounds, lone mother that I am, I come here to protest in my humble way against granting a pardon to this man and to ask that he shall serve out his full time and receive full punishment for the crime he has committed." This unexpected appeal fell like a bolt out of the clear sky. Several minutes elapsed before the members of the delegation could collect themselves, and the governor showed plainly the effects of the incident. The governor was the first to speak, saying that the opinion was almost universal that the punishment meted out to the prisoner was not commensurate with the grave crime committed by him. He, therefore, declined to extend executive clemency. The members of the delegation then fled out in silence, while the woman took the governor's hand, exclaiming: "God bless you!"

Baltimore.

Hemmeter Given Desk.—At the close of his lecture on physiology at the University of Maryland, October 31, Prof. John C. Hemmeter was presented by the class of 1906 with a handsome polished oak lecture desk of massive design.

Adjunct Faculty Society.—The Adjunct Faculty of the University of Maryland School of Medicine has formed a society, whose purpose is to co-operate with the faculty in improving the service in the University hospital, in extending its advantages to visiting alumni and in creating a healthy esprit-de-corps among the members of the staff and those connected in one way or another with the institution.

Personal.—Dr. I. Mori of Japan is visiting Baltimore.—Dr. G. H. Foster, United States Marine-Hospital Service, hitherto attached to the immigration bureau here, has been ordered to Naples, Italy, to inspect emigrants from that port. His place will be filled by Dr. P. Clark, Philadelphia.—Dr. John C. Scofield was painfully injured by being thrown from his buggy, October 22.—Dr. Ella X. Quinn will spend the winter in Florida.

Favors Isolation Hospital.—Mayor Timanns has declared himself in favor of an infectious diseases hospital and so has the Board of Public Safety. Several years ago a site for one was purchased in the suburbs, but residents objected and the legislature was induced to prevent the scheme. The city declined then to take the site and a suit is now pending in consequence. An appropriation is available and it is believed that the matter will soon be taken up.

The Osler Memorial.—Although it is stated that the committee has not arrived at a definite decision, the Osler memorial building is being generally discussed by the profession here and the idea meets with universal approval. It has been suggested to purchase Dr. Osler's residence, No. 1 Franklin Street, West, and adapt it to the purpose. Dr. Osler's deep interest in and services to the medical library render it appropriate as the instrument for commemorating his life and work here. The matter has been taken up by the newspapers of Baltimore since its first mention in THE JOURNAL of October 29. Dr. Osler's many friends throughout this country and Canada will doubtless be most happy to contribute to making this project a success.

The Locke Bicentennial.—The two hundredth anniversary of the death of Dr. John Locke, the philosopher, was celebrated in McCoy Hall, Johns Hopkins University, November 1. The idea originated with Dr. Osler, who spoke of Locke as student of medicine, practitioner and medical philosopher. As a friend of Sydenham, he exerted an important influence on modern medical thought. His views were strongly modern. He was the first to treat echinococcus of the liver instrumentally, which he did by means of a silver drainage tube on his patron. Conway Lloyd Morgan, principal of University College, Bristol, Eng., spoke of Locke's philosophy and psychology, as did also Prof. F. J. E. Woodbridge of Columbia University. Prof. J. McBride Stretter of George Washington University spoke on Locke's toleration.

MICHIGAN.

Personal.—Dr. DeWitt C. Wade, Holly, is very ill in a hospital at Flint, and only slight hopes for his recovery are entertained.

Comparative Mortality.—For October, 1904, compared with the average for October in the ten years, 1894-1903, smallpox, measles and puerperal fever were more than usually prevalent; and dysentery, intermittent fever, cholera morbus, cholera infantum, remittent fever, erysipelas, pneumonia, diphtheria and whooping cough were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Meningitis was reported present during October at 5 places, whooping cough at 12 places, measles at 19 places, pneumonia at 29 places, diphtheria at 63 places, smallpox at 79 places, scarlet fever at 82 places, typhoid fever at 182 places and consumption at 303 places. Meningitis was reported present at 3 places less, whooping cough at 5 places less, measles at 9 places less, pneumonia at 4 places less, diphtheria at 5 places less, smallpox at 10 places more, scarlet fever at 9 places more, typhoid fever at 14 places less, and consumption at 1 place less, in October, 1904, than in the preceding month.

Opposes Indiscriminate Gratuitous Hospital Treatment.—The following resolutions were unanimously adopted at the meeting of the Wayne County Medical Society, October 31, and a committee of ten was appointed to confer with the Board of Regents, regarding the action therein referred to:

WHEREAS, The members of the medical profession, as citizens, are entitled to the same privileges which are enjoyed by other citizens; and

WHEREAS, The board of regents of the University of Michigan have ruled (*Michigan Alumnus*, October, 1904, pp. 2 and 3) that the medical faculty of the University of Michigan must grant gratuitous medical and surgical treatment to everybody applying therefor, whether rich or poor; and

WHEREAS, Such a condition is contrary to all customs and rules governing the relation of one citizen to another; and

WHEREAS, Such a ruling deprives the medical citizen within the radius of the influence of the University of Michigan of part of their rights in an unwarranted manner, and is harmful to the state as well as to the medical profession; therefore, be it

Resolved, By the Wayne County Medical Society, Michigan, that the board of regents of the University of Michigan be asked to rescind its ruling concerning the indiscriminate free medical and surgical treatment of those who apply for treatment at the University clinics, and

Resolved, That the board of regents of the University of Michigan be asked to give a hearing to representatives of the Wayne County Medical Society.

MINNESOTA.

Senior Student Dies.—C. B. Morey, Winona, a senior student of the medical department of the University of Minnesota, who went to New Orleans last month, intending to complete his course at Tulane University, and for the benefit of his health, was found dead in his bed, October 11, from nephritis and asthma, aged 24.

Old Physician Honored.—Dr. Edward J. Davis, Mankato, president of the Blue Earth County Medical Society, was tendered a banquet by his medical and lay friends, October 24, on the eve of his departure for a new field of labor at the Soldiers' Home. On behalf of his friends, Dr. John W. Andrews presented Dr. Davis with a silver loving-cup.

Large Damages Awarded.—In the case of Miss Anne Mohr, who charged that Dr. Cornelius Williams, St. Paul, operated on the wrong ear without her consent, and claimed that she was damaged to the extent of \$20,000 by reason of the defendant's malpractice and negligence, the jury found the defendant guilty of technical assault, and assessed the damages at \$14,322.50.

One Building Instead of Cottages.—The cottage plan proposed for the construction of the sanatorium for consumptives, to be erected on the site recently selected by the commission of physicians appointed by the governor, has been abandoned

as too expensive, and one large building will be erected instead. As originally proposed, the institution would have consisted of half a dozen cottages, located on a wooded site of 700 acres, recently purchased on the banks of Leech lake, near Walker. The present plans call for a building, three or four stories high, accommodating between 200 and 300 patients.

Personal.—Dr. Emil S. Geist, St. Paul, has returned after a stay of three years in Europe.—Dr. Edward A. Meyerding has been appointed first assistant city physician of St. Paul, vice Dr. Paul B. Cook, term expired, and Dr. Frank J. Savage has been made second assistant physician.—Dr. C. L. Francis, Mapleton, after half a century of practice, has retired, at the age of 83.—Dr. Donald A. Nicholson, physician at the St. Peter State Hospital for the Insane, has resigned and will locate in Spokane, Wash.—Dr. Lewis B. Wilson has resigned from the faculty of the University of Minnesota; Dr. Jacob E. Shadle, St. Paul, has been appointed professor of diseases of the nose and throat, vice Dr. Winfield S. Laton, Minneapolis, and Dr. James E. Moore has been made professor of surgery, succeeding the late Dr. James Henry Dunn.

MISSOURI.

Acquitted of Murder.—Dr. Warren Smith, Sikeston, accused of the murder of Harry Miller of Sikeston, was found not guilty, October 22.

Quiet for Patients.—The ordinance designed to repress hucksters while in the vicinity of hospitals and public schools was passed by both houses of the Kansas City Council, October 9. Hucksters are prohibited from shouting their wares within a block of these institutions.

Physicians to Have Rigat of Way.—The Kansas City Board of Health, on October 24, adopted the badge of the Red Cross to be worn by physicians and ambulance drivers as a passport entitling them to drive through funeral processions while using the thoroughfares in answer to calls for their services.

Pasteurizing Laboratory Closed.—The distribution of pasteurized milk by the Pure Milk Commission of St. Louis was discontinued November 1, because of a lack of financial support, and the pasteurizing laboratory closed. Since July 1 \$4,000, which had been subscribed for the maintenance of the work, has been expended.

Declared Insane.—Dr. Norman Brokaw, St. Joseph, was adjudged insane and committed to State Hospital for the Insane No. 2, October 18.—Dr. Moritz F. Weyman, after scattering \$2,000 in gold and silver in a wild ride through the streets of St. Joseph, was arrested, found insane and committed to the State Hospital for the Insane, October 24.

A novel combination of clinical demonstration and laboratory diagnosis occurred at the Kansas City Medical College, October 1, when Dr. Frank J. Hall, professor of pathology and laboratory diagnosis, presented a malarial patient, in the characteristic "chill", to the senior class during its regular laboratory period. He provided each of the 30 members of the class with a fresh blood smear and the *Plasmodium malarie* was demonstrated by each member.

NEBRASKA.

Disease Closes School.—Bloomer school, Omaha, was ordered closed for a week, on October 23, on account of the prevalence of diphtheria.

Creighton Wins Prize.—The authorities of Creighton Medical College, Omaha, have been notified that a gold medal has been awarded the pathologic and histologic exhibit of the college at the Louisiana Purchase Exposition.

Smallpox at Monterey.—Monterey township is having an epidemic of smallpox. The health department physicians discovered 12 cases, mostly in an advanced stage. A farm hand from the southern part of the state is believed to have been the conveyor of infection.

NEW YORK.

Personal.—Dr. Henry E. Allison, medical superintendent of Mattewan State Hospital, is seriously ill and his recovery is despair of.

Fined for Failure to Register.—Dr. Franklin Stuart Temple, Buffalo, formerly associated with "Antonius" the "healer," was fined \$100 and costs in Buffalo, for violating the ordinance requiring physicians to register with the department of health.

Must Be Vaccinated.—Commissioner Lewis of the state health department has informed the village boards of health

that the law imperatively requires all school children to be vaccinated before they can be permitted to attend the public schools and that there is "no quarantine" to be lifted in that regard.

Two Have Golden Jubilee.—The meeting of the Ontario County Medical Society at Catandaigna, October 11, was made a jubilee meeting at which was celebrated the fiftieth anniversary of membership of Drs. John Richmond Pratt, Manchester and W. Scott Hicks, Bristol. Dr. William W. Keen, Philadelphia, made a reminiscent address, Dr. Roswell Park, Buffalo, spoke, and presentations were made to the two venerable guests of honor.

The Lunacy Commission's Work.—The chief objects of progress accomplished by the lunacy commission in the last three years are as follows:

1. The reorganization of the Pathological Institute.
2. Provisions for the addition of 5,147 beds to the capacity of the present hospitals.
3. The segregation of the tuberculous insane, at first in solariums and tents at the various hospitals, and later by the construction of three tuberculosis hospitals for 100 each.
4. The securing of an appropriation for the construction of 10 isolation pavilions for infectious diseases.
5. The passage of a law providing for emergency commitment of serious cases of insanity.
6. Large additions to the means of treatment in asylums in the way of surgical operating rooms, hydrotherapeutic apparatus and numerous electrical medical and surgical appliances.
7. The introduction of a system of careful registration of each patient restrained or isolated, which has resulted in a large diminution in restraint of patients by mechanical means, etc., and in the reduction of the number kept in solitary seclusion.
8. Throwing open the 14 state hospitals to 30 clinical assistants, who have the same opportunities for study, and for giving the same benefits to these institutions, as the similar arrangement for medical internes in the general hospitals.
9. A marked increase in the number of alien insane deported and improving facilities for discovering and deporting them.
10. The adoption of a more satisfactory dietary and larger rations than that allowed under the Atwater system.
11. The appointment of a medical inspector for the more continuous supervision of the 33 private asylums of the state in which about 1,000 patients are cared for.
12. Numerous systematic improvements demanded in such private retreats as did not approach the standard of care set by a general letter sent out by the commission to the private asylums in January, 1902.
13. The development of a definite policy in the matter of provision of care of the insane by the state, which should be applicable, not only now, but for future years.
14. The appointment of boards of consulting specialists at a number of state hospitals located sufficiently near to cities resulting to grant benefits to the institutions concerned.
15. The establishment of a summer colony at the lake shore for convalescent and curable patients in connection with the Rochester State Hospital.

Buffalo.

Personal.—Dr. Emil S. Tobie has returned from Europe.

Sewage Threatens Health.—The sewage from a territory having a population of 40,000 now drains into the Ohio basin, which has a very restricted outlet. This results in stagnant sewage, which is a menace to health. At present there are many cases of typhoid fever in the wards of the city adjoining this basin, and the health commissioner believes the discharge of the sewage into this basin should be stopped.

Mercy Hospital's Attending Staff.—The board of managers of the new Mercy Hospital has appointed the following physicians as the attending staff: Medical Department—Drs. James W. Nash, James E. Culbert and A. L. Benedict; alternates, Drs. Ira F. Trevett, James J. Brown and Robert E. De Ceu. Surgical Department—Drs. Edward M. Dooley, Verner Kershner and William J. O'Donnell; alternates, Drs. Frederick M. Boyle, Bernard H. Brady and Daniel Murphy. Department of Gynecology—Dr. Stephen G. Howell; alternates, Drs. Cornelius J. Carr and Michael A. Sullivan. Department of Electrotherapeutics—Drs. John H. Daniels and P. H. Honrigan. Special Diagnosis—Dr. Thomas B. Carpenter. Laryngologist—Dr. W. Scott Renner. Department of Ophthalmology—Dr. Robert K. Grove. Genitourinary surgeon—Dr. J. Henry Dowd. Department of Neurology—Dr. William C. Krauss. Department of Dermatology—Dr. Alfred E. Diehl.

New York City.

Diphtheria at the Navy Yard.—Diphtheria has broken out in the marine barracks at the Brooklyn Navy Yard. The cases are mostly mild in form.

Semon in New York.—Sir Felix Semon was the guest of the section on laryngology and rhinology at the Academy of Medicine on November 2, where he read a paper. A dinner was afterward tendered him.

Hospital Room at Brooklyn Bridge.—Commissioner McAdoo has ordered a hospital room erected on the platform of the Brooklyn bridge so that immediate care may be given in case of accident. A trained nurse will be constantly in attendance.

To Aid Doctors' Widows and Orphans.—The New York Society for the Relief of Widows and Orphans of Medical Men has just issued its sixty-third annual statement, which shows the total assets to be \$265,376 and the amount disbursed during the past year, \$22,495. The members now number 133, of whom 110 are life and 23 annual members.

Contagious Diseases. There were reported to the sanitary bureau for the week ending October 29, 299 cases of diphtheria, with 17 deaths; 358 cases of tuberculosis, with 133 deaths; 165 cases of scarlet fever, with 8 deaths; 114 cases of typhoid fever, with 16 deaths; 55 cases of measles, with 7 deaths; 77 cases of chicken-pox, and 10 deaths from cerebrospinal meningitis.

Columbia Anniversary.—Columbia University's celebration of its one hundred and fiftieth anniversary, October 31, was marked by the conferring of the following degrees to those well known in medical work: The degree of Doctor of Laws was conferred on Prof. Edward Gamaliel Janeway, Prof. Francis Delafield, Dean William Meeklenburg Polk, Prof. John Green Curtis, Prof. William Henry Welsh, Dr. Andrew James McOsh and Prof. Walter Belnap James. The degree of Doctor of Science was conferred on Prof. William Stewart Halsted, Prof. Moses Allen Starr, Prof. Luther Emmett Holt, Prof. George Sumner Huntington, and Dr. Ernest Joseph Lederle.

Sprinkling versus Flushing.—The merchants' association recently made a formal protest to Commissioner Woodbury, complaining that as the pavements instead of being washed were covered with thin mud with consequent danger to persons and horses, the method of cleansing the streets should be changed. Commissioner Woodbury in his response said that such conditions were due to sprinkling by private corporations and not to flushing as performed by the street cleaning department. The method used by the department was that of delivering at an angle of 48 degrees with the muzzle velocity of 40 pounds' pressure to the square inch, a volume of water from hoses which thoroughly cleansed the pavements and did not make it slippery. Commissioner Woodbury called attention to the low death rate in the properly washed and cleansed districts as compared with other localities. He said that agar plates exposed after sprinkling and after flushing showed 460 colonies to the former with only 10 colonies to the latter. He thought all efforts should be directed to securing the passage of a bill which would make it impossible for a private corporation to get a contract for street sprinkling next spring. All street cleaning should be entirely in the hands of the department and the work would then be performed in a more satisfactory manner than was now possible.

OHIO.

New Hospital Appointments.—Drs. Derrick T. Vail and Louis Stricker have been appointed ophthalmologists to Presbyterian Hospital, Cincinnati, vice Dr. Christian R. Holmes, resigned.

Hospital Cornerstone Laid.—The cornerstone of the hospital at the Masonic Home, Springfield, was laid with impressive ceremonies, October 26. The hospital will be ready to receive patients in June.

Illegal Practitioner Fined.—C. J. Stevenson, an electrical and magnetic "healer" of Lisbon, was found guilty of violating the statutes governing the practice of medicine in Ohio, was fined \$25 and promised to practice no more in the state.

Convalescent Hospital Burned.—Rainbow Cottage, the convalescent hospital for children at South Endlid, was destroyed by fire, October 31, fortunately without loss of life. The loss is \$30,000, partially covered by an insurance of \$16,000.

Mercy Hospital Dedicated.—On October 19, Mercy Hospital, Hamilton, was formally opened with impressive ceremonies. The principal address was given by Dr. E. Gustav Zinke, Cincinnati. At the banquet which followed Dr. Frank M. Barden, Hamilton, officiated as toastmaster.

Internes Leave Hospital.—The four internes who have completed their terms of service at the Cincinnati City Hospital, will assume practice as follows: Dr. Meile Fleener will open an office in Hamilton; Dr. F. W. Krueger, in Richmond, Ind.; Dr. H. E. Schilling at Troy, and Dr. Earl H. Bruns, having passed the examination for the Army Medical Department, will enter the Army and Navy Medical School, Washington.

PENNSYLVANIA.

An Award for Science.—By virtue of an agreement made before her death, the heart of Mrs. Mary O'Neill was awarded to Dr. Henry Martin Hall, Pittsburg, by a coroner's jury, October 8.

Free Antitoxin in Hazleton. The Board of Health of Hazleton at its last meeting decided to furnish antitoxin free to families in the city too poor to pay for this agent.

Smallpox in Pottstown.—Smallpox continues unchecked in Pottstown and wholesale vaccination has been inaugurated. Dr. Elmer Porter, chief Burgess, visited the infected portion of the town and, with his assistants, vaccinated over 200 in the community.

To Aid Pittsburg Consumptives.—Pittsburg will probably have a hospital for the treatment of its consumptives. William McConway has offered a desirable building for the establishment of a hospital of this character. The physicians of the city will use every endeavor to see the project succeed, as there is no such institution in that part of the state.

Injured and Ill.—Dr. Charles O. Johnston, Claysburg, while on a hunting trip lost his right hand at the wrist by an accidental discharge of his shotgun.—Dr. James A. C. Clarkson, Lewisstown, while attempting to board a train at Petersburg, was thrown over the subway rail to the road, twenty feet below, alighting on his back and suffering a severe concussion of the spine.—Dr. Will L. Shindel, Sunbury, is reported to be dangerously ill in a hospital in Philadelphia.

Philadelphia.

Abortition Convicted.—Mrs. Elizabeth Ashmead, Philadelphia, October 31, was found guilty of causing the death of Mary B. Sloan by a criminal operation.

Cancer Hospital Instituted. On October 31 application was made to Court No. 1 for a charter for the American Oncologic Hospital "for the study and treatment of cancerous growths and other tumors."

Emigrants Barred by Trachoma.—Two hundred emigrants booked for this port from Liverpool were debarred from passage by the existence of trachoma. The disease was detected by the vigilance of the ship's surgeon, as the great majority had been passed by the doctor at Liverpool.

Residents Object to Hospital.—The private hospital for the treatment of consumptives, Gowen Avenue and Sprague Street, Germantown, has proven objectionable to the residents of that section of the city, and an effort is being made by them to have the institution removed, as they claim it is a menace to the community. They have entered an injunction branding it an institution of nuisance.

Health Report.—The total number of deaths for the week was only 386, a decrease of 21 from those of last week, and a decrease of 34 over the corresponding week of last year. Two hundred and seventeen cases of contagious disease, with 13 deaths, were reported, as compared with 244 cases and 28 deaths over the preceding seven days. The cases of contagious disease reported are as follows: Diphtheria, 89; scarlet fever, 73; typhoid fever, 53; smallpox, 2. Two schools were closed during the week from the existence of smallpox in the homes of attending pupils.

New Building for College of Physicians.—At the last meeting of the College of Physicians plans were submitted for a new building, to cost \$240,000. The building will provide shelves for 30,000 volumes, a floor for museum exhibits, a large lecture and assembly room, with other rooms and modern conveniences. The college has at its disposal, including cash and real estate, about \$570,000. The site for the new college purchased at Twenty-second and Ludlow streets for \$80,000 has been condemned. A committee, therefore, has been selected to report on new sites at the next meeting. It is probable that the new building will be erected on the present site of the college at Thirteenth and Locust streets.

Work of Hospitals.—The Presbyterian Hospital admitted 207 patients in October and discharged 239; 2,204 patients were treated in the dispensaries.—The Methodist Hospital admitted 90 patients and administered 2,590 treatments in the dispensary.—The Woman's Hospital admitted 95 patients to the wards, and treated 1,462 in the different dispensaries.—Germantown Hospital admitted 97 patients, and 1,345 were treated in the various dispensaries.—Six thousand and ninety patients were treated in the Medio-Chirurgical Hospital.—The Prisoners' Hospital admitted 218 patients, and 6,321 were treated in the different dispensaries.—St. Joseph's Hospital admitted 223 patients, and 2,114 visits were made

to the out-patient department.—St. Agnes' Hospital admitted 111 patients to the wards, and treated 3,428 in the dispensaries, making a total of 33,661 patients treated in the different hospitals reported in the month.—During the past year the Kensington Hospital has cared for 1,015 patients at a cost of \$23,325.15. There were 641 operations performed.

GENERAL.

Manila Overcrowded with Physicians.—A physician who recently returned to this country from the Philippines says that there is little opportunity for successful practice in Manila, as the city is suffering from a superabundance of medical men.

Consumptives Barred from Government Positions.—The Civil Service Commission has decided that hereafter persons suffering from consumption will not be employed in the postoffice, or in any other government position from which they are likely to spread the disease. In future all applicants must submit to a physical examination, according to an order recently sent out.

Swindled by Forged Check.—A young man, aged about 28 years, blonde, 5 feet 6 inches in height, weighing about 135 pounds, of genteel dress and manner, representing himself to be a graduate of Starling Medical College, applied for admission in one of the medical schools in Washington, D. C., and presented a check supposedly issued by Dr. Starling Loving, on the Commercial National Bank, Columbus, Ohio, in favor of Dr. J. H. Loving, and requested that \$60 of the proceeds of the check be applied to the tuition fee and \$40 be handed him in cash. The dean of the school, being personally acquainted with Dr. Starling Loving and being of an unsuspecting mind, promptly complied with the request, with the subsequent result that the check was pronounced a forgery.

National First-Aid Society.—At a meeting of the Chicago First-Aid Society, held November 5, it was unanimously agreed that the foundation of a national first-aid society on the lines of the St. John's Ambulance Association of England and the Samantha Society of Germany was desirable, and it was resolved to incorporate an association to be called the American White Cross First-Aid Society, with the following objects: To educate the public in the principles and methods of first-aid emergency treatment of those injured by accident or suddenly stricken by illness; to install ambulances, stretchers and first-aid material at places which may be considered necessary; to organize volunteer ambulance brigades for service in peace and in war, and to contribute personal and material aid for the mitigation of national disasters. A committee was appointed, consisting of Drs. Nicholas Senn, Charles Adams and S. C. Stanton, and Messrs. E. Howe and Lewis A. Stebbins, to take immediate steps to arrange for the incorporation of the society and to nominate the administrative committee.

CANADA.

Registration of Births in Montreal.—Every physician is now compelled to register the births occurring in his practice within forty days. Of the 500 births registered in one month and a half, 435 were reported by physicians.

Toronto Senate Elections.—The following members of the medical faculty were elected to represent the graduates in medicine on the senate of the University of Toronto: Professors George A. Bingham, I. H. Cameron, Adam H. Wright and J. Algerton Temple.

Nova Scotia Society.—The annual meeting of the Nova Scotia Branch of the British Medical Association was held in Halifax, October 5. The election of officers resulted as follows: President, Dr. C. D. Murray; vice-president, Dr. W. H. Hattie; treasurer, Dr. G. M. Campbell; secretary, Dr. E. D. Farrell; council, Drs. Goodwin, Hattie, Hare, Mader, G. M. Campbell, Mathers and Ross.

Drug Inspector Wanted.—The College of Physicians and Surgeons of Quebec adopted a resolution calling attention to the abuses, the serious accidents and numerous losses of life resulting from the actual sale of prepared and patent medicines, and requesting the government for legislation to control their sale. The organization declares that the sale of any such preparations should not be tolerated unless each package or bottle bears the name of the preparation, the quantity of each dose, the maker's name, that of the seller, and the price.

Consumption of Spirits in Canada.—The consumption of spirits in Canada during the last fiscal year amounted to 5-343,954 gallons, or .958 gallons for each person of the total population. This is the largest consumption since 1885, when it reached 1,126 gallons a head. Last year the consumption

of beer was 27,608,518 gallons, an average of 4.918 gallons a head. The use of beer has been steadily on the increase since 1869. The consumption of last year was the largest on record except for the year 1902, when it reached 5,102 gallons a head. The average since 1869 was 3,182 gallons. The consumption of wines remains about the same, .96 gallons a head. The average quantity of tobacco used a head per annum has been 2,178 pounds for thirty-five years. Last year it reached 2,765, the largest on record.

Montreal Marriage and Birth Rates.—According to the recent annual report of the medical health officer of Montreal, the mean birth rate for the past sixteen years in that city, without distinction as to nationality, was 39.10 per 1,000 of the population. The French-Canadian birth rate was 49.95 per 1,000; that of other Catholics, 25.95, and of Protestants, 24.96 per 1,000. For 1903 the total birth rate was 36.98 per 1,000; for French-Canadians, 43.64; other Catholics, 30.69, and Protestants, 20.52. The birth rate is the highest since 1896. The marriage rate for 1903 was 10.16 per 1,000, giving an increase of 1.18 over the mean rate for the last sixteen years, or an increase of .94 per 1,000 of the population over the rate for 1902, and 2.01 over that of 1901. The marriage rate among the French-Canadians was 10.75 per 1,000; other Catholics, 7.35; Protestants, 10.36 per 1,000.

A New General Hospital for Toronto.—The government of Ontario has proposed to make a grant of \$100,000 to the Toronto General Hospital, at the solicitation of the University of Toronto, which institution desires to provide abundantly for the needs of its medical faculty. The estimated cost of the new hospital is about \$750,000 and it is likely that the city of Toronto will contribute another \$100,000, making four gifts of \$100,000, real or proposed. Over 600 medical students attend Toronto University, and there is great lack of facilities for clinical instruction. Toronto now contributes to its hospitals on the per diem basis, paying out last year \$55,066. This amount was distributed among the hospitals as follows: General, \$11,723; St. Michael's, \$10,316; Grace, \$3,046; Western, \$3,357; St. John's, \$132; Convalescent Home, \$611; Consumption Sanitarium, \$2,476.

FOREIGN.

Wine Adulterer Fined.—A wine manufacturer of Carcassone, France, has been fined \$19,500 for adulterating wines with an admixture of ingredients dangerous to health.

Prize Offered by Life Insurance Examiners.—The International Association of Medical Examiners has appropriated \$150 to be awarded for the best work on the subject of albuminuria in candidates for life insurance and means for distinguishing between physiologic and pathologic albuminuria. Competing works may be in English, German, French or Dutch, and must be received at the office of the association in Brussels before May 1, 1906.

Verdict Against a General Practitioner.—A parturient succumbed to hemorrhage the morning after forceps delivery and the obstetrician's lack of skill was alleged to have been the cause of death. The obstetrician in question is a prominent general practitioner in a German city. Medical experts differed as to whether the postmortem findings implicated him or not. The physician was fined \$125, with the alternative of 50 days' imprisonment, the verdict assuming manslaughter having been abandoned.

The Nobel Prizes.—Dr. Koch of Berlin is talked of for the Nobel prize in medical sciences this year. Dr. Koch's retirement from his Berlin position at the head of one of the great bacteriologic institutions is thought by some European editors to furnish the proper occasion for the recognition of his great services to science, as was mentioned in detail on page 823. The exact amount distributed in the Nobel prizes is the income from the total endowment, now representing a value of \$8,400,000. The income is divided into five prizes after deducting expenses of administration.

Attempt to Poison a Town's Water Supply.—In order to test the engines and pumping plant of the new water-works at Kingsbridge, Devonshire, England, it was decided to fill one of the two large storage tanks, which have a capacity of 40,000 gallons each. Before filling the tank, however, the survivor entered it to ascertain whether all was in order. He discovered the odor of carbolic acid, and found the floor of the tank covered with a sticky substance. Samples of the substance were sent to a public analyst and his report stated that the substance was the residuum of soluble carbolic acid.

Italian Medical Congresses.—Italy has been holding the national congresses for internal medicine, for surgery and pediatrics during the last month. The subjects discussed at the former were, "Fever of Unknown Cause," "Physico-Chemistry in Connection with Diagnosis and Therapeutics," and "The Centers for the Pupil Reflexes." Rissio and Cipollina related further favorable experiences with their serum for treatment of syphilides. Their record now is 12 cases, all cured, and a case of tertiary lesion on the nose, but they are waiting for more extensive experience before officially publishing their methods and results.

Salkowski's Sixtieth Birthday.—Prof. E. Salkowski's name is closely connected with the development of modern physiological chemistry. Especially in regard to digestive and kidney affections and anomalies in metabolism, his researches and those of his pupils in the modest quarters allotted for his laboratory, have rendered incalculable services to medicine, and spread his fame far and wide. His sixtieth birthday was celebrated October 11, and some of our German exchanges issue special numbers in his honor, among them the *Berliner Klinische Wochenschrift*. He is director of the chemical department of the Pathologic Institute, connected with the Charité Hospital at Berlin, associated with Virchow's name.

Judicial Verdict on Sanozin.—The remedy for consumption prepared and sold by Professor Sommerfeld of Berlin under the name of sanozin has been described in these columns. Dr. Sommerfeld declared that his experiences with the mixture have been very favorable. A Frankfurt daily warned its readers against the remedy, declaring that it was liable to injure sound lungs and to augment the process in affected lungs, while it was sold at a price altogether out of proportion to the cost of production. Sommerfeld instituted a suit for libel. Four medical experts testified that the remedy induced temporary improvement, like many other less expensive medicines, but that it was unable to cure diseases of the lungs. The defendant was acquitted, as no libelous intent was established.

Schweninger's Victory.—Bismarck's medical attendant was an irregular practitioner, Schweninger by name, and Bismarck's influence not only secured him an official chair in the Berlin medical faculty, but enables him to this day to have every wish gratified. He was appointed a few years ago to the directorship of a large and important hospital, but this institution was omitted from the list of those where the medical graduates were to receive their final, practical training as "praktikanten." Schweninger protested against this slight, and the authorities have now added his hospital to the list. Our German exchanges regard this Schweninger matter as a national disgrace. At the recent International Congress of Dermatology a formal protest was made against his teaching that mercury is useless and harmful in syphilis. He treats that disease with hydrotherapy alone.

Health Exhibition in Bombay.—In connection with the industrial and agricultural exhibition of the Twentieth Indian National Congress, to be held in December, it has been resolved to have a health exhibition, under the auspices of the Bombay Sanitary Association. The section on hygiene will include the following: 1, water supplies and filtration; 2, drainage and the modern systems of sewage disposal; 3, infectious diseases and their prevention and disinfection; 4, ventilation of buildings and factories; 5, modern sanitary appliances; 6, food and milk, their values and preservation; 7, conservancy and refuse disposal; 8, model dwellings; 9, literature relating to sanitation. This should be an interesting exhibition and help forward sanitation throughout the Indian Empire. It is also proposed to have lectures on subjects pertaining to tropical hygiene and sanitation, the lectures to be illustrated by microscopic and stereopticon demonstrations.

The Persian Imperial Sanitary Board.—By order of the shah, a sanitary board of the Persian Empire was formed, under date of August, 1904, with the view of carrying out the measures prescribed by the sanitary conference of Paris (1903). The board is composed of the minister of police; representatives of the foreign, home, customs, postal and public instruction offices; of the chief of the municipality of Teheran; of the European physicians of the imperial court; of the medical attachés of the Russian, British, French and German legations and the Turkish embassy (there are no medical attachés to the United States, Italian, Austrian, Belgian and Dutch legations); and of such Persian physicians as the board may see fit to nominate. The presidency has been trusted to Dr. Schneider, surgeon colonel of the French army and particular physician to the shah. The council is to hold ordinary meet-

ings once a month and special meetings whenever necessary. The first meeting has already been held, and a committee on hygiene has been appointed with the duty of inspecting and reporting on the cemeteries and slaughter houses of Teheran.

Indian Sanitary Commission.—The offices of sanitary commissioner of the government of India and director-general of the Indian medical service have been separated, as was the case prior to 1880. Major Leslie, I.M.S., has been appointed sanitary commissioner. He will organize and direct research throughout India, which will steadily increase with the progress of the scheme already sanctioned for the establishment of fully-equipped institutes for the study of health problems in India, including a central laboratory devoted mainly to general original research and the making of antivenene and curative serums. In each of the larger provinces there will also be local laboratories for bacteriologic diagnosis and research. The new officer will control all these investigations and decide what work shall be done and by whom it shall be undertaken. The salary of the new appointment will be from \$640 to \$800 a month. The office will usually be held by an officer of the Indian Medical Service specially selected without reference to strict seniority, and the appointment will be for five years, which may be extended, and he will be independent of the director-general. Other officers for this department will be appointed from the Indian Medical Service.

DUBLIN LETTER.

Diarrhea in Children.

In the last monthly report of Sir Charles Cameron, the medical officer of health for Dublin, there is collected a quantity of valuable information on the occurrence of infantile diarrhea in this city. Although in comparison with other cities, both in England and America, the infant mortality of Dublin is very low, yet the subject is, in every center of population, one of primary importance. In East Ham, an eastern suburb of London, the rate of mortality from diarrhea reached this summer the astonishing figure of 16.5 per 1,000 living persons; in Hull it was 14.8; in Salford (which forms one city with Manchester), 12.3, while in Dublin the highest point reached was 5.5. Sir Charles Cameron discusses the subject entirely from the practical point of view without raising any question of the causative organism at work, and he fairly enough blames dirty and improper food as the main cause of the disease. He was able to obtain particulars as to the feeding of a number of those who died during the month of August, and, as might be expected, the disease was specially incident in the bottle-fed. In Dublin nursing at the breast is almost universal, but nevertheless, of 74 infants under one year of age who died of diarrhea, only 11 were breast-fed. Of those who suffered in their second year nearly all were affected within a very short time of the substitution of artificial for natural feeding. Though in most cases the milk used for children's food was not in itself of bad quality, yet it was often kept over night in insanitary surroundings before use, and the feeding bottle was never properly cleansed. Sir Charles Cameron notes among the "extras" supplied to young infants as food such various items of diet as cabbage, cake, potatoes, sweets, rusks and bread and butter, while he finds that it is not unusual to administer porter as a sedative to a fretful child. As in most cases this improper feeding is the result rather of ignorance than of blameworthy carelessness, he thinks that much good can be done in the way of prevention by tactful teaching of the poor. It is proposed to send female instructors round the poor quarters to offer simple advice to the wives of workmen on the feeding of infants. More useful, probably, though with not so rapid a result, would be the instruction of the girls in the national schools in the elements of hygiene and the care of children.

Insanity in Ireland.

The publication recently of the Annual Report of the Inspectors of Lunacy, although nearly two years late, has attracted more attention than is usually devoted to an official document. Although insanity in Ireland is increasing at an extremely rapid rate and is sufficient to cause grave anxiety, yet the situation can not be said to be new, nor does the present report differ in any marked feature from its predecessors. The inspectors year after year show the greatest anxiety to maintain the belief that the increase in lunacy is only apparent, and that the increase of admissions to the asylums only represents an insane population which formerly remained outside asylum walls. Fifty years ago there was calculated to be one insane person in every 600 of the Irish population, whereas to-day there is one in every 170. This change is far too great

to be explained by any doctrine of a large but hypothetical uncertified insane population. It is to be noted, too, that the number of admissions to asylums increases year by year even within the past five or ten years, during which time there can have been but little change in the feelings of the people toward asylum treatment. It is curious that the rate of insanity is much lower in England (1 in 288) than in this country, since most of the causes which are commonly assigned are more active there than here. Syphilis, common in a town community, such as the English population mostly is, is practically unknown outside two or three cities in Ireland. Sexual excess is equally rare in the rural population from which the lunatics mostly spring, and, indeed, one popular writer incurred great odium some months ago by assigning sexual repression as the principal cause of disease of the mind in the rural parts of the country. Alcoholic habits, which are often supposed to be very marked in Ireland, are in reality much less than in England, if one may judge by the annual drink bill of the country. Roughly speaking, an inhabitant of Great Britain consumes the same quantity of spirits, twice the quantity of beer, and as much and a half wine, as the inhabitant of Ireland, yet lunacy does not increase in England at nearly so great a rate as in Ireland. Of the other causes assigned for insanity it is needless to speak. Tea drinking, which looms large in the minds of many, is not so much practiced in Ireland as in England, and the toxic qualities of tea have never been proven. Heredity explains nothing, merely putting the difficulty a generation back. With more reason one may blame emigration, since the continual stream of the young and hardy from our shores tends to leave behind a weak and decadent population. When one turns from the general question of insanity in Ireland to the administration of the present system of asylums, one is astonished at the variety that is disclosed as regards cost of maintenance. Curiously enough, the cost a head is highest in the largest asylum in the country, the Richmond asylum, where it reaches \$210 a year, while it is lowest in the small asylum at Castlebar—\$115. This is all the more remarkable as in the Richmond asylum it has been found possible to employ over 80 per cent. of the patients in industrial occupations.

Correspondence.

Pan-American Medical Congress.

CHICAGO, Nov. 7, 1904.

To the Editor:—I should like to supplement your official announcement of last week concerning the Pan-American Medical Congress by some information which will be of value more especially to men throughout the middle west. Unfortunately, the time is too short to permit of much preliminary preparation, either scientific or social, but for any one of the profession wishing to take advantage of the opportunity for a winter's outing nothing more favorable could be offered.

Assuming Chicago to be the starting point, one can reach New Orleans in a day's journey. There has recently been put into operation a line of freight and passenger steamers of first-class character, from New Orleans direct to Colon, taking about five days, sailing every Friday at 10 a. m. Allowing one week from Chicago to Colon, one week on the isthmus and one week for the return journey, the trip may be made a short one at an expense easily within \$200. There is no doubt that the government of Panama with its appropriation of \$25,000 will do very much to make the congress one of entertainment as well as of scientific interest, and the program as outlined (see last week's JOURNAL), shows how instructive will be the week spent there. If one wishes to spend a fourth week on the trip, the stay on the isthmus may be prolonged, or the return may be made via either Havana or Vera Cruz. Up to the present no active effort has been made to organize an excursion, but I feel sure that if such members as expect to go from New Orleans would work together, the railway and steamer companies would gladly offer inducements in the line of lower rates; but this is a matter demanding prompt attention.

Considering the inter-American character of the congress, the interest hitherto shown by our government in promoting

it, the ambition of the Republic of Panama in becoming the host, and the real importance of showing the most cordial desire to participate in such a gathering, we of the profession in the United States should make a decided effort to send a delegation commensurate with our size and scientific reputation.

I have been asked to help in stimulating a general interest in this matter. To any who desire any further information I will send what I can from time to time, and if those who seriously wish to attend the congress will communicate with me I will do my best to arrange routes and rates so that all may go together. The last steamer available will leave New Orleans December 23.

ALBERT B. HALE.

103 State Street.

A Preliminary Fifth Year in the Medical Curriculum.

NEW YORK CITY, Oct. 28, 1904.

To the Editor:—There has of late been much agitation about the deficiencies in medical education and at the same time about the desirability of terminating the course at a comparatively early age. As some recently published statistics show that there is no material difference in the schedules of 43 of our presumably best schools I ask permission, for purposes of giving details exactly, to cite without naming the institution, the difficulties and the possible solutions, which are before one of these colleges. The facts are applicable to all and should be of general interest.

In a course of four years, each of about 30 actual working weeks, containing six days with an outside limit of eight hours available for teaching there are 5,700 hours which can be devoted to lectures, clinics, laboratory exercises, recitation and small clinic classes for bedside and other practical work. The school used for illustration requires 4,145 hours, or about five and three-quarter hours a day, of attendance on exercises, each of at least one hour duration. The study or preparation required of the student is not considered in this. Five and three-quarter hours (in many schools, if their statistics are to be believed, it is much more) may not seem excessive to the uninitiated, but with all the study hours which they involve experience has shown that every year a certain number of men, especially in the advanced classes, break down physically and have to leave college before the spring examinations; in other words, it is certain that the limit of student endurance has been reached, if it already has not been much exceeded; and yet complaints are constantly appearing in the journals that this or that subject is entirely neglected; that, for example, no adequate attention is given to psychiatry or to the duties of life insurance examiners, or to those of public health officers. There is much justice in all this, but where does the poor student come in? In New York, and probably in every large center, all the "best" undergraduates very properly regard the medical course itself as a preliminary to the more thorough training for the needs of their professional career obtainable as interne in the service of a hospital. Such positions are granted here only on the results of a most severe competitive examination, both theoretical and practical. For each place there are always from 10 to 20 or even 30 candidates, and no better means could be devised for keeping up the standard of medical education. The object of every school should be to produce competent practitioners, and the hospitals want only the best of these. All the student's energies are directed toward success in these rather than in his college examinations. Probably none of the schools gives its students any option in lessening the required college work to provide more time for study for these competitions; the tendency is rather the other way, as the rivalry between the faculties causes a close watch to be kept on the results and more instruction is added wherever weak points are discovered.

Putting in a few more weeks each year would seem the cheapest way of providing more time, but practically it does not. The course lasts now from the last week in September until the second week in June, or nominally 38 weeks. Taking

out the time for holidays in this period (the longest of which, by the way, are this year just 10 days at Christmas), and that devoted to examinations, the actual working weeks approach closely to 30. Hence, as this seemed short, the faculty offered, about two years ago, supplementary work for the remaining whole or part of the summer. But even when this opportunity was made practically free, none availed themselves of it, and the faculty feel that anything like the "quarterly" system by which the college may be kept in active operation throughout the year, is impossible, at least in New York. The general educational habits, if not the summer climate, prevent it.

But the necessity of providing more time for both pupil and teacher is becoming more apparent, and the problem narrows itself down to demanding better preparation for medical work, higher entrance requirements in other words, or another year for the medical curriculum. In the broadest sense the expense and time elements in these two propositions are practically the same for the student; as he must know more of everything, especially of natural science, he must take more time for it and pay for it. A year more than the average high school requirement is sufficient to acquire all the non-technical subjects in the medical curriculum and the others grouped under the heading of biology, which are urgently needed. The most economical method of attaining this will be pointed out.

The requirement of the A. B. degree preparatory to the medical course can be dismissed as unjust and impracticable if only because it is very costly. Those who are fortunate enough to obtain so good an education prove its worth by almost invariably surpassing all others in the hospital competitions. In addition to maturity, they possess as much social as intellectual and hereditary advantages, but they represent only 8 per cent. of all the medical students of the country. Even if this number showed any prospect of increasing, the addition of another institution open only to such men would be a very expensive experiment and one of doubtful utility to the community. A great advance can, however, be made by dropping from the curriculum inorganic chemistry and physics. In the entering class in the college used for illustration last year, about 70 per cent. showed that more or less knowledge of these subjects had been obtained in preliminary education; this year the number rose to 80 per cent., but an examination equivalent to that held at the end of the first medical year, proved that only about 2 per cent. knew enough to be advanced to organic or physiologic chemistry. The primary schools are evidently not sufficiently equipped or advanced as yet to thrust even this work back on them, and with the growing importance of chemistry to medicine it is doubtful if they ever will be. In the statistics above referred to, this subject occupies an average of 375 hours, and general medicine only 544 hours. The manifest disproportion can only be remedied, not by abbreviating chemistry, but by transferring the inorganic part with physics in a preliminary fifth year. They can thus obtain adequate treatment, for, in spite of the suspicion with which they are regarded by the older practitioners, these subjects are those on which the whole future of medicine depends. With them should be grouped thorough courses in general biology, including zoology, embryology, bacteriology and comparative anatomy and physiology. There is enough matter to fill the year to overflowing, but not enough students. The expense to all concerned would be at present only less than that leading to the combined A. B. and M. D. degrees, or seven years' course, nevertheless there are all the indications that it soon must come, and it is time the way were being prepared.

The loss of students, which would inevitably result to the school inaugurating a compulsory five-year course in competition with the numerous excellent schools offering courses of four years, alone prevents the advance. The necessary instruction is really a minor item in the account, as the subjects of a fifth preliminary year (inorganic chemistry and physics, general biology, with zoology, bacteriology, embryology, comparative anatomy, both gross and histologic, and physiology)

are to a greater or less extent taught at present, and a little elaboration and a few more hours for the teaching staff will suffice. The difficulty lies in forcing the students to expend the time and money.

With the certainty that inorganic chemistry and physics are occupying hours which should be filled by purely technical matter, it is legitimate to so arrange the curriculum that only the ablest and best prepared men can avoid dividing their first year into two. For all of these subjects, together with organic and physiologic chemistry, usually given in the second year, can, by proper arrangement, be placed in the first year, the first half of which can be given over to the primary work, and the second half to the more advanced division of the subject, and at the same time by grouping the other subjects into periods, the entire present field can be covered.

In the school used for illustration, there are a total of 954 hours of required work in the first year, and 1,164 in the second. The combination suggested would make only 1,158 hours in the first year, and is not excessive. Furthermore, the applicant for admission can be allowed to prolong the first year into two, and if he does, to have a wide choice of courses in other natural sciences. The relief to the present advanced years would be considerable in the consequent displacement backward to an earlier period of a fundamental subject like pathology, and at the same time better preparation would mean better appreciation.

With rigid examinations at the middle of the first year and failure to "pass" successfully its inorganic chemistry and physics meaning refusal to admit to organic and physiologic chemistry in the second half of the year, only the brightest men could escape a compulsory two years, which now is one. In the second half of the first year they would have to repeat the work they had failed to accomplish and to this could be added the biologic studies, which are so desirable. They could not begin organic and physiologic chemistry until the following year which, by a little adjustment, could be readily filled to overflowing with primary medical studies. They could not enter another school in the middle of the first year, and would realize their deficiencies and take the desired five years to complete their course. A payment of \$25 for each subject about covers the cost of material, and would foster a preliminary training in at least chemistry and physics. A high school student could then continue his regular studies and take these subjects at the same time in the medical college. Or the usual yearly tuition, payable in a lump sum in advance, could be made to cover as many of the other natural sciences as the candidate, unsuccessful in the first half of the year, could take in the second half. As it is now in the school mentioned, between 30 per cent. and 35 per cent. of the first-year class are "dropped" each spring, and the arrangement proposed is more equitable to them than the present. It provides for every kind of preliminary education, for as a rule the state laws permit part of it to be made up during the first medical year, and college competition, in spite of protests to the contrary, countenances very generally the admission of such badly handicapped individuals. As the practice is bound to persist the five year course mitigates the evil as much as possible, and one or two natural science subjects are legitimate offerings as part of the premedical studies. Those who are capable of crowding all of their physics and chemistry into the present first medical year have the opportunity to do so and graduate in four years, with far more time for digesting the advanced part of the present curriculum than now. They could not have the advantage of the biologic subjects, but would obtain more of the technical work. The best fitted students, the 8 per cent. who have had academic college training with natural science accessories, can, with proper arrangement of the schedule, enter the present second year, and as by law they are so permitted in this state, obtain their A. B. and M. D. degrees at the end of seven years. This condensation of all subjects not strictly medical, into the first of the four years is difficult but feasible, and by virtually forcing a five-year course on all but the brightest and best prepared men, is the only economical way of an ad-

vancement which is becoming compulsory in all schools by the natural progress of events. The natural sciences, particularly inorganic chemistry and physics, are essentials in every good general education, and the threat of a five-year technical course would be a powerful factor in placing these troublesome subjects where they belong, namely, in the preparatory curriculum.

JOHN ROGERS,
Secretary of the Faculty of the Cornell University
Medical College.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PROCEEDINGS OF CONGRESS OF ARTS AND SCIENCE.

NEENAH, WIS., Oct. 9, 1904.

To the Editor:—How and where can I obtain a copy of the addresses delivered at the recent International Congress of Arts and Science at St. Louis? I noticed by your recent editorial that they were being printed, and the information asked would be very much appreciated. F. E. M.

ANSWER.—The proceedings of the Congress of Arts and Science will be edited and published under the auspices of the Exposition Company. It is expected that the matter will occupy at least twenty volumes. We are informed that these will be divided so as to include departments, so that one may purchase copies covering the branches in which he may be interested. We are unable to secure any further details at present.

Marriages.

HARRY E. HUNT, M.D., to Miss Irma Mary Fischbein, both of St. Paul, Minn., October 25.

SUMNER A. FURNISS, M.D., Indianapolis, to Miss Lillian Morris of Louisville, October 26.

HENRY E. FARREL, M.D., St. Louis, to Miss Louise Sarrrett of Cambridge, Mass., November 1.

WALTER S. HANLEY, M.D., to Miss Caroline E. Moorehead, both of Philadelphia, October 25.

JACOB FRANKLIN MEYERS, M.D., to Miss Mabel Edna Gauby, both of Lisbon, Iowa, October 26.

FRANCIS E. LAFORCE, M.D., Burlington, Iowa, to Miss Edith Ferguson of Chicago, November 1.

WILTON A. DAY, M.D., Deer Park, Wis., to Miss Cora L. Roberts of Eveleth, Minn., October 27.

JOHN G. SOUTH, M.D., Frankfort, Ky., to Miss Christine Bradley, at Louisville, November 2.

WILLIAM H. KNOTT, M.D., Hume, Mo., to Miss Katherine Rollins of Keokuk, Iowa, October 26.

ANDREW CALLAHAN, M.D., Philadelphia, Pa., to Miss Elizabeth Gibson of Wilkesbarre, Pa., October 5.

GEORGE TROTTER TYLER, M.D., Owensboro, Ky., to Miss Theresa Bullitt Coles of Philadelphia, October 27.

Deaths.

Alfred S. Wolff, M.D. Academy of Medicine, Paris, France, 1841, a member of the American Medical Association and for twenty-five years the efficient inspector and quarantine officer of the Texas State Health Department at Brownsville, died at his home, October 30, aged 88. He was born at Lyons, France, the son of Dr. Simeon Wolff, a noted physician of Paris. After graduating in medicine he entered the French army as surgeon and served throughout the Algerian campaign of 1846, and for two years thereafter, receiving the Cross of the Legion of Honor for gallantry. He then went to Holland and took his second degree in medicine from the University of Leyden, thence going to London, where he qualified and engaged in private practice. In 1859 Dr. Wolff came to America and settled in New York state. At the outbreak of the Civil War he entered the United States volunteer service as surgeon of the Fifty-fifth New York Infantry, but on account of his experience and ability in hospital work, was transferred and assigned to duty

first in Lincoln Hospital, Washington, and then at the Carver Hospital. At the close of the war he was appointed physician to Clinton Prison, New York, and remained there four years. In 1875 he removed to Texas and located in Brownsville. Two years later he was appointed state quarantine officer at that place, and held the position continuously until the time of his death. His service was especially efficient at the time of the yellow fever epidemic in 1882. Dr. Wolff was at one time president of the Northern New York Medical Association, was a member of the New York State Medical Society, the Vermont State Medical Association, the American Public Health Association, Medicolegal Society of New York, and Texas State Medical Association. In token of respect to the memory of its deceased officer, the State Health Department was ordered closed on October 31 until 2 p. m.

James Dritt Reilly, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1859, of Washington, D. C., surgeon of the One Hundred Twenty-seventh and One Hundred Seventy-ninth Pennsylvania Volunteer Infantry in the Civil War, died at the home of his son in College Park, Md., October 12, from paralysis, after an illness of one year.

Benjamin Franklin Hart, M.D. Ohio Medical College, Cincinnati, 1844; Bellevue Hospital Medical College, 1864, a former member of the American Medical Association, member of the Ohio State Medical Society and the Washington County Medical Society, died at his home in Marietta, Ohio, November 5, after an illness of two weeks from paralysis, aged 82.

Alfred H. Powell, M.D. Jefferson Medical College, Philadelphia, 1853, surgeon in the Confederate service during the Civil War; sometime professor of surgery in Washington University of Baltimore, and for many years resident physician of Capen Springs, died at his home in Baltimore, November 4, from heart disease, aged 73.

Walter Walton White, M.D. University of Maryland, Baltimore, 1870, physician to the jail and penitentiary; assistant surgeon to the Presbyterian Eye, Ear, Nose and Throat Hospital, etc., died at his home in Baltimore, November 2, from the effects of influenza, aged 61.

Andrew J. Dean, M.D. University of California Medical Department, San Francisco, 1881, a member of the Medical Society of the State of California, died at his home in Haywards, Cal., October 26, from rheumatism of the heart, after a short illness, aged 46.

Walter S. Carr, M.D. University of Vermont Medical Department, Burlington, 1884, member of the Massachusetts Medical Society and the North Berkshire Medical Association, died at his home in North Adams, Mass., from tuberculosis after a long illness, aged 43.

David G. Hetzell, M.D. Jefferson Medical College, Philadelphia, 1861, surgeon of the Thirty-fourth and Twenty-third New Jersey Volunteer Infantry throughout the Civil War, died from apoplexy at his home in West Philadelphia, October 25, aged 68.

William H. Philpot, M.D. Atlanta (Ga.) Medical College, 1856, of Talbotton, Ga., division surgeon in the Army of Northern Virginia during the Civil War, died at the home of his son in Columbia, S. C., October 22, after a protracted illness, aged 76.

O. S. Belden, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, Pa., 1853, surgeon of the Fifty New Jersey Volunteer Infantry in the Civil War, died at his home in Camden, N. J., October 26, aged 75.

John E. Jones, M.D. Medical College of Ohio, Cincinnati, 1853, surgeon of the Seventy-ninth Ohio Volunteer Infantry in the Civil War, died at his home in Cincinnati, October 31, after a long illness, from heart disease, aged 71.

Edwin E. Webster, M.D. St. Louis Medical College, 1856, honorary member of the state and local medical societies, one of the oldest practitioners of St. Louis, died at his home in that city, October 26, aged 82.

Howard Grant Baird, M.D. Jefferson Medical College, Philadelphia, 1893, a member of the Saline County (Kan.) Medical Society, died at his home in Falun, Kan., from Bright's disease, October 27, aged 38.

Frederick D. Cnrphey, M.D. College of Physicians and Surgeons of Kansas City, Kan., 1902, mayor of Thomas, O. T., died at his home in that city, October 28, after an illness of one week.

Ralph Bridge Linn, M.D. Medical-Chirurgical College of Philadelphia, 1899, formerly of Wilcox, Ariz., died recently at his home in Los Angeles, Cal., and was buried October 20, aged 27.

Alexander J. Smith, M.D. the College of Physicians and Surgeons, Baltimore, 1885, died suddenly from valvular heart disease at his hospital in Clarkston, Wash., October 24, aged 50.

Benjamin F. West, M.D. Rush Medical College, Chicago, 1881, formerly of Tecumseh, Neb., died at Lincoln, October 24, from paresis, after an illness of three years, aged 47.

J. Henri Kessler, M.D. Missouri, 1878, of Portland, Ore., died at St. Vincent's Hospital in that city, October 13, from prostatitis, after an illness of three weeks, aged 54.

George B. Ellis, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1883, died at his home in Ellis Mills, Tenn., October 29, from cancer of the liver.

Samuel Huston Lynde, M.D. University of Buffalo Medical Department, 1889, died at his home in Buffalo, October 25, from pneumonia, after a short illness, aged 35.

Florence A. Solomon-Pressler, M.D. College of Physicians and Surgeons, Boston, 1896, of Attleboro, Mass., died in Boston, October 27, after an illness of four years.

Charles H. Thomas, M.D. Bellevue Hospital Medical College, New York City, 1875, of New Orleans, died at Johns Hopkins Hospital, Baltimore, October 29, aged 55.

J. S. Jones, M.D., of New Martinsburg, Ohio, died suddenly at the home of his daughter in Washington Court House, Ohio, October 20, from heart disease, aged 77.

Joseph Butler Draper, M.D. Harvard University Medical School, Boston, 1888, died at his home in Westford, Mass., October 30, from typhoid fever, aged 42.

Truman E. Parkman, M.D. Albany (N. Y.) Medical College, 1886, died at his home in Rock City Falls, N. Y., after an illness of a year, October 24, aged 82.

Mary Frances Green, M.D. Ohio, 1871, died at her home in Fort Wayne, Ind., October 27, after an illness of fourteen weeks, aged 68.

Mordecai A. Posey, M.D. Jefferson Medical College, Philadelphia, 1882, died at his home in Chanceford, Pa., October 28, aged 58.

Franklin Brooks, M.D. Illinois, 1853, was suffocated by an escape of illuminating gas at his home in Chicago, November 2, aged 80.

Joseph Rich, M.D. Geneva, Switzerland, 1835, died at his home in Saginaw, Mich., October 23, from bronchitis, aged 100.

John D. Kergan, M.D. Royal College Surgeons, Dublin, Ireland, 1860, of Detroit, Mich., died in San Francisco, October 18.

Pleasant Fair Chapman, M.D. Arkansas, 1854, died at his home in Porterville, Cal., October 10, aged 73.

Helen Leeker Lynch, M.D. Illinois, 1890, died at her home in Highland Park, Ill., October 22.

Richard Alexander Smith, M.D., died at his home in Raleigh, N. C., October 12, aged 75.

J. M. Lester, M.D. Kentucky, 1893, died at his home in Otter Bend, Ky., October 14.

Book Notices.

THE EXAMINATION OF WATERS AND WATER SUPPLIES. By John C. Thresh, D.Sc. (Lond.), M.D. (Vic.), D.P.H. (Camb.), Honorary Diplomat in Public Health, Royal College of Physicians and Surgeons, Ireland. Cloth. Pp. 460. Price, \$4.00. Philadelphia: P. Blakiston's Son & Co. 1904.

His long experience as health official has brought the author of this work into direct contact with many of the practical problems that depend for their solution on technical data. The present book is divided into three parts, dealing with: 1, The examination of the sources from which water is derived; 2, various methods of examining water and the interpretation of the results; 3, analytical processes and methods of examination. The book as a whole appears to reflect faithfully the present state of opinion in Great Britain on the subjects treated. The illustrations drawn from the writer's experience are often especially illuminating. It is perhaps unfortunate that, as regards both method and interpretation, so much divergence should exist between workers in this country and in Great Britain as is revealed in the treatise before us. Such statements as the following (p. 79) serve to show how wide the divergence really is: "The amount of nitrite in water is very rarely determined, as such a determination serves no use-

ful purpose." On p. 137, in comparing the standards of "bacteriologic purity" proposed by Miquel and Macé, Dr. Thresh is evidently attacking a man of straw, for he fails to note the fact that the peculiarly long period of plate incubation adopted by Miquel is entirely different from that of practically every other investigator and forbids the use of his tables in such a comparison as here instituted. The somewhat faltering attitude shown in general by the author in dealing with bacteriologic questions is exemplified in the following extract: "My impression decidedly is that in water recently polluted by sewage, the *B. enteritidis sporogenes* and the *B. coli communis*, can always be detected in reasonable amounts of the water if the degree of pollution is so great as to be dangerous" (p. 165). The use of the expression "reasonable amounts" is not adapted to allay inquiry. We anticipate that most American workers who have to do with the bacteriology of water will be induced by the appearance of Dr. Thresh's book to express more openly the surprise they have long felt at the singular failure shown by their fellow-workers abroad to differentiate more thoroughly the various groups of gas-forming bacilli. Much of the perplexity and confusion displayed by Dr. Thresh in discussing the validity and nature of the "coli test" is due to this point.

THE PRINCIPLES OF HYGIENE. A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M., M.D., Assistant Professor of Bacteriology. Illustrated. Second Edition, Thoroughly Revised and Enlarged. Cloth. Pp. 536. Price, \$3.00 net. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

This second edition contains many important revisions and additions, showing the advances which have been made in the field of preventive medicine in the short space of four years. The most important changes are found in the chapter on "Immunity and Susceptibility." Ehrlich's theory is given in a much clearer and simpler form than in the first edition; the subject of precipitins and their relation to legal medicine is taken up; the latest work in the preparation of bactericidal sera, done by Marmorek, Morer, Aronson, etc., is given full consideration, and also the experiments of Wechsberg and of Besredka on immunization. There is a new section on the "Relation of Insects to the Spread of Disease," with methods for the extermination of insects, anti-mosquito campaigns, etc.; new sections on "Trypanosomiasis," "Ucinariasis," "Spotted Fever" and "Helminthiasis." Additions to the chapter on vaccination appear in the form of a much needed paragraph on the precautions to be used in its administration. The author's attitude toward the danger of tetanus infection through vaccination appears over-optimistic in view of MacFarland's researches. It is better to face facts courageously than to cover them up through fear of unduly alarming the public. A chapter which one would gladly see enlarged and amplified is the one on the important subject of the housing of the poor. So much valuable investigation of tenement life in large cities has been done in our own country, in New York, Boston and Chicago especially, that it seems a pity to draw only on the material furnished by foreign statistics.

THE NERVOUS AFFECTIONS OF THE HEART, Being the Morison Lectures Delivered Before the Royal College of Physicians of Edinburgh in 1902 and 1903. By George Alexander Gibson, M.D., D.Sc., F.R.C.P. Ed., F.R.S.E., Honorary Member of the Medico-Chirurgical Society of Norwich. Cloth. Pp. 99. Edinburgh and London: Young & Pentland, 1904.

Again medical literature is enriched by a contribution from the pen of the distinguished Gibson, who has succeeded to the reputation of his late famous teacher and predecessor, George Balfour. As stated on the title page, this book of 99 pages is a reproduction, with a few verbal alterations, of certain lectures which were originally published in the *Edinburgh Medical Journal*. They consist of six lectures, divided into two sections, the first three dealing with the clinical, pathologic and therapeutic aspects of the sensory disturbances, and the three comprising the second section being devoted to the rate, rhythm and force of the heart as displayed in its motor disturbances. The book is well worth the perusal of every practitioner of medicine and in particular such physicians as are interested in life insurance examinations. The physiology of the innervation of the heart and of its motor mechanism is

entered into clearly and with sufficient detail, yet without tediousness. Practical observations and conclusions are given and there are many valuable therapeutic suggestions. Of particular interest and value are the lectures dealing with the disorders in rate and rhythm. A knowledge of the facts contained in this book will be of material aid in the understanding of many cases of disordered cardiac function that would otherwise fail to be understood or corrected.

TEXT-BOOK OF NERVOUS DISEASES AND PSYCHIATRY, For the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., Professor of Nervous Diseases and (ad interim) of Mental Diseases in Cornell University Medical College. Sixth Revised and Enlarged Edition. Illustrated by 244 Engravings and 3 Plates in Black and Colors. Cloth. Pp. 690. Price, \$4.00. New York: Wm. Wood & Co., 1904.

In the sixth edition of Dana's work some of the remarks on therapeutics have been omitted and a description of mental disorders added. Cytodiagnosis is touched on as an important addition to neuralgic medicine since the last edition appeared, and a few new cuts have been added. In the section on mental diseases the author follows largely the modern ideas, especially those of Kraepelin, which at present dominate American psychiatry. In a new chapter on general psychology the elementary facts and definitions are briefly but clearly given. In treating of the special forms of mental disorders the author's statements are based largely on personal experience and this portion affords the advantages of a neurologist's point of view of mental diseases. There is necessarily brevity, but the treatment of the subject is as adequate as could be expected within the compass allowed. The relations between nervous and mental diseases are close and this section of the work forms a valuable supplement to the more strictly neurologic portion of the text. It will undoubtedly add to the well-deserved popularity of the work.

CLINICAL LECTURES ON MENTAL DISEASES. By T. S. Clouston, M.D., Edin., F.R.C.P.E., President of the Royal College of Physicians of Edinburgh. Sixth Edition. Cloth. Pp. 758. Price, \$4.25. Philadelphia and New York: Lea Brothers & Co., 1904.

Notwithstanding its somewhat peculiar arrangement this treatise has deservedly taken high rank among works on mental disorders. This edition is considerably altered from the former ones, and the alteration is an improvement. Dr. Clouston is one of the best clinical observers among modern alienists and what he writes is always worthy of attention. He has added to this work notice of the more recent advances and while he does not follow the lines at present most generally popular in this country, his work will be found a valuable one to consult on diagnosis and treatment. If we were to offer a criticism it would be that the author does not lay sufficient stress on the matter of intoxication from the digestive tract as a factor in the causation and continuance of certain mental disorders. The therapeutic bearings of this subject are such that it can hardly be ignored. We do not say that Dr. Clouston ignores it, but he does not attribute to it apparently all the importance it deserves and this is perhaps more notable since certain other Scotch alienists have even included paresis as a result of intestinal auto-intoxication. The present edition is enlarged to some extent by the addition of pathologic descriptions and plates illustrating the more recent work in this line especially by British workers.

EPITOME OF NERVOUS AND MENTAL DISEASES. A Manual for Students and Physicians. By Joseph Darwin Nagel, M.D., Consulting Physician to the French Hospital, New York. With 46 Illustrations. Cloth. Pp. 276. Price, \$1.00 net. Philadelphia and New York: Lea Brothers & Co., 1904.

This little work belongs to a class of books which are sometimes condemned as being too brief and superficial to be of real value. Although they have their limited use, the chief objection to them is that the use is not sufficiently limited. The present instance is perhaps as good as the average, but it ought not to be depended on as a sole guide—even for examinations—as we fear it will be by some.

VETERINARY STUDIES for Agricultural Students. By Dr. M. H. Reynolds, B.S.A., D.V., M.D., professor of Veterinary Medicine, University of Minnesota. Cloth. Pp. 246. Price, \$2.00 net. St. Paul: Published by the Author, St. Anthony Park, Minn., 1903.

This book is intended chiefly as a text-book in agricultural colleges. The anatomy and physiology of the common domes-

tic animals is described sufficiently as a foundation for the comprehension of disease. The various disorders and diseases are presented in a clear and concise manner.

BEAUTY THROUGH HYGIENE. Common Sense Ways to Health for Girls. By Emma E. Walker, M.D., Member of the New York Academy of Medicine. Illustrated. Cloth. Pp. 306. Price, \$1.00 net. New York: A. S. Barnes & Co., 1904.

This is another book whose circulation will make for health. It is a guide for young women on every part of life and habits that has ought to do with health and beauty. We have read a good deal of it and find no advice that is not sound and to be commended.

Miscellany.

The Physician's Wife.—A French medical journal—the *Journal des Practiciens*—is gravely discussing the sort of wife a physician should marry, and another, the *Revue Médical*, has been conducting a symposium on the question, whether a physician should marry at all. Bandouin, in his *Gazette Méd. de Paris*, comments that work in the medical profession is one thing and marriage is another, and they have nothing to do with each other. He adds, however, that he is awaiting with interest the article, yet to be written, on the husband of the medical woman.

Notes of a German School Inspector.—The newly founded monthly magazine for social medicine, *Monatsschrift für soziale Medizin*, contains in No. 4 an article from M. Cohn, giving the results of four years' experience as school inspector at Charlottenburg. Two schools with about nine hundred children each were in his care. He found curvature of the spine in 40 per cent. of the children in the upper grades, while it was noted in only 4 per cent. of those first entering school. He advocates closing a schoolroom at once when an epidemic of infectious disease is first noted. After the length of time required for the incubation of the disease and the disinfection of the room, it may be reopened. He urges more instruction in hygiene by the teacher in the lower grades and by a physician in the upper ones. Instruction should be given in cleaning, in bathing, in gymnastics and in skating. The attention of the children may be won by giving them objects to handle connected with the subjects. He recommends school sanatoria for the larger communities.

Medicine and the Literary Career.—Under this heading the *Semaine Médicale* for October 5 describes the career of one of the greatest and most popular of modern Russian novelists, A. P. Tchekhov, who recently succumbed to tuberculosis at the age of 44. He was a duly registered physician and during the epidemic of cholera in 1892 he left his literary work to help combat the disease. The editorial compares him to Rabelais, Schiller and our own Holmes, and comments on the aid that a medical training is able to give to a professional literary man. It teaches him to observe, to be able to grasp the salient points of an event and to comprehend the psychology of the individual, for the physician has to study the soul and the mind of the patient before him as well as his lungs and his heart. He must be a psychologist as well as a scientist, and Tchekhov himself attributed great importance to his medical studies as the foundation for his literary work. The writer of the editorial is apparently not acquainted with Weir Mitchell's brilliant works, and he has yet to make the acquaintance of Conan Doyle's Sherlock Holmes, but they are only additional proof of the truth of his contention that a medical training is a remarkable aid to a novelist. In a recent address Conan Doyle remarked that he believed the time would come when young men who were going to do anything in the world would be passed through medicine as they used to be passed mechanically through the bar. He knew of no other means by which a young man could get to the fundamental and absolute facts of life. The editorial referred to above concluded with the old saying: "Medicine leads to anything on condition that it is abandoned," but comments that this condition is by no means indispensable nowadays.

Notes on American Hospitals.—Campbell Douglas, L.R.C.P. Ed., writing in the *Glasgow Medical Journal*, says: "The spectator at an operation in an American hospital is struck by the attention to detail, or apparent attention, observed by the various actors in the drama, and by the general tendency toward an aseptic régime, which is the aim of most of the surgical institutions. Yet every now and again one sees things which make him wonder whether after all they are not missing the greater in too careful attention to the lesser things which make toward idealism. Thus patients in the Johns Hopkins Hospital, undergoing operation for hernia and appendicitis, and not urgent cases, were placed on the table without any preparation of the patient's skin beforehand. The shaving and scrubbing up of the abdomen and genitalia were then carried out in a few minutes by the theater porter, whose duties are to clean up the place and make himself generally useful. In one big New York hospital, with a more than local reputation for being up to date, I watched a surgeon don sterilized gloves without having sterilized his hands, transfer his eyeglasses from his vest pocket to his nose, and proceed to open a cerebellar abscess through the mastoid process, in a patient whose head had not been shaved, and whose hair had not been clipped. Later on, I asked the house surgeon if that was one of their best surgeons, and he assured me that he was—one of their finest. Frequently, after an abdominal section, the house surgeon was left to close the abdomen and apply the dressing. Surely, if the operation were worth beginning, it was worth finishing by the surgeon."

The Model Maternity at St. Petersburg.—A letter in the *Münch. med. Wochenschrift* for June 21, describes the new home of the unique clinical gynecologic-obstetric institute at St. Petersburg, formally inaugurated last February. The building and equipment have cost nearly two millions, and there are accommodations for 170, or at need for 200 patients. Prof. D. von Ott was the moving spirit, and has introduced many innovations. There is a constant supply of sterilized water and of physiologic salt solution, and hundreds of spray apparatus keep the air constantly moist. Ice is made artificially from sterilized water, and each bed is supplied with a telephone and is connected with a fine organ, installed at an expense of about \$15,000, for research on the influence of the musical vibrations on the sick and well. Lavish use is made of electricity for heating, lighting, etc. A double sewerage system enables the sewage to be sterilized before it leaves the building. The left wing is for the maternity patients, the right for the gynecologic, the halls, etc., in the center. The beds can be wheeled into a sun parlor with southern exposure. Prof. von Ott is accoucheur to the royal family, director of the Woman's Medical Institute and Midwives' Institute, besides his work in the Maternity above described. He will complete next December the twenty-fifth year of his professional career, and his friends and pupils are getting up a *Festschrift* to present to him on this occasion. Prof. W. Stroganow of St. Petersburg has the matter in charge. Ott's method of ventrosopy was described in *THE JOURNAL*, 1902, xxxix, p. 454.

Immunization Against Anthrax.—According to the *British Medical Journal*, Mr. J. A. Gilruth, M.R.C.V.S., veterinary surgeon and bacteriologist to the New Zealand Department of Agriculture, has met with some success in immunizing animals against anthrax by adopting the method of mixed infection. He finds that guinea-pigs, rabbits, and sheep can completely resist the inoculation of large doses of virulent anthrax bacilli, provided that these organisms are mixed with a larger dose of certain other organisms which are non-pathogenic to the animals in question. In order to secure this result it is necessary that the anthrax bacilli should be actually mixed with the other organism used; for if the dose of each organism be injected separately, under different parts of the skin, no resistance is obtained. It is not claimed that a single inoculation establishes immunity, and it is conceded that an animal which has suffered with impunity the injection of a large dose of anthrax bacilli, when mixed with a foreign organism, may

succumb later to a much smaller dose of pure anthrax culture. If, however, the doses of mixed cultures be repeated in increasing quantities, Mr. Gilruth finds that, in the case of rabbits and sheep, immunity to large doses of pure anthrax bacilli can be conferred. For the purpose of admixture with his anthrax cultures, he has found the bacillus of Gaertner a convenient organism to use. The following results of Mr. Gilruth's investigations are worth quoting: He has succeeded in producing in a rabbit an immunity to 4 c.cm. of pure virulent anthrax culture, and in another rabbit an immunity to 3 c.cm.; moreover, two sheep and a pig have each offered a successful resistance to 5 c.cm. of a similar culture. The antagonism of other organisms to anthrax has long been known, but the value of mixed inoculation as a practical preventive measure is not yet clear.

State Boards of Registration.

COMING EXAMINATIONS.

- Maine Board of Registration of Medicine, November 15, Augusta. Secretary, A. K. P. Meserve, M.D., Portland.
- New Mexico Board of Health, Santa Fe, December 5. Secretary, B. D. Black, M.D., Las Vegas.
- Ohio State Board of Medical Registration and Examination, Columbus, December 13-15. Secretary, Frank Winders, M.D., Columbus.
- State Medical Examining Boards of Delaware, Wilmington and Dover, December 13-15. Secretary, P. W. Tomlinson, M.D., Wilmington.
- The Medical Examining Board of Virginia, Richmond, December 13-16. Secretary, R. S. Martin, M.D., Stuart.
- Board of Medical Examiners of Maryland, Baltimore, December 14-17. Secretary, J. McP. Scott, M.D., Hagerstown.
- Missouri State Board of Health, St. Louis University, St. Louis, December 19-21. Secretary, W. T. Morrow, M.D., Kansas City.
- Iowa State Board of Medical Examiners, Capitol Building, Des Moines, December 21-22. Secretary, J. F. Kennedy, M.D., Des Moines.
- Oklahoma Medical Examining Board, Guthrie, December 28. Secretary E. E. Cowdrick, M.D., Enid.

Minnesota October Report.—Dr. C. J. Ringnell, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, Oct. 4-6, 1904. The number of subjects examined in was 12; total number of questions asked, 95; percentage required to pass, 75. The total number examined was 34, of whom 24 passed and 10 failed. The following colleges were represented:

College	PASSED.	Year Grad.	Per Cent.
Homeo. Dept., Univ. of Minnesota	(1904)	70.2
Coll. of Med. and Surg., Univ. of Minn.	(1904) 80.35, 82.2,		83.8, 83.6.
Hamline University, (1904)	86.85, 75.15, 83.3;	(1903)	75
Homeo. Dept., Boston Univ.	(1904)	81.1
Johns Hopkins	(1904)	78.2
Hahnemann Med. Coll., Chicago	(1904)	84.6
Coll. of Med. and Surg., Chicago	(1904)	77.9
Kooken Med. Coll.	(1900)	76.3 (1904)
Jefferson Med. Coll.	(1904)	83
Laval Univ., Montreal	(1903)	83.7
Coll. of P. and S., Chicago	(1904)	82.85
Univ. of Pennsylvania	(1907)	86.4
N. W. Univ., Chicago	(1904) 80.45, 82.2,	(1902)	83.75
Rush Med. Coll.	(1901) 87.45, (1904)		86.75
FAILED.			
Hamline Univ.	(1904)	58.5, 74.4, 66.7
Univ. of Lausanne, Switzerland	(1903)	50.9
Univ. of Michigan	(1901)	68.9
Washington Univ., St. Louis	(1902)	72.5
Hahnemann Med. Coll., Pa.	(1897)	61.7
Coll. of P. and S., Chicago	(1904)	71.3, 71.4
Women's Med. Coll., Chicago	(1890)	65

The board has notified all medical colleges in the United States that graduates of medical colleges granting advanced standing for work done at other than medical colleges shall not be eligible to the examinations given by that board. By non-medical institutions the board refers to colleges of literature, arts, science, pharmacy, dentistry, veterinary surgery, etc. This, however, does not apply to students who were granted advanced standing prior to September, 1901.

The following questions were asked:

CHEMISTRY, URINALYSIS AND TOXICOLOGY.

1. Define atomic weight, valence and alkaloid.
2. Give symptoms and treatment of poisoning by prussic acid.
3. Give a quantitative

and a qualitative test for angar in the urine. 4. What diseases may cause a sediment in urine? 5. Give a test for uric acid in the urine.

EYE AND EAR.

1. Name main points to be considered in an examination of the eye. 2. Corneal ulcer, etiology, symptomatology, treatment. 3. What is proper treatment for (a) abscess of external meatus; (b) discharging ear chronic. Discuss a case. (c) Cure of eyes of newborn. (d) Care of eyes of school children. 5. What eye and ear complications are liable to follow, (a) measles; (b) diphtheria; (c) scarlet fever?

MATERIA MEDICA AND THERAPEUTICS.

1. Name the principal mineral acids given internally in medicine and the dose of each. 2. Prescribe mercury internally for a adult with the beginning secondary symptoms of syphilis. 3. How would you treat constipation in a breast-fed infant of six months? 4. Give directions for the diet and hygiene of a patient with chronic interstitial nephritis. 5. What is wrong with this prescription: R. Argenti nitrate gr. jss. Hydragryi chloridum gr. j. Aque destillata oz. vj.

Misce et solve. Sig.: For urethral injection. 6. Give a safe and efficient dose for an adult of cocaine hydrochlorate; resin of podophyllum; tincture of digitalis; sulphate of strychnia; tincture of opium. 7. Prescribe a lotion containing carbolic acid for a case of papular eczema. 8. Name the two best diuretics and the dose of each. 9. What is an emulsion? Name an efficient emulsifying agent for oils. 10. What is the official title of Epsom salts, of Dover's powder, of Fowler's solution, of tartar emetic, of blue pill?

PATHOLOGY AND HISTOLOGY.

1. Give the pathologic differences between lobar or croupous pneumonia, and lobular or bronchopneumonia. 2. Give pathology of cirrhosis of the liver. 3. What is the condition of the heart muscle after a long and severe attack of typhoid fever? 4. Describe the specific lesions of the intestines in typhoid fever. 5. Give characteristic differences between follicular tonsillitis and diphtheria, pathologically considered. 6. What is found in the urine of an advanced case of Bright's disease, chemically and microscopically considered? 7. Differentiate the pathological between round ulcer and cancer of the stomach. 8. Differentiate between heart muscle and ordinary striated muscle. 9. Describe the red blood corpuscle; the white blood corpuscle. Give the function of each. 10. Describe briefly squamous and ciliated epithelium. Give some of the locations in which each is found.

MEDICAL JURISPRUDENCE.

In these questions the examiner aims to cover general principles only. The modifications of the common law in matters pertaining to medical jurisprudence are so many and so various in the different states and jurisdictions that the student is not assumed to be familiar with them all. 1. Give a good medical definition of insanity. 2. In a body partially decayed, what would guide you in your efforts to identify the sex, the outward and obvious signs being obliterated by decomposition. 3. Tell how strychnia causes death, and give postmortem appearances. 4. Give the respects in which arsenic and strychnia differ. 5. Give the medical jurisprudence; give synonyms, and state in what particulars, if any, it differs from state medicine. 5. What would you consider a lethal dose to an adult person of each of the following: carbolic acid, chloral hydrate, hydrocyanic acid, morphia sulph., assuming that habit has not established a tolerance?

SURGERY.

1. Give classification of wounds. 2. Etiology and treatment of acute osteomyelitis. 3. Describe tenotomy; myotomy. 4. Symptoms and treatment of empyema of the chest. 5. Give etiology and clinical history of spondylitis. 6. Name the varieties of dislocation of the hip, and give the approximate percentage of each. 7. Diagnose and treat a case of talipes equinovarus. 8. Describe and treat a ganglion. 10. Give usual strength in which the following antiseptics are employed in surgery: 1. Corrosive sublimate; 2, permanganate of potash; 3, lysol; 4, kreolin; formalin.

PHYSIOLOGY.

1. What are the more important physiologic uses of bile? 2. Give the more advanced views of the normal formation of liver-glycogen and its more important uses physiologically. 3. Give mechanism and physics of eye accommodation. 4. Differentiate complemental, residual, stationary and supplemental air as applied to respiration. 5. What is the effect of urea in promoting pancreatic secretions? 6. Give functions and physical characteristics of red blood corpuscles. 7. The same of white blood corpuscles. 8. How (if at all) is urea derived from ammonium carbonate? 9. What effects would follow removal of the suprarenal capsules? 10. Name and locate some of the centers in the cerebral cortex.

DISEASES OF WOMEN.

1. The broad ligament (a) describe briefly; (b) infection of, give causes, diagnosis and treatment. 2. Tuberculous peritonitis, etiology, symptomatology, prognosis and treatment. 3. Pueritis vulvae: etiology, symptomatology and treatment. 4. Uterine polypus: Etiology, varieties, symptomatology, diagnosis and treatment. 5. Congenital stenotomy, sometimes called dyspareunia: treat a case of talipes varus. 9. Describe and treat a ganglion. 10. Give usual strength in which the following antiseptics are employed in surgery: 1. Corrosive sublimate; 2, permanganate of potash; 3, lysol; 4, kreolin; formalin.

DISEASES OF CHILDREN.

1. Chlorosis: Etiology, symptomatology, diagnosis and treatment. 2. Lobar pneumonia: Etiology, symptomatology, diagnosis, prognosis and treatment. 3. Acute endocarditis: Etiology, lesions, symptomatology and treatment. 4. Chronic lobarcolitis: Etiology, symptomatology and treatment. 5. Acute rheumatism: Etiology, symptomatology and treatment.

THEORY AND PRACTICE.

1. Give a complete diagnosis of psoriasis. 2. Give full symptomatology of paretic dementia. 3. Give causes and diagnosis of myxedema. 4. Give causes and treatment of gastric dilatation. 5. Give causes and prognosis of cystitis, and differential diagnosis between it and gonorrhoea. 6. Describe anemia. When would you employ iron and when arsenic in its treatment? 7. Give causes of pulmonary congestion and pulmonary edema with differential diag-

nosis. 8. Describe the pathologic changes of the heart resulting from insufficiency of the mitral valves. 9. How would you tell an anemic murmur from another functional murmur or organic murmur at the apex? 10. How does the normal respiratory sound under the left clavicle differ from that under the right?

ANATOMY.

1. Describe the pulmonary artery and give its origin. 2. Give origin and insertion of the biceps flexor cubiti, gastrocnemius, and sartorius muscles. 3. Name the branches of the abdominal aorta. 4. Describe the sphenoid bone and give its articulations. 5. Give the gross anatomy of the kidney. 6. Name the cranial nerves. 7. How many ligaments enter into the formation of the knee joint? Name them. 8. Describe Scarpia's triangle. 9. Describe the internal abdominal ring. 10. What arteries supply the uterus; give their origin?

OBSTETRICS.

1. Give differential diagnosis between pregnancy and (a) ovarian cyst, (b) subperitoneal myomata, (c) dropsy. 2. Give treatment for vomiting of pregnancy. 3. Describe the normal mechanism of labor in vertex presentation. 4. What other presentations of the head are there beside that of the vertex? 5. What is placenta previa? Treatment. 6. How do you distinguish a breech from a face presentation? What are the dangers of a breech presentation? 7. How do you guard against rupture of the perineum? How do you correct it, if it occurs? 8. What are the dangers of labor in twin pregnancies? 9. What is puerperal septicaemia? Give prophylaxis. 10. How do you prevent ophthalmia neonatorum?

HOMEOPATHIC MATERIA MEDICA.

1. Describe the skin affection to which rhus tox. is homeopathic. 2. Distinguish ipecac and antimony tart. in bronchopneumonia. Mention three remedies analogous in such conditions. 3. What are the most characteristic stomach and bowel symptoms of veratrum alb. 4. Distinguish acon., arsen., bell., bry. in feverish states. 5. Give characteristic symptoms of lachesis, lycopodium, podophyllum, china, pulsatilla.

ELECTRIC MATERIA MEDICA.

1. Give the use of ecbinacea, calcium sulphid and the dose of each. 2. Give the uses of ichtbyol; hamamelis. 3. What are the indications for the use of potassium iodid, tuja, corydalis. 4. Name four diuretics and give dose of each. 5. Give specific indications for sodium salicylate, eupatorium, potassium chlorate. 6. Name three sedatives and give specific indications for each. 7. Give specific indications for cactus grand., atrophanthus, digitalis. 8. What is the physiologic action of laborand., elaterium, hyoscyamus? 9. Give physiologic action of ergot, strychn., potassium bromid. What is the dose of each? 10. Name three reliable hypnotics and give indications and dose of each.

Rhode Island October Report.—Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, Oct. 6-7, 1904. The number of subjects examined in was 7; total questions asked, 70; percentage required to pass, 75. The total number examined was 11, of whom 9 passed and 2 failed. The following colleges were represented:

Table with 5 columns: College, PASSED, Year Grad., Per Cent. Lists Boston University, College of P. and S., New York, Harvard University, Kentucky School of Medicine, Maryland College, Syracuse University, College of P. and S., Baltimore, University of Vermont.

Association News.

New Members.

Table with 2 columns: State/District, Name. Lists members from ARKANSAS, DISTRICT COLUMBIA, DELAWARE, CALIFORNIA, FLORIDA, GEORGIA, COLORADO, CONNECTICUT, ILLINOIS, INDIANA.

Kiser, Edgar F., Indianapolis.
 Now, C. F., Indianapolis.
 Babin, J. C., Terre Haute.
 Smick, C. M., Terre Haute.
 Ash, Elmer E., Goshen.
 Brendel, J. F., Zionsville.
 Beckwith, Irvin J., Goshen.
 Byers, Oliver A., Petersburg.
 Besser, E., Remington.
 Castello, Henry P., Decatur.
 Cahoon, W. C., Columbus.
 Dinsmore, Walter H., Kramer.
 Dootey, Michael H., Loogootee.
 Holland, Geo. P., Bloomington.
 Kesser, J. H., Ellettsville.
 Lorimer, John H. D., Hartford City.
 McGowan, J. W., Oakland City.
 Marshall, John E., Elwood.
 Souff, John H., Crystal.
 Starr, W. L., New Albany.
 Shirley, H. W., Shoals.
 Taylor, Jas. A., Montpelier.
 Wilson, LeRoy A., Michigan City.
 Williams, W. H., Lebanon.

IOWA.

Zalesky, Wm. J., Cedar Rapids.
 Stevenson, Wm., Des Moines.
 Couper, E. A., Britt.
 Deslier, J. J., Gleneden.
 Hauge, Lars J., Forest City.
 Parish, Ora F., Grinnell.
 Rawlins, John A., Bassett.
 Redmond, John P., Dysart.
 Trell, John B., Alta.
 Wright, Howard J., Kingsley.

KANSAS.

Roggs, Matthew C., Syracuse.
 Hamman, Geo. A., Lawrence.
 Graves, W. H., Dodge City.
 Ledell, Mary E., Lawrence.
 Philbald, Arvid, Lindsborg.

KENTUCKY.

Andrews, Alfred J., Lexington.
 Atkins, J. D., Williamsburg.
 Bots, Andrew T., Lucas.
 Bots, S. T., Glasgow.
 Birc, R. Lee, Latonia.
 Bligh, Jas. S., London.
 Kincheloe, John E., Hardinsburg.
 Kelley, Morris de Witt, La Grange.
 Lesley, J. P., McAfee.
 McCormick, Emmett E., Owensboro.
 Purdy, Archibald D., Kuttawa.
 Stille, V. A., Benton.
 Smart, David T., Paducah.
 Swain, Enos S., Smithfield.
 Thomas, E. G., Benton.

LOUISIANA.

Blackman, R. H., Plain Dealing.
 Caruthers, J. A., Baton Rouge.
 Fankey, J. H., Dodson.
 Fole, Samuel E., Slushboro.
 Thomas, A. J., Mer Rouge.
 Waddell, Preston E., Clarence.

MAINE.

Leslie, F. E., Andover.
 Lethcote, J. A., Brewer.
 Leighton, C. M., Portland.
 McMan, Dan S., Bangor.
 McNally, W. P., Bangor.
 White, E. A., Columbia Falls.
 Woods, J. B., Robinson.

MARYLAND.

Booker, Wm. D., Baltimore.
 Gatzliff, J. S., Baltimore.
 Dabney, W. M., Baltimore.
 Gamble, C. B., Jr., Baltimore.
 Lehnert, Ernest C., Baltimore.
 Miller, Wm. E., Baltimore.
 Platt, Walter B., Baltimore.
 Smith, Joseph T., Baltimore.
 Clemson, H. E., Port Deposit.
 Crum, C. W., R., Jefferson.
 Derr, H. K., Germantown.
 Dent, Walter B., Oakley.
 Houston, W. H., Fishing Creek.
 Hoyt, Ralph L., Oriole.
 Perry, Van Lee, H., Hattersville.
 Richardson, Will S., Williamsport.
 Roman, Samuel T., Conowingo.
 Simpser, I. N., Germantown.

MASSACHUSETTS.

Broughton, Arthur N., Boston.
 Brown, John T., Boston.
 Cobb, Chas. H., Boston.
 Davenport, Francis H., Boston.
 Dunn, Chas. H., Boston.
 Byers, Samuel W., Boston.
 Newell, Franklin S., Boston.
 Barnes, Allan F., Cambridge.
 McIntire, Herbert R., Cambridge.
 Holloran, M. T., Worcester.
 Lincoln, Merrick, Worcester.

Ash, John H., Quincy.
 Barr, John C., Chas. W., Marshfield.
 Clapp, Arthur M., Springfield.
 Croston, John F., Haverhill.
 Cotton, Henry A., Haverhill.
 Doud, Arthur M., Newton Centre.
 Harriman, Perley, Lynn.
 Lockwood, Geo. B., Sharon.
 Mahoney, Edw. J., Holyoke.
 Schorer, C. B., Jr., Worcester.
 Snow, Frank W., Newburyport.
 Symonds, Alice G., Haverhill.
 Taylor, A. G., Brookline.
 Keane, H. J., Everett.
 Jack, E. S., Melrose.
 McPherson, Miss, Cambridge.

MICHIGAN.

Starbuck, S. H., Hillsdale.
 Bloch, S., Muskegon.
 Bosman, J. W., Kalamazoo.
 Brucko, G. Ralph, Caladonia.
 Bird, J. T., Clarkston.
 Culver, S. H., Mason.
 Conklin, H. R., Bismarck.
 Cook, D. E., Holland.
 Edwards, J. S., Grand Rapids.
 Garber, Frank W., Muskegon.
 Hynding, Jas. A., Eastland.
 Jackson, Jas. F., Sault Ste. Marie.
 Flynnman, Peter, Jackson.
 Osting, Jacob, Muskegon.
 Seger, F. L., Leslie.
 Scott, J. C., Houghton.
 Sutherland, Clark J., Clarkston.
 Stevenson, C. A., Eaton Rapids.
 Wardell, J. M., Adillan.
 Young, W. G., Grand Rapids.

MINNESOTA.

Hoff, Feder A., St. Paul.
 Macdonald, Wm. J., Minneapolis.
 Haynes, Jas., Minneapolis.
 Wanous, Ernest Z., Minneapolis.
 Bloom, Wm. D., Minneapolis.
 Johnson, John, Willmar.
 MacKenzie, L. E., Willard.
 Hall, Charlotte C., St. Paul.
 Barton, Edgar K., Frazer.
 Bergquist, Carl E., Winton.
 Bennett, O. E., Sanborn.
 Beadle, Wm. D., Windom.
 Batchelder, Oliver T., Brainerd.
 Daignault, E. M., Benton.
 Ostberg, Frederick A., Larnsboro.
 Dunlop, A. H., Crookston.
 Greene, Chas. A., Windom.
 Hagen, Henry O., New Rich.
 Nicholson, Donald A., St. Peter.
 Noth, Henry W., Marine Mills.
 Nannestad, Jas. R., Briceville.
 Onsgard, L. K., Clouston.
 Powell, C. D., Bellingham.
 Rodd, Olaf Erling, Albert Lea.
 Schetek, J. Francis, Hutchinson.
 Shaw, A. W., Brohl.
 Storgert, C. A., Duluth.
 Torgerson, W. B., Clarkfield.
 Thordarson, Theo., Minnesota.

MISSISSIPPI.

Bott, F. L., Lexington.
 Binnell, Geo. F., Yazoo City.
 Cheek, Elbert A., Arcola.
 Carr, D. J., Laurel.
 Danpeper, J. M., Crystal Springs.
 Flynn, S. B., Meridian.
 Guthrie, J. M., Quitman.
 Hildon, R. E., Brookhaven.
 Lee, A. S., Foot.
 McCall, H. B., Lewton.
 McCracken, W. H., Alligator.
 Paxton, Elisha, Gloster.
 Patterson, Wm. P., Beauregard.
 Stockard, R. R., Columbus.
 Gossard, W. K., Clarksdale.
 Smith, R. Curtis, Potter.

MISSOURI.

Burton, S. L., College Mound.
 Phillips, G. M., St. Louis.
 Crews, R. N., Williamsburg.
 Dean, L. E., Maryville.
 Gower, J. K., Chillicothe.
 Martin, A. J., East Prairie.

NEBRASKA.

Chedeck, B. H., Verdigre.
 Job, C. B., Broken Bow.
 Kaufmann, A. J., Sutton.
 Polk, L. F., Raymond.
 Porter, J. K., Union City.
 Smith, E. L., Shelton.

NEW HAMPSHIRE.

Cobb, Joseph J., Berlin.
 Catterall, A., Berlin.
 Hill, G. C., Keene.
 O'Brien, C. C., Groveton.
 Littlefield, A. W., New London.
 Sanborn, Geo. H., Henniken.

NEW JERSEY.

Areson, W. H., Upper Montclair.
 Pollak, B. S., Jersey City.
 Boyd, W. S., Jersey City.
 Gage, Ebel S., Newark.
 McCord, J. W., Newark.
 Cantwell, F. V., Trenton.
 Wallace, Henry, Glen Ridge.
 De Groot, G. S., Mendham.
 Dolan, Thomas E., Scotch Plains.
 Luther, C. V., South Orange.
 Klordon, John, Carlstadt.
 Shaul, F. G., Bloomfield.

NEW YORK.

Dower, A. J., Brooklyn.
 Sage, A. G., Buffalo.
 Levin, Isaac, New York City.
 Potter, Mary, Goddard, New York City.
 Ruppe, E. F., New York City.
 Warren, Mortimer, New York City.
 Cummings, J. P., Ticonderoga.
 Cady, G. M., Nichols.
 Henry, Asa G., Cortland.
 Hunt, Edward L., Lehigh Park.
 Reeves, R. A., Macedon.
 Elv, Albert H., New York City.
 Titus, Edward C., New York City.
 McCarthy, Owen E., Niagara Falls.
 Smith, L. H., Palmyra.
 Selleck, V. D., Glen Falls.

NORTH CAROLINA.

Ripley, F. J., Asheville.

NORTH DAKOTA.

Countryman, John E., Grafton.
 Donovan, E. I., Langdon.
 Langdon, A. T., Sanborn.
 Scanlan, Wm., Page.

OHIO.

Barton, E. W., Akron.
 Chas, Wm. S., Akron.
 Buttemiller, Geo. S., Cincinnati.
 Falls, Wm. H., Cincinnati.
 Grimm, Adolph, Cincinnati.
 Rockford, B. C., Cincinnati.
 Tate, Ralph B., Cincinnati.
 Champlin, H. D., Cleveland.
 Darby, John E., Cleveland.
 Franke, F. C., Cleveland.
 Peskind, Samuel, Cleveland.
 Sunkle, R. H., Cleveland.
 Stotter, Jas., Cleveland.
 Gilliam, Earl M., Columbus.
 Brown, G. T., Phillipsburg.
 Britton, S. H., Marion.
 Coleman, W. K., West Union.
 Essington, U. S., Somerset.
 Gregory, Wm. M., Berea.
 Hunston, A., Lincoln, Bellefontaine.
 Locke, G. G., Haverhill.
 Marsh, Van Newhall, Flushing.
 Phillips, D. T., Morristown.
 Selzer, I. P., Piquette.
 Sager, Henry, Uniontown.
 Wood, Orlando S., Haydensville.
 Wright, Frank O., Wilmington.
 Webster, Samuel J., Brooklyn.

OKLAHOMA.

Benson, Adelbert H., Faxon.
 Postelle, J. M., Oklahoma City.

OREGON.

Earle, B. H., Astoria.
 Findley, M. C., Grant's Pass.

PENNSYLVANIA.

Kephart, T. A. C., Altoona.
 Davis, Frank M., Allegheny.
 Gould, Margaret A., Allegheny.
 Shreve, Owen M., Erie.
 Lefevor, C. H., Erie.
 Netcher, C. E., Lancaster.
 Sloan, I. E., Johnstown.
 Burkhardt, E. J., Johnstown.
 Sustein, Noah, McKeesport.
 Arbutnot, Thos. Shaw, Pittsburg.
 Black, J. L., Pittsburg.
 Cur, J. C., Pittsburg.
 Davidson, R. E., Pittsburg.
 Goldsmith, Milton, Pittsburg.
 Hampsy, A. R., Pittsburg.
 McKibben, C. W., Pittsburg.
 McWilliams, W. M., Pittsburg.
 Meredith, E. W., Pittsburg.
 Seegman, Simon, Pittsburg.
 Stewart, Achim, Pittsburg.
 Simonsen, Thos. Grier, Pittsburg.
 Swope, Lorenzo W., Pittsburg.
 Terheyden, Wm. A., Pittsburg.
 Brittingham, Jas. D., Philadelphia.
 Fraley, Frederick, Philadelphia.
 Lewis, Morris J., Philadelphia.

Milliken, Frederick H., Philadelphia.
 Sutliff, Van Duyn A., Philadelphia.
 Smith, David D., Philadelphia.
 Woodcock, Lee B., Scranton.
 Maxwell, John Ralph, Washington.
 Person, J. A., Wilkesbarre.
 Campbell, E. B., Williamsport.
 Crawford, H. M., Columbia.
 Caldwell, H. B., Morris Run.
 Davia, M. M., Indiana.
 Dabney, J. P., Gettysburg.
 Dickson, R. W., Leesdale.
 Fiegal, J. S., Gettysburg.
 Free, Spencer M., Du Bois.
 Holman, A. P., Butler.
 Jurd, Jas. T., Galeton.
 Lasher, Wm. W., Saxtonburg.
 Lachar, H. J., Bethlehem.
 Meyers, W. H., Meyersdale.
 McCaskey, F. H., Freedom.
 Miller, Thos. A., Upper Lehigh.
 Riley, J. D., Mahanoy City.
 Rohrer, F. M., Quarryville.
 Stewart, W. L., Gettysburg.
 Seville, D. W., Bellevue.
 Stewart, R. A., Independence.
 Stoyer, Geo. W., Sharpsville.
 Simpson, Geo. E., Indiana.
 Wagner, A. F., Glen Moore.

PHILIPPINE ISLANDS.

Edwards, J. F., Manila.

RHODE ISLAND.

Campbell, Edw., Providence.
 Hathaway, Geo. S., Providence.
 Lillibridge, B. J., Providence.
 Pegrum, J. C., Providence.
 Westcott, C. S., Providence.
 Jencks, P. H., Woonsocket.
 Stores, B. W., Portsmouth.

SOUTH CAROLINA.

Dibble, E. Marvin, Marion.
 Gambrell, C. C., Abbeville.
 Hall, H. T., Aiken.
 Hayden, A. H., Summerville.
 Jeter, C. J., Santee.
 Jackson, H. P., Charleston.
 Mauldin, Leland, Osgood, Pickens.
 Moore, W. R., Summerton.
 May, Chas. R., Blenheim.
 Odum, H. A., Springfield.
 Watson, John Ernest, Ira.

SOUTH DAKOTA.

McSloy, Jas. H., Sturgis.

TENNESSEE.

Oliver, G. W., Medina.

TEXAS.

Moody, Geo. H., San Antonio.
 Harris, Chas. H., Ft. Worth.
 Nave, Thos. Wm., Galveston.
 Gammon, Wm., Galveston.
 Hines, John F., San Antonio.
 Hughes, E. T., San Antonio.
 Andrews, Judson, M., Wharton.
 Adams, Bon O., Fenton.
 Alexander, Wm. H., Ravenna.
 Byars, C. R., Bay City.
 Bundy, Zachary Taylor, Milford.
 Beall, Joseph Alfred, Center Point.
 Eynum, J. T., Nelda.
 Childress, H. J., Gilmer.
 Dennen, Alex. Madison, Lufkin.
 Dye, T. L., Lubbock.
 Daly, T. J., Boyce.
 Dinges, H. E., Sastell.
 Floyd, G. F., Lone Oak.
 Foster, J. L., Abilene.
 Gilbert, Jackson M., Lewisville.
 Graham, Robt. L., Olin.
 Graves, Edwin, Gatesville.
 Graham, Lou E., Boyce.
 Goolsty, Z. T., Enloe.
 Gallaher, J. W., Graham.
 Hutchins, J. F., Oakland.
 Hester, J. W., Dallas.
 Hallemann, W. D., Laneville.
 Hine, Lucius S., Okalla.
 Jenkins, Perry L., Lufa.
 Johnson, Jonas L., Eastland.
 Jones, Thos., Seife.
 Knoble, B. E., Industry.
 Lesnett, Christopher K., Fairbairn.
 Lister, Sidney M., Richmond.
 Lowrie, S. A., Talpa.
 McBeth, C. A., Miles.
 Mantooth, J. W., Abilene.
 McCusker, J. W., Cooper.
 Manes, O. B., Coleman.
 McWhorter, C. E., Seagrave.
 McKnight, J. M., Laredo.

Martin, M. L., Denton.
McAnn, J. D., Stacy.
Newell, J. E., Petty.
Pipkin, Thos. Price, San Angelo.
Poe, Andrew C., Carbon.
Pannell, J. A., Martindale.
Paton, Wm. Daniel, Amarillo.
Patrick, Wm. R., Brackettville.
Rape, Thos. A., Ballinger.
Ramsey, John B., Alto.
Radey, Oliver Henry, Edna.
Robertson, Thos. W., Stamford.
Robertson, J. C., Mt. Pleasant.
Robertson, Patrick Frank, Mont-
cell.
West, Gillespie S., Palestine.
Strother, Edwin B., Plano.
Terhune, Archibald A., Jefferson.
Taylor, Jas. Job, Richland
Springs.

White, R. R., Temple.

VERMONT.

Briegham, Fred C., Jamaica.
Bogue, Homer A., Richford.
Cotey, Thos. K., Rutland.
Clark, Edw. R., Castleton.
Farmer, Frank E., Middlebury.
Gron, Don W., Watbury.
Havens, Walter L., Chester De-
puch.
Manchester, H. L., Pawlet.
Richardson, Jos. W., Burlington.

VIRGINIA.

Baird, Jas. Walter, Carsley.
Crockford, Wm. Hamilton, Dor-
chester.
Douglas, Morton G., Warrenton.
ton.

Early, Bernard Heath, Montvale.
Garry, Roscoe B., Newport News.
Hicks, Jas. R., Cove Creek.
Klipps, D. M., Front Royal.
Lewis, J. Newton, Roanoke.
Mann, David Meade, Richmond.
Stover, Geo. A., South Boston.
Stump, Levi Johnson, Pochon-
tas.
Trevillion, John G., Richmond.

WASHINGTON.

Maxsen, Frank T., Seattle.

WEST VIRGINIA.

Kent, Oscar A., Huntington.
Stone, Harry B., Ashland.
Windfield, John H., Johnstown.

WISCONSIN.

Baldwin, Geo. E., Dartford.
Calms, Rolla U., River Falls.
Cole, Chas. E., Prairie du Chien.
Gratuit, W. M., Mineral Point.
Grannis, E. H., Meunimine.
Hansmann, Nicholas Edw., Ke-
waukees.
Jacob, Benj. U., Waukesha.
Monroe, Wm. B., Monroe.
Moseley, John Hamilton, Tomah.
Rasoch, Haldan, Nelsonville.
Schmidt, E. S., Oshkosh.
Schmitter, Ferdinand, Madison.
Swedenborg, Francis G., Rock
Elin.
Webster, A. M., Alma.
Williamson, M. R., Oconomowoc.

WYOMING.

Johnson, S. W., Cambria.
Murray, E. S., Rock Springs.

Sutton, R. L., asst.-surgeon, detached from the Naval Hospital, New York, and ordered to the *Wassachusetts*, November 25.

Winn, C. K., and de Vallin, Hugh, appointed A. A. surgeons from October 28.

Geiger, A. J., asst.-surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered home.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Nov. 2, 1904:

Peckham, C. T., surgeon, granted extension of leave of absence for ten days from November 8.

Smith, A. C., P. A. surgeon, to proceed to New York and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of surgeon.

Cumming, H. S., P. A. surgeon, relieved from duty as member of board of examination of Asst.-Surgeon J. W. Amesse, to determine his fitness for promotion to the grade of P. A. surgeon.

Clark, Talafierro, P. A. surgeon, to proceed to Baltimore, Md., for temporary duty in connection with inspection of aliens, relieving Asst.-Surgeon A. D. Foster.

Lumsden, L. L., A. surgeon, relieved from duty at Vera Cruz, Mexico, and directed to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty.

Richardson, T. F., P. A. surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Savannah, Ga., and assume command of the service, relieving Surgeon S. D. Brooks.

Richardson, T. F., P. A. surgeon, granted leave of absence for fifteen days.

McClintic, T. B., P. A. surgeon, to report to director, Hygienic Laboratory, for duty. Granted leave of absence for seven days from Oct. 31, 1904, under Paragraph 191 of the Regulations.

Goldberger, Jos. P., A. surgeon, relieved from duty at Tampico, Mexico, and directed to proceed to Washington, D. C., and report at bureau preliminary to assignment to duty in the Hygienic Laboratory for course of instructions.

Trotter, F. E., P. A. surgeon, detailed as member of board for examination of Asst.-Surgeon J. W. Amesse, to determine his fitness for promotion to the grade of P. A. surgeon.

Gwyn, M. K., asst.-surgeon, relieved from duty at Jolo, P. I., and directed to proceed to the United States and report arrival at San Francisco.

Foster, A. D., relieved from duty at Baltimore, Md., and directed to proceed to Naples, Italy, and report to P. A. Surgeon J. M. Easer for duty in the office of the United States Consul.

Robertson, H. McG., asst.-surgeon, to proceed to Baltimore, Md., and assume temporary charge of service during absence of Asst.-Surgeon C. W. Wille.

Woods, C. H., pharmacist, granted leave of absence for fifteen days from October 27.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, Chelsea, Mass., Nov. 2, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon R. M. Woodward, chairman; Asst.-Surgeon W. C. Rucker, recorder.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Oct. 29, to Nov. 4, 1904:

SMALLPOX—UNITED STATES.

California: San Francisco, Oct. 15-22, 1 case.
Illinois: Chicago, Oct. 22-29, 14 cases.
Michigan: At 59 places, Oct. 15-22, present; Grand Rapids, Oct. 22-29, 1 case.
Minnesota: Oct. 17-24, Hennepin Co., 11 cases; Ramsey Co., 5 cases; Stearns Co., 17 cases.
Missouri: St. Louis, Oct. 22-29, 8 cases, 2 deaths.
Pennsylvania: Philadelphia, Oct. 22-29, 1 case.
Tennessee: Memphis, Oct. 22-29, 1 case.
Wisconsin: Milwaukee, Oct. 22-29, 9 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, Sept. 17-24, 4 cases.
Austria-Hungary: Prague, Oct. 8-15, 7 cases.
Belgium: Brussels, Oct. 8-15, 1 death.
Brazil: Bahia, Oct. 1-8, 2 deaths.
China: Hongkong, Sept. 10-17, 1 case.
France: Paris, Oct. 8-15, 10 cases.
Great Britain: Glasgow, Oct. 14-21, 1 case; Leeds, Oct. 8-22, 4 cases; Oct. 8-15, Manchester, 1 case; Newcastle-on-Tyne, 5 cases; Nottingham, 1 case.
India: Bombay, Sept. 28-Oct. 4, 4 cases.
Italy: Palermo, Oct. 8-15, 11 cases, 2 deaths.
Russia: Moscow, Oct. 1-8, 3 cases, 2 deaths; Odessa, Oct. 8-15, 1 case; St. Petersburg, Sept. 25-Oct. 8, 11 cases, 1 death.
Spain: Barcelona, Oct. 10-20, 2 deaths.
Turkey: Alexandria, Oct. 10, epidemic; Beirut, Oct. 8-15, present; Constantinople, Oct. 2-17, 39 deaths.

YELLOW FEVER.

Cuba: Punta de Sal, Santiago, Oct. 24, 1 case.
Cuba: Havana, Sept. 30-Oct. 5, 1 death.
Mexico: Coahuacalcos, Oct. 15-22, 2 cases, 2 deaths; Oct. 16-22, Merida, 1 case; Tehuantepec, 1 case; Tuxtlapec, 53 cases, 5 deaths.

CHOLERA.

India: Bombay, Sept. 27-Oct. 4, 7 deaths; Madras, Sept. 24-30, 1 death.
Persia: Oct. 17, Enseli, epidemic; Resht, 120 to 140 deaths daily; Senenditah, epidemic.
Russia: Transcaucasian District, Sept. 17-29, 44 cases, 23 deaths.
Turkey: Bagdad and vicinity, Sept. 12-20, 1,513 cases, 1,017 deaths.

PLAGUE.

Brazil: Bahia, Oct. 18, 1 death.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Nov. 5, 1904:

Geer, C. C., asst.-surgeon, returned from sick leave of absence to sick in General Hospital, Washington Barracks, D. C.
Ford, J. H., asst.-surgeon, granted two months' leave of absence, to take effect about Nov. 15, 1904.

Robbins, C. P., asst.-surgeon, relieved from duty at Fort Terry, N. Y., and ordered to Fort Ethan Allen, Vt., for duty.

Polhemus, A. S., surgeon, ordered before Army retiring board at Fort Leavenworth, Kan., for examination.

Stiles, H. R., asst.-surgeon, ordered to report to commanding officer at Washington Barracks, D. C., for duty as surgeon.

Birmingham, H. P., surgeon, relieved from duty at Washington Barracks and ordered to report to the commanding general, Department of Texas, for duty as chief surgeon of that department.

Jones, P. L., asst.-surgeon, ordered to proceed from Fort Monroe, Va., to New York City for duty as transport surgeon, transport steamer.

Owen, Wm. O., surgeon, granted thirty days' leave of absence.
Purville, Wm. E., surgeon, Pipes, Henry F., and Bingham, E. G., asst.-surgeons, left San Francisco on the *Sherman* en route to Manila, P. I.

Dunn, D. F., asst.-surgeon, leave of absence extended fifteen days.
Volven, F. Homer, contract dental surgeon, arrived at San Francisco, October 17; ordered to Fort Adams, R. I., for duty.

Whinnery, Jean C., contract dental surgeon, arrived at San Francisco October 17; granted leave of absence for two months and at expiration to report at Vancouver Barracks, Wash., for duty.

McMillan, Clemens W., contract surgeon, relieved from further duty at Fort Myer, Va., and directed to proceed at the expiration of his present leave of absence to Fort Terry, N. Y., for duty.

Halwood, James B., contract surgeon, left Fort Leavenworth, Kan., October 27 on leave of absence.

Mason, George L., contract dental surgeon, granted leave of absence for one month.

Wing, Franklin F., contract dental surgeon, ordered from Fort Riley, Kan., to Fort Des Moines, Iowa, for temporary duty.

Adair, George F., contract surgeon, relieved from temporary duty at Fort Du Point, Del., and ordered to return to his proper station, Fort Wadsworth, N. Y.

Sievers, Robert E., contract surgeon, arrived at Fort Harrison, Mont., October 25, from temporary duty at Fort Assiniboine, Mont.

Dade, Waller H., contract surgeon, relieved from further duty in the Philippine Division and directed to proceed at the expiration of his present leave of absence from Henderson, Ky., to Fort D. A. Russell, Wyo., for duty.

Hull, Alva R., contract surgeon, on relief from duty at Fort D. A. Russell, Wyo., ordered to San Francisco for transportation to the Philippine Division.

Boak, S. Davis, contract dental surgeon, left Fort Slocum, N. Y., November 4 on leave of absence for one month.

Jenkins, Frederic E., contract surgeon, left Fort Barrancas, Fla., November 2 on two months' leave of absence.

Pinkston, Omar W., contract surgeon, granted leave of absence for two months.

Navy Changes.

Changes in the medical corps of the Navy, week ending Nov. 5, 1904:

Lando, M. E., appointed asst.-surgeon from October 26.

Hart, G. G., A. A. surgeon, ordered to Marine Barracks, Dry Tortugas, Fla.,

China: Hongkong, Sept. 10-17, 4 cases, 4 deaths.
 Egypt: Alexandria, Sept. 10-30, 12 cases, 8 deaths; Port Said, Sept. 17-23, 1 case.
 Great Britain: South Shields, Sept. 19, 1 case on S. S. *Bishops-ate* from Rosario, via Hamburg.
 India: Bombay, Sept. 27-Oct. 4, 50 deaths; Karachi, Sept. 25-Oct. 2, 14 cases, 8 deaths.
 Mauritius: July 8-Aug. 4, 8 cases, 6 deaths.
 Peru: Eren, Oct. 8, present; Lima, Sept. 1-Oct., 13 cases; Tacusmayo, Oct. 8, present.

Society Proceedings.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, held in Cincinnati, Oct. 11-13, 1904.

(Concluded from page 1409.)

The Prevention of Appendicitis.

DR. WILLIAM M. HARSHA, Chicago, stated that from available figures it would seem that this disease is more frequent in America than elsewhere. This is on the assumption that the mortality rate is much the same in England, Germany and France, where modern methods of medical and surgical treatment are practiced, and where statistics are or should be reliable. In England and Wales, with a population of about 33,000,000, there were 1,244 deaths from appendicitis and ptyphlitis in 1901, or 38 per million. In 1902 there were 1,485 deaths, or 45 per million. In Illinois, with a population of about 5,000,000, there were in 1903, 471 deaths from appendicitis, or 94 per million. In Chicago alone, which represents nearly two-fifths of the population of the entire state, there were 249 deaths in 1902 and 260 in 1903, being at the rate of 140 per million. The same high death rate was approximated in other cities of the United States, especially in similar latitudes. New York City had, in 1903, 439 deaths, or 123 per million. Statistics of deaths from this disease in various cities both at home and abroad were given. Dr. Harsha believes that errors of diet are the most frequent cause. The disease occurs most frequently at the age and in the sex in whom faulty habits of eating and errors of diet are most common. It is common to see attacks follow an immoderate meal, or the ingestion of indigestible articles of food. Cholera morbus ushers in many cases of appendicitis, which are regarded as the primary trouble. The individual case must be considered and treated by itself. Proper hygienic conditions should be secured to keep the vital resistance up to the highest point. During the past six or seven years he has advised these measures as preventive after one attack in which there had been no operation, and so far as can be known, he believes recurrence has not occurred in over 20 per cent. Most of these were in young people, partly because of the greater frequency in the young, and in part because of lack of the patient's intelligent co-operation. The consensus of opinion is that more than 50 per cent. of the cases not operated on recur.

The Etiology of Fissure in Ano.

DR. J. RAWSON PENNINGTON, Chicago, expressed the opinion that the theories usually accepted as the cause are erroneous and that a more comprehensive etiology is needed. He regards the location of the ulcer as anatomic, and as depending principally on the support given to the tissues of the anal canal by the sphincters and levator ani muscles. When the canal is over-distended the dorsal surface receives the least support from these muscles, the anterior the next, while the sides receive the greatest. At the terminal portion this relative support is due to the difference in the distance between the posterior commissure and the tip of the coccyx, the origin of the external sphincter, and the tendinous center of the perineum, its insertion and the anterior commissure. The posterior fibers of the muscle are more deployed than those of the anterior, hence, when pressure is made from within outward it is obvious that the weakest point in this muscle is at or near the posterior commissure; the next weakest point, at or near the anterior commissure. Therefore, when this canal is placed under sufficient stress to rupture its tissues, the tear, all things being equal, should occur first on the dorsal surface, as

it receives the least muscular support; second, on the anterior surface, as it is the next weakest point, and lastly, on the sides.

Hereditary Predisposition in Tuberculosis.

DR. CHARLES L. MIX, Chicago, said that hereditary predisposition was usually defined as a specific predisposition toward tuberculosis, the nature of which is purely speculative, and it exists to-day because of the difficulty of demonstrating actual infection. The argument in favor of hereditary predisposition is as follows: Tubercle bacilli are ubiquitous; everyone is constantly breathing them in. Half the people become tuberculous; half escape. Half are, therefore, predisposed, and half are immune. The major premise is false, as was shown by a table illustrating the number of individuals to each consumptive, and explaining the maximum incidence of tuberculosis at the ages of from 20 to 35 years. Dr. Mix said that there are many fallacies in the usual statistics tending to support the theory of hereditary predisposition. Hereditary predisposition implies hereditary immunity, but the latter apparently has no existence.

DISCUSSION.

DR. G. W. McCASKEY said that the important thing to remember is that tuberculosis is always an infection. There is little doubt that everyone living in a civilized community inhales tubercle bacilli at one time or another, the inoculations proving effective or otherwise, according to the local and constitutional states of the individual.

DR. A. P. BUCHMAN, Fort Wayne, said that one does not invariably become tuberculous on exposure to the tubercle bacillus; otherwise everyone would be tuberculous. Often tubercle bacilli may be found in the absence of manifest tubercular infection.

DR. C. L. MIX said that acquired predisposition exists, and the individual may also inherit a predisposition, not only to tuberculosis, but to any of the infections.

Treatment of Tubercular Pleuritis.

DR. JAMES A. BURROUGHS, Asheville, N. C., reported cases in which he had injected salt solution into the pleural cavity for pulmonary hemorrhage in tuberculosis.

DISCUSSION.

DR. X. MCKITTERICK, Burlington, Iowa, said that such injections in the presence of diseased lungs and pleura, to compress the lung, are dangerous and that the method does not merit much consideration in the statistics given by Dr. Burroughs.

DR. CARL VON RUCK, Asheville, agreed as to the danger and said that in tuberculosis of the lungs, the cavities tend to work toward the pleural surface of the lung. To prevent rupture Nature causes a thickening of the pleural surface of the lung at that point. The injection of air or fluid into the pleural cavity to bring about the control of pulmonary hemorrhage through pressure requires the breaking up of the adhesions which Nature has formed, in order to accomplish compression of the lung.

DR. J. A. BURROUGHS considered the matter still in an experimental stage.

The Obstetric Significance of the Transverse Diameter of the Pelvis.

DR. JOSEPH B. DE LEE, Chicago, reviewed the facts that there is a diminished transverse diameter in funnel-shaped, assimilation, masculine, and infantile pelvis. Dr. De Lee believes that in such cases there is frequently difficulty in delivery, especially in the passage of the shoulders and the extraction of the aftercoming head. He also said that the expectant method should not be tried too long, as frequently the forceps suffice for delivery. Not infrequently symphyiotomy may be indicated. In breech cases delivery may often be facilitated by the application of forceps to the aftercoming head.

DISCUSSION.

DR. HENRY F. LEWIS, Chicago, said that the contraction of the transverse diameter of the pelvic outlet is probably more frequent than is generally supposed. In these cases the tor-

ceps should be applied early. In cases of infection in the male type of pelvis, when the head is well advanced, if the forceps fail, symphysiotomy is often an ideal operation.

DR. DE LEE stated that in a breech case we were formerly instructed to put the forceps in our pocket. In such cases we should now put the forceps on to boil. As a matter of fact, the forceps fit the aftercoming head better than when the head presents. The exaggerated lithotomy position is sometimes of value. He reported a case in which an assistant performed tracheotomy on the child in a breech case. The child lived.

Hydrotherapy in Nervous Diseases.

DR. CHARLES W. HITCHCOCK, Detroit, described the effects of hyriatic applications, and showed that water may be made a promotor of elimination and a stimulant to all the vegetative processes. Properly applied, it is a powerful tonic and may be an excitant, but it is also the finest sedative at our command.

The Treatment of the Morphin Habit.

DR. CURRAN POPE, Louisville, Ky., pointed out the necessity of appreciating the peculiar state of mind of these patients. Too much importance can not be attached to the condition of the excretory organs. There should be complete elimination before commencing the reduction of the drug, after which reduction may be painlessly carried to a certain point, and all shock avoided. Help should be given, not as a substitute, but in the shape of a neuro-cardio-vascular support. When the drug is entirely removed a substitute should be used, not hyoscine. The value of non-medical treatment, such as massage, vibration, electricity, hydrotherapy, isolation and moral control, can not be overestimated in these cases. The value of aftertreatment and the need of keeping in touch with the patient is a part of the system.

DISCUSSION.

DR. FRANK P. NORBURY, Jacksonville, Ill., said that his experience has not always been ideal. Recovery is not always smooth, and relapses are frequent. It is advisable to place these patients at rest in bed at once, and after perhaps two weeks the drug may be withdrawn. Often sodium bromid is useful as a substitute for morphin, and cannabis indica is frequently of value as a stimulant. Relapse is especially frequent in neurasthenic women. He reported a case in which the patient used heroin instead of morphin.

DR. JOHN PUNTON said that the patient must be made to understand at the start that he must co-operate with the physician. The idiosyncrasies of patients to the drug differ. Hyoscine is a most valuable drug when properly used, but is very dangerous when used promiscuously. The majority of physicians who come for treatment claim they can not spend the time necessary to effect a cure.

DR. ALBERT E. STERNE, Indianapolis, did not think that Dr. Pope laid sufficient stress on the reduction of the basis on which the drug habit rested. One must take into account the fundamental nerve weakness which even the physically strong may present. Habituation is not purely functional; there is a structural change in the nervous system, which supplies the physical basis for the condition. The use of drugs is to be deprecated. Many of the so-called abstinent symptoms are really not such. Hyperacidity often requires treatment.

DR. T. B. GREENLEY, Meadow Lawn, Ky., said that many morphin habitués are able to work and earn sufficient to pay for the drug consumed, but make barely a living, and can not afford to take proper treatment.

DR. GEORGE P. SPRAGUE, Lexington, Ky., said that the drug should be discontinued immediately. It may be withdrawn in from five to ten days except in perhaps one case in twenty. Often the patient is sustained by a minute quantity of morphin. Some claim that one-eighth of a grain is satisfactory, and the reduction to that point is not objected to by them. It is better not to stop the drug altogether until a decreased dosage of one-twentieth of a grain or less has been reached, or until twenty-four hours can be passed without the drug without unpleasant symptoms.

DR. R. E. HAUGHTON, Richmond, Ind., regarded this condition as a practical toxemia affecting the cellular elements of the brain. Absolute control of the patient is necessary for success. We must sustain the individual and at the same time secure elimination.

DR. T. D. CROTHERS said that psychotherapeutics and hydrotherapeutics are useful. Nerve rest is important and drugs should be avoided.

DR. FALK said that in prison practice he withdraws the drug at once. The use of ergot, and the administration of elixir of chloral and bromid at night prevents any unpleasant results. None of the cases had been cured permanently.

DR. B. F. BEEBE, Cincinnati, said that a week or ten days is too short a time for the removal of the drug. Elimination should be as rapid as possible, and the patient should be built up as the drug is withdrawn.

DR. POPE insisted on from four to six weeks for the aftertreatment, because nutrition must be improved.

Effect of Direct and Indirect Violence on the Skull and Brain.

DR. ALBERT E. STERNE, Indianapolis, said: "Injuries of impact, however extensive, offer a better immediate and remote prognosis than those of momentum, but must be treated with as little delay as possible, and almost always surgically. In injuries of momentum lesions through *contre-coup* are more apt to occur. After trauma to the skull and brain, the immediate necessity is free drainage and avoidance of intracranial pressure. The possibility of fracture should be kept in view after injuries to the head, and scalp wounds should, if necessary, be freely enlarged to determine the wisdom of further operative interference. Progressive coma, after momentum injuries, is a strict indication for operation."

The Mental Disorders of Adolescence.

DR. FRANK P. NORBURY, Jacksonville, Ill., discussed dementia precox, katatonia, hebephrenia, hysterical excitement, etc., and said that the family physician must recognize early these important mental disorders and co-operate with the alienist in treatment. Prompt and energetic treatment is imperative.

Insanity in Relation to Obstetrics and Gynecology.

DR. HENRY F. LEWIS, Chicago, stated that there is no true puerperal insanity. Normal pregnancy and even normal menstruation are not devoid of certain eccentricities of temper, tastes, appetites, or even morals. Some degree of mental instability must pre-exist if the eccentricities are to be exaggerated into insanity. One can only grant to child-bearing an exciting causal relation. The predisposing instability of mind, often largely hereditary (traceable in three-fourths of the cases) await some awakening impulse in an acute physical or psychic disturbance, which may be furnished by disorders of the genital organs in the performance of their normal functions. Evidence from autopsies and gynecologic examinations of insane women by a large number of authorities show the presence of noticeable pelvic disease in about 25 per cent. A considerable number of gynecologists have operated on insane women at asylums for their genital lesions and have secured a gratifying percentage of cures and instances of improvement. Ovarian lesions seem to influence the mental state the most, uterine next, and vaginal the least. Neoplasms are the least prone of all the pathologic conditions to cause mental disorder.

Newer Conceptions of the Management of Bright's Disease.

DR. ALFRED C. CROFTAN, Chicago, considers Bright's disease as a cardio-vascular disorder of manifold origin, involving primarily the heart and arteries, secondarily those organs chiefly supplied by end arteries, namely, the brain, the retina, and the kidneys. The degeneration of the kidneys therefore, is a very common and important, but not a determining, feature of the disease. Bright's disease in early stages not infrequently occurs without renal involvement. Primary nephritis with the retention of excrementitious bodies may occasionally be a cause of the cardio-vascular changes. This sequence of events,

however, is relatively rare. The management of Bright's disease should be directed toward the prevention or removal of factors operative to affect the heart and arteries. The treatment of the nephritis is incidental, but important. He discussed the rest cure of the kidneys, diet (dangers of exclusive milk feeding) and hygiene and medicinal treatment on the basis of the above conceptions.

DR. CHANNING W. BARRETT'S paper, "The Mortality of Appendicitis," and Dr. G. W. McCaskey's paper, "Infections of Intestinal Origin," will be published in full in THE JOURNAL.

The following papers were likewise read and discussed:

"Plastic Surgery of the Urethra," by Dr. G. Frank Lydston, Chicago; "Causation and Radical Cure of Gynsly," by Dr. John F. Barnhill, Indianapolis; "Cranial Injuries," by Dr. Shelby C. Carson, Greensboro, Ala.; "Internal Hemorrhoids and Their Treatment," by Dr. Wells Teachnor, Columbus, Ohio; "A Case of Bilateral Tic Douloureux Treated by Removal of the Right Gasserian Ganglion and the Left Inferior Dental Nerve," by Dr. W. O. Bullock, Lexington, Ky.; "Hernia of the Tube," by Dr. Frank T. Andrews, Chicago; "Pseudo-Membranous Croup," by Dr. R. E. Carlton, Latonia, Ky.; "Bacteriology and Immunity—What It Is; What It Teaches; What It Does Not Teach," by Dr. R. E. Haughton, Richmond, Ind.; "Two Etiologic Factors in Pelvic Diseases in Women, Their Prevalence and Prevention," by Dr. J. H. Firestone, Freeport, Ill.; "Prognosis," by Dr. John M. Batten, Downingtown, Pa.; "Foreign Bodies in the Esophagus," by Dr. Carl E. Black, Jacksonville, Ill.; "Operative Work in the Ureter," by Dr. Bransford Lewis, St. Louis; "Foreign Bodies in the Cornea," by Dr. Dudley S. Reynolds, Louisville, Ky.; "Etiology of Ectopic Gestation," by Dr. H. B. R. McCall, Kansas City, Mo.; "Brain Abscess of Otitic Origin," by Dr. George F. Kelper, Lafayette, Ind.

BUFFALO ACADEMY OF MEDICINE.

Regular Meeting, held Oct. 4, 1904.

The President, Dr. Arthur W. Hurd, in the Chair.

Gallstones.

DR. JOHN PARMENTER spoke of conditions which simulate gallstones. He referred to the similarity of gall bladder and the appendix in the symptoms disease of either gives and the similarity in treatment of these affections. Gallstones may often be detected by holding the phonendoscope over the gall bladder and hearing crepitation. They may also be suspected if when holding the fingers under the ninth costal cartilage and then having the patient take a deep breath there is much tenderness and rigidity. Again, the gallstone may be found in the stool.

Dr. Parmenter said that there are three cardinal symptoms: 1, pain; 2, nausea and vomiting; 3, tenderness. Superadded to these there may be: 4, jaundice; 5, temperature; 6, tumor.

The pain is due either to distension from accumulated bile behind the stone lodged in the duct or in the gall bladder, or to an inflamed area. It varies according to the virulence of the attack, position of the stone, and the temperament of the person attacked. Its character is colicky; it is intermittent, but, unlike other pains in this locality, does not cease entirely. There is a spasm of the overlying muscles and parts which is visible to the eye and can be felt accompanying the pain. The position of the pain is the ninth costal cartilage and often also beneath the angle of the right scapula. Rarely, according to Murphy, may its seat also be on the left side (one case in ten). Pain is not necessarily present in chronic obstruction in the ducts. It may last from a few minutes to a few days. Nausea and vomiting, which arise reflexly, are important signs if present with other symptoms, but of themselves may, of course, arise from many other conditions. Dr. Parmenter believes that tumors do not occur nearly so often as is claimed. He has frequently found that such an apparent tumor of the gall bladder disappears under anesthesia (phantom tumor). This is due to a relaxation of the parts, and sometimes the stone may be passed following anesthesia. The tenderness varies according to the individual character of the disease and method of examination. The parts should be palpated carefully. Jaundice is a very inconstant symptom. It is the exception rather than the rule, especially if the stone is in the gall bladder or cystic duct, and when present it is intermittent, whereas the jaundice of chronic obstruction (cancer, stricture of duct, etc.), is constant, and where it persists it points to obstruction in the common or hepatic ducts. Jaundice due to gallstone is preceded by other symptoms of

that condition and there are no changes in general health accompanying it, such as the great loss of appetite and cachexia noted in malignancy.

There may or may not be any temperature. It is not marked unless the infection is in the common duct. If the temperature is not above 101 degrees it points to the location of the stone in the cystic duct or gall bladder. The tumor varies also as to the infection and at times the bulk of the tumor is due to muscular spasm, not to an enlarged gall bladder. With gallstones the gall bladder is not so much enlarged; a dilated gall bladder argues for obstruction in the biliary passages from causes other than stone, such as malignant growth or stricture. The tumor, if present, moves with respiration.

The conditions which may simulate gallstone disease are: 1. Acute cholecystitis where no stone is present. 2. Renal calculus, in which the pain is lower, referred to testicles, and blood is often passed in the urine. 3. Plain colic from gas in the hepatic flexure of the colon; this pain is remittent. 4. Appendicitis: Because of pain in this region a child was operated on for appendicitis. The appendix was found normal, but the pain was due to a diaphragmatic pleurisy. 5. Acute intestinal obstruction. 6. Simple indigestion: This condition is, however, relieved by vomiting; more often gallstone colic is wrongly called a gastric indigestion. 7. Movable kidney, when torsion of the pedicle is present; in this condition the kidney can be replaced. Liver symptoms are lacking; urinary symptoms are present (frequent micturition, etc.). 8. Carcinoma: This may be preceded by gallstones; in this condition cachexia is present and there are signs of diffuse carcinomatosis. 9. Acute pancreatitis and cancer at the head of the pancreas. 10. There is a nervous hepatic colic described which is hysterical and strongly resembles gallstone colic; with this there is neither fever nor stones.

Biliary Drainage in Operative Work on the Gall Bladder.

DR. EUGENE A. SMITH said that, judging by his experience of 31 operative cases, biliary drainage in operations on the gall bladder and biliary tract is necessary in 90 per cent. of such operations. Gallstones were formerly considered the cause of chronic disease of the gall bladder and biliary ducts, as fecal concretions and other foreign bodies were supposed to cause appendicitis. Such diseases are due to infection and its continuation with exacerbations and periods of quiescence, and gallstones in the implanted gall bladder are an accompanying feature and a result of the infection. Acute pyogenic infections demand drainage to prevent suppurative cholangitis and hepatic abscess before gallstones can form. Typhoid and colon bacillary infection infrequently demand early operation, but later may require operation because of exacerbation or secondary infections with gallstones, which meanwhile have formed as a predisposing cause. Early operation for cholecystitis is urged to prevent alteration of structure and dangerous complications due to local peritonitis and adhesions beside disturbances of nearby viscera of associated digestive function—especially the pancreas. This view emphasizes the need of biliary drainage to dispose of the infectious bile and infecting agent in the tissues of the gall bladder and biliary ducts. Deaver's argument to prove that chronic biliary tract infection leads to biliary cirrhosis is good and biliary drainage is demanded for its relief. Of the operative methods to drain the biliary tract cholecystostomy is advocated, because it is safer and easier. Permanent biliary fistule reformation of calculi and later malignant degeneration of the gall bladder are possible, but too infrequent to affect the advantage of this operation over cholecystectomy. In cholecystectomy overlooked gallstones may cause trouble. Cholecystectomy with drainage of the cystic or common duct is indicated for cases of stricture of the cystic duct, distorted thickened gall bladder and malignancy of the gall bladder. Mayo's stripping of the mucosa is indicated for gangrenous exfoliation of the mucosa and empyema of the gall bladder. Cholecystectomy without drainage is indicated for gallstone colic when the history shows painful attacks without sepsis and when operation shows little or no infection of the biliary tract and when obstructive jaundice is absent. The

removal of gallstones with closure of the gall bladder and no drainage is ideal, but not practical and not satisfactory. Cholecystenterostomy or drainage into the intestine is performed for hopeless stricture or malignant growth obstruction in the common duct. Calomel unloads a torpid liver by the bowel. The knife is the calomel of the infected biliary tract and biliary drainage is the avenue of cure.

DISCUSSION.

DR. MARCEL HARTWIG emphasized the importance of very careful palpation in examining for tumors in the region of the gall bladder. He stated that he now has a case where the woman had lost weight, was jaundiced and had clay-colored stools. He performed a cholecystostomy, removing many stones, and could feel that there also existed a stricture of the common duct. The case still drains through the incised wound, but the patient feels much better. A secondary cholecystenterostomy will probably be made later. He also related a case with symptoms of hepatic abscess in which he made an exploratory puncture negatively a number of times, and postmortem the liver was found studded with miliary abscesses.

DR. HERMAN HAYD said that in many cases drainage is required because it is the only rational method to get rid of the trouble in the hepatic radicles and the cholangitis and congested liver with its tendency to cirrhosis as demonstrated by Deaver. In some cases such as a shriveled and distorted or acute gangrenous gall bladder, it should be removed. The method of drainage as described by Dr. Smith is simple, easily performed and to him has proven satisfactory. Concerning what Dr. Parmenter had said about the importance of pain and its character in biliary colic, one would believe that this would be all that was necessary to make a diagnosis, but many of these gallstone cases are extremely difficult to diagnose and those conditions which in his experience were most easily confounded with this condition are a tender floating kidney fixed forward, a cancer of the pyloric orifice of the stomach, duodenal ulcer and hysterical pains described by Charcot, which are associated with hysterical painful ovaries. This pain is felt in the epigastric region and a little to the right and is reflex or neurotic.

DR. CHARLES E. CONGDON uses the oblique incision for the operation, as he can get at the bladder or duct more readily and for drainage uses a smaller incision, closing the original incision and so overcoming a tendency to hernia. Through this smaller incision the tube is drawn and drainage takes place perfectly. If there is infection from the discharge it is more localized as when the drainage takes place through the larger opening.

SEVENTEENTH FRENCH CONGRESS OF SURGERY.

Held at Paris, Oct. 17-22, 1904.

Professor S. Pozzi in the Chair.

In his opening address Pozzi expatiated on the great responsibility of the surgeon aside from his operating. The surgeon summoned to operate for appendicitis should be able to correct the diagnosis at need and point out a mistakenly diagnosed liver or kidney colic, just as the physician should be able to detect, for instance, a hidden osteomyelitis, a typhoid of the limbs simulating true typhoid fever. He illustrated his idea by quoting the saying, "A cask full to the brim of nuts can yet hold several measures of oil." He referred to his recent trip to this country and his scientific pilgrimage to the private hospital of the Mayo brothers.

A number of foreign surgeons had been invited to speak, among them von Bergmann and Sonnenburg of Berlin, Ceccherelli of Parma, Fargas of Barcelona, Kocher of Berne, Mikulicz of Breslau, and Czerny of Heidelberg. An exhibition of surgical instruments and appliances was for the first time one of the features of the congress.

Decapsulation of the Kidney.

Ceccherelli related experimental and clinical experiences which demonstrate that decapsulation of the kidney is not at all a serious operation. The capsule is regenerated by the end

of a month and adhesions form, numerous and strong. For this reason he supplements every nephrorrhaphy now with decapsulation, the adhesions insuring firm fixation. The vascular adhesions are liable to have a favorable effect in modifying certain pathologic conditions in the kidney.

Omentopexy.

Monprofit delivered the address on surgical treatment of liver cirrhosis. He has collected statistics of 224 operations, with 129 operative cures. Recurrence was noted in 25, and 26 patients were only materially improved, but 70 were completely cured; 8 have been lost sight of. The operative mortality was 37 per cent. A complete cure was obtained in about a third of all the cases. The statistics in future will be more encouraging, as intervention will not be limited to such desperate cases as in the past. Other members of the congress related their personal experiences, over 50 operations of the kind being thus marshaled, with satisfactory results in about half the number. Vidal reported that omentopexy has a very favorable action on hematemesis by reducing the portal hypertension. His experience has been so encouraging in this line that he regards severe hematemesis as the essential indication for the intervention. The ascites may recur, but the hemorrhages are arrested.

Means of Avoiding Dangers of Chloroform.

Thiery of Paris expressed surprise that more extensive use is not made of tracheotomy followed by insullation in cases of threatened chloroform death. In 23 cases the subjects were resuscitated and the 3 failures were due to defective technic.

Castration in Treatment of Inoperable Mammary Cancer.

Reynés of Marseilles was able to realize the apparent complete cure by utero-ovarian castration of a young nullipara with inoperable cancer of both breasts, menstruating normally. The neoplasms have entirely retrogressed, all but one small nodule in the place of the former extensive ulcerations. Eighteen months have passed since. In another case the castration proved useless. This patient was a iv-para, 39 years old, who had nursed her children for more than a year each. The cancer was a malignant process in a milk-producing breast; the patient had not menstruated for nearly two years. Thiery also reported the complete retrogression of inoperable recurring double mammary cancer in a woman at present in good health a year after the operation.

Cancer and Its Treatment.

One session was devoted to this question, Tuffier urging that a distinction should be made between cancers of the skin, those of the mucosæ and deep-lying cancers. Those of the skin seem to be the only ones amenable to radiotherapy, and not all of these. Czerny stated that radium possesses the property of decomposing lecithin in the tissues. As cancer tissue is particularly rich in lecithin, this may be the clue to its mode of action. Doyen reported that he had treated 242 cases of cancer with his fluid derived from cultures of the micrococcus neoformans which he had isolated from cancers. Of the total 242 cases 42 have been permanently cured, 46 are under treatment but promise a cure. In 128 cases no result was apparent, either because treatment was commenced too late or had been interrupted. Six patients have died from accidental causes after recovery. He asserts that this micrococcus is able to create any variety of neoplasm according to the nature of the tissue primarily infected. Poirier commented on Doyen's statements, remarking that no one but Doyen has been able to discover this micrococcus, and Folet suggested the nomination of a commission to pass final judgment on the Doyen method of treatment of cancer. This session was rather sensational on account of the Doyen-Crocker controversy, mentioned on page 1320. The *Gazette Médicale Belge* comments on the affair that "if Mr. Crocker had consulted his family physician he would have been told that Doyen is a genius as a surgeon, but he is also a shrewd business man and an actor, always hatching out some audacious project. Mr. Crocker would have been advised to demand to see the cured patients." Our latest Paris exchanges contain full reports of the congress, and the English also devote some space to the Doyen cancer serum.

Travel Notes.

XVI.

CEYLON.

FROM AUSTRALIA TO CEYLON—ISLAND OF CEYLON, ITS CLIMATE, PEOPLE, DISEASES—COLOMBO GENERAL CIVIL HOSPITAL—CEYLON MEDICAL COLLEGE—CEYLON LEPER COLONY—LEPER BUDDHIST CELEBRATION—KANDY GENERAL CIVIC HOSPITAL.

NICHOLAS SENN, M.D.
CHICAGO.

MADRAS, INDIA, Aug. 30, 1904.

The voyage from Adelaide to Colombo takes fourteen days. I left Adelaide August 11 and arrived at Colombo on the 24th, a little ahead of the stipulated time. The only rough weather we encountered was for four days in crossing the great Australian Bight, a part of the ocean that has an unenviable reputation with people who are subject to seasickness. Our good, staunch, storm-tried ship, the *China*, played with the foam-crested waves by a graceful combination of rolling and pitching which, unavoidable and well intended, brought about the usual result—reversion of the peristaltic action of the stomach—in a fair percentage of cases among the small number of passengers. It seemed to me, however, that the Australian and English people are, on the whole, less susceptible to seasickness than the more nervous Americans, and a number of the lady passengers alone occupied their places at the table during meal-time. A few hours' stop was made at Fremantle, which gave me an opportunity to see this important western port of Australia and from there make an excursion by rail to Perth, 12 miles distant. Perth is a new and modern city with 25,000 inhabitants. The activity in the principal streets reminds one very much, at least on a small scale, of State Street in Chicago. The business importance of both of these western Australian cities depends largely on the rich gold mines in that section of the country. Fremantle has a public hospital with accommodations for 40 patients; the hospital at Perth is a new and modern building with a capacity for 200 patients. As we left the harbor of Fremantle we were followed by our faithful escort of albatrosses, which had never deserted us in the open ocean since we left the New Zealand coast, but on this occasion these magnificent living kites of the air left us at dusk the first day out, never to return. With the exception of occasional schools of flying fish, water and air were sterile from coast to coast. Cool weather continued for two days after leaving Fremantle, when the winds gradually subsided, the sun displayed his tropical properties and the drizzling rains saturated the atmosphere with moisture, all of which made the heat very oppressive. Blankets and heavy clothing were laid aside and the officers set the example for the wearing of clothes appropriate for the tropics. The low palm-fringed coast of Ceylon, lightly veiled in a rising fog, came in sight Wednesday morning and during the forenoon we were comfortably quartered at the Grand Oriental Hotel, Colombo.

CEYLON.

The island of Ceylon, called Singhal by the natives, is about 55 miles from the southern extremity of Hindustan, from which it is separated by Palk Strait. It lies between 5° and 9° N. latitude, hence in the very midst of the tropics. The interior is mountainous, the highest peaks being Pedral Allagalla and Adams' Peak; the former rises to an altitude of 8,200 feet, the latter 7,420 feet. The island is noted for its tropical forests, impenetrable jungles and luxuriant vegetation. This island has had an eventful political history. It was taken possession of by the Portuguese in the seventeenth century, passed later into the hands of the Dutch by conquest, and was finally annexed to the British crown in 1795. The two first nations never conquered the entire island, and the British forces underwent many hardships and met with fierce opposition in the interior of the island before the last rebellion was suppressed in 1817. Since that time the peace of the island has never been disturbed and it has become, under a wise, conservative government, the wealthiest and most prosperous colony of the British empire. The principal articles of export are

tea, coffee, cinnamon, cacao and cinchona bark. The cocoanut palm, which is found here in all its productiveness along the seashore, in the lowlands, valleys and high up on the hillsides, not only furnishes the natives with a considerable part of their sustenance, but is an important source of revenue. The annual value of the produce of this tree alone amounts to \$10,000,000. In looking at the palm forests of Ceylon no one could forget what this tree does for the untutored natives, as

"It is meat, drink and clothes to us."—Rabelais.

And who would not think almost instinctively of the beautiful words of the psalmist:

"The righteous shall flourish like the palm tree; he shall grow like a cedar in Lebanon."—Psalms xcii.:12.

Ceylon supplies the markets of the world with cinchona bark, amounting to about a million of pounds a year. The cinnamon tree is indigenous and reaches a height of from 40 to 60 feet and a circumference of from 3 to 6 feet. The cinnamon bark, however, is not obtained from the old trees, but from annual shoots from a very short stump, which is pruned and sprouts from year to year. Another important source of revenue are the more than 4,000 gem quarries. Ceylon has now more than 1,500 miles of railway, over 2,000 schools, 36 newspapers and upward of 100 hospitals and dispensaries. The Ceylon tea is the best in the world, and since it has been found that the hardy shrub which grows this commodity will thrive best at an altitude of 7,000 feet, the forests are rapidly making way for the tea industry up to an altitude of 6,000 feet. As an important protection against deforestation from this and the timber industry the government has very wisely stopped the sale of timber land above an altitude of more than 6,000 feet. Ceylon is the paradise for the hunter, as large herds of elephants still inhabit the jungles at a safe distance from human habitations and buffalo, elk, deer, bear and wild boar, as well as a great variety of birds, are quite plentiful and furnish the best opportunities for most interesting sport. The scientist finds here an endless field for study and investigation. The great fertility of the soil, the copious rains and the variations in the climatic conditions on different parts of the island have created a vegetation noted for its luxuriance and endless variety. The forest trees alone are a great attraction. We find here the satin, sandal and ebony trees, from which the most valuable timber is obtained. It may not be generally known that less than one-third of the wood of the ebony tree (*Diospyros ebenum*), is black, and this is found in the center of the stem; the outer two-thirds of the wood is white and without value. In the botanical garden at Kandy I saw an Indian rubber tree (*Ficus elastica*), planted by the Dutch in 1833, which has reached a height of 130 feet, and the multiple stems and their colossal branches cover a circular area where several hundred people could find protection against rain and sunshine at the same time and be much less crowded than in the streets of Kandy at a Buddhist celebration. In the same place I saw a nux vomica tree more than 50 feet high with a graceful crown of small elongated deep green leaves in a state of budding for the next year's crop of disc-like nuts so familiar to the physician as the source of strychnin. The botree (*Ficus religiosa*) is one of the giants of the forests. Its broad acuminate leaves tremble in the breeze like the leaves of our aspen. The trunk is very short and from the top the treelike branches form a wide-spreading crown. This tree is worshipped and is held in great veneration by the Buddhists. A very strange tree is what is known as the jack tree, a large tree which bears the largest edible fruit known. The fruit is suspended from the trunk and the larger branches by a short stalk. The edible part of the fruit is a yellow pulpy viscid mass. The smell and taste of the fruit when ripe are strong, and to the European unpleasant, but the flavor is akin to that of our may apple and quite agreeable, at least it proved so to me. The elephant is very fond of the leaves of this tree. The Area palm, a very slender tree, grows a nut which bears in its structure a close resemblance to the nutmeg. This nut, scraped and mixed with a white paste made of slacked lime, served on a green leaf, is the betel so much in use by the natives as a chewing material. This practice is no worse from a hygienic

and esthetic standpoint than the chewing of gum and tobacco by Americans, but the betel contains a red coloring material and its habits do not improve their looks by the red lips, tongue and teeth, which looks to the uninitiated very much as though the chewers, instead of enjoying the pastime, might be the subjects of purpura hemorrhagica, or had just escaped from the chair of an aggressive dentist. How helpless the practitioner of medicine would be if Ceylon did not supply him with cinchona and nux vomica, to say nothing of cloves, cinnamon, cajeput, pepper, nutmeg and other aromatics and carminatives with which we are in the habit of disguising the taste and smell of more powerful drugs and which often prove so efficacious in the treatment of slight gastrointestinal derangements. But there are still more remarkable trees in Ceylon, which prove the perfect foresight of the Creator in meeting urgent wants of man and beast. Wherever there are cocoa palms man's immediate wants are met, as it supplies him with drink and meat; the milk of the unripe fruit will quench his thirst and the meat of the ripe nut supplies him with food. The rain tree (*Inga sausa*) is a large tree with thick, short stems and widely-spreading branches. Around the lake of Kandy these trees are of enormous size. It has a pinnatifid leaf like the acacia. In the evening these leaflets fold themselves into a small cup, in which the falling dew is collected and retained until sunrise, when it unfolds, and in doing so the thousands of drops of water give rise to a shower on a small scale, hence the name "rain tree."

Ceylon is the home of a great variety of palms. Of these the talipot palm is one of the most remarkable. For the first ten years it grows only from scaped leaves. Next the stem grows as straight as a mast to a height of 100 feet. Each annual growth is indicated by a ring. The fan-shaped leaves are of enormous size, sometimes 15 feet in radius. They are so large that three leaves make an ample and waterproof tent. The leaf, cut into pieces of convenient size, has been used for centuries as a substitute for writing paper.

In the octagonal tower of the Temple of the Tooth at Kandy thousands of manuscript volumes record the early history of India on strips of the leaves of this palm. When the tree reaches maturity it develops a gigantic bud at the end of a pole-like prolongation projecting 10 to 15 feet above the crown of fronds. This bud in due time bursts with a report and a lovely white blossom unfolds itself and spreads with a pyramid of cream-colored flowers. After this final act of propagating its species the tree soon sickens and dies. It was my fortune to see one of these trees a very short time after bursting of its pod and expansion of the liberated flowers. The undergrowth in forest and jungle is represented by a variety of shrubs, the principal one being the *nutu*.

The density of the forest is increased by twining plants, many of which, especially the *Thunbergia*, with its beautiful pale blue flowers, reach to the very tops of the highest trees. Orchids, pitcher plants, the gorgeous passion flower and several species of rhododendrons are worthy representatives of the rich flora of the island.

CLIMATE.

When Nature goes to work to create a botanic garden she must necessarily have at her disposal a fertile soil and a hot, moist climate, a climate congenial to luxurious vegetation but hostile to man. Such is the climate of Ceylon. The intensity of the heat is made almost intolerable during the rainy season, from February to July, by the saturation of the air with moisture. When I arrived at Colombo the rainy season was practically over and yet the atmosphere was so surcharged with moisture that in the absence of a breeze, natural or artificially produced by fan or pankah, breathing was a difficulty and the sense of heat distressing, although the thermometer in the shade only showed a temperature of 92 degrees F. The coolest months are October, November, December and January, and the hottest correspond with our spring months. In Colombo it is always hot and the use of blankets is almost unknown. The continuous heat from one end of the year to the other is depressing and Europeans find it necessary to seek a cooler climate every three or four years to recuperate, and have to ab-

stain from hard work, mental and physical, as much as possible during their entire residence. In the mountains at an elevation of 2,000 and more feet the nights are cool, and even at Kandy, 1,600 feet above the level of the sea, the nights are often chilly. The chains of mountains traversing the island have a marked influence on the rainfall and temperature of the high latitudes. It is often the case that on one side of the range it is sultry and fogs and rain prevail, while on the opposite side the atmosphere is dry and cool and a bright sunshine adds to the cheerfulness of the bracing mountain climate, with a reversal of climatic conditions occurring with a change of the prevailing winds. It is well known that a prolonged residence in Ceylon shortens the lives of the Europeans, and consequently those who are obliged to live there find themselves under the necessity of leaving the island every few years for several months in order to rid themselves of that lassitude and depression incident to a prolonged residence in the tropics and to regain their recuperative power that is so essential in resisting the insidious influences of tropical and other diseases.

THE PEOPLE.

The population in 1891 was 3,008,466. The natives are increasing very rapidly, as the estimated population of the island on Dec. 31, 1902, was 3,685,267. This is confirmed by the birth and death rate for the same year; 141,893 births were registered and 99,680 deaths. The birth rate was 39.0, against 37.5, and the death rate of 27.4 against 27.6 per mille in the previous year on the estimated population in the middle of the year (Medical Report of Dr. Allan Perry, principal civil medical officer and inspector general of hospitals, 1902). This record is not in accord with the fate of our Indians and the Polynesians of the islands of the Pacific, whose rapid decimation and eventual extermination followed so promptly the footsteps of civilization. Three explanations deserve consideration in accounting for this difference. The Ceylonese have for centuries been in touch with the outside world by much frequented waterways and they have, perhaps more than any other primitive race, retained more persistently their original habits, and as most of them are Buddhists they have escaped the fearful consequences of alcoholism so common among other savage races as soon as the white man satisfies their morbid desire for liquor. The Singhalese and Tamil do not encumber themselves with European clothes; the comboy (loin cloth) is the only article of dress which he makes use of, and which continues to satisfy all his needs as far as appearance and protection are concerned. The diet, habits and manner of living remain the same. The population of Ceylon is a very mixed one, consisting of Singhalese, Tamil, Portuguese, Dutch, Malays, Parsees, Turks, Afghans and half-castes of all shades of color between almost pure white and jet black. The Singhalese and Tamils, however, form the bulk of the population. The Europeans are in a very small minority. The Tamils are the Indian coolies who immigrated from the southwestern part of India and became the laborers of the planters in the interior uplands of the island. The Singhalese are averse to hard labor and have always shown a preference for the plains and valleys. The Tamils are a low race, far beneath the Singhalese in intelligence. The Singhalese is proud of his race. Half-castes bear the humiliation brought on them by the admixture of European blood with a becoming patience and fortitude, but they regard the accident of their birth rather as a disadvantage than otherwise in their social position and best possibilities in life. The question of caste, even in Ceylon, plays quite an important rôle, consequently the Singhalese and Tamil seldom intermarry. The former is a gentleman by birth, and as such is averse to menial work, for which, if he can afford it, he hires the man of burden, the lowly-born Indian coolie, who in most respects resembles the low-caste Chinese and Japanese. The Singhalese is a very fine specimen of manhood, tall, slender, with long, very thin legs, face clean cut with regular outlines, well shaped nose, high forehead, black eyes, bushy eyebrows of the same color, delicate hands, and in complexion varies from a sienna to almost as black as the negro. The hair is long and straight or wavy and is worn by combing it back or parting it in the middle, tied behind into a knot, which

is surmounted by a semicircular comb of tortoise shell. The manner of wearing the hair and the delicate face in the young men with scanty beard and similarity in dress makes it often very difficult to distinguish between the two sexes before advancing age draws more distinct facial lines. The young men appear very effeminate, more so than in any other race that I have ever seen. Tailors and shoemakers do very little business in Ceylon. With a few yards of cloth men and women drape themselves very gracefully, leaving at least one-half of the body uncovered. The combos differ only in length from a narrow strip of cloth to a petticoat reaching below the knees, worn by some men and all the women. Another two or three yards thrown over the left shoulder covers at least a part of the chest and leaves the right arm unencumbered. Hair and skin are kept saturated with palm oil, a very important hygienic measure, as it preserves the hair and protects the skin against the burning rays of the sun, rain and insects. The Singhalese are almost free from baldness, as they do not injure the nutrition of the hair follicles by the use of harmful head-dress and make free use of palm oil, which is undoubtedly an important nutrient to the hair and the hair follicles. The women are much smaller than the men and can make no pretensions to beauty. The flush of youth begins to decline before they are 30 years old, and then they are inclined to obesity. They are fond of jewelry. Many of them cling to nose and ear rings, toe rings, wristlets, anklets and arm bands of silver. The Singhalese has many excellent qualities; he is cheerful, content, honest and peaceable. Theft and robbery are almost unknown. Willful premeditated murder is very rare. During the year 1903 36 men were sentenced to death for murder and of these 22 were hanged; in the other cases the sentence of death was commuted to long terms of imprisonment. Major de Wilton, inspector of police (Prison Report, 1903), makes the following comments on the crime of murder: "It is very difficult to make any conjecture as to the cause of the prevalence of the crime of murder. The offenders do not, as has been repeatedly pointed out, belong to the criminal class. They are, as a rule, men without previous convictions, who up to the time of the crime have led a comparatively blameless life. The offense is not generally committed with the deliberation of the hardened criminal, but in the fiery heat of passion or under the influence of liquor, and it is a matter of regret that even the death penalty brings with it no direct effect."

The knife is the implement most frequently used when violence is resorted to. The number of persons committed to prison for all kinds of offenses during the year 1903 was 2,396, a figure which shows well for the morale of the island. Of 2,508 convictions during the year 1903 49 were Protestants, 361 Roman Catholics, 1,509 Buddhists, 314 Hindoos, 260 Mohammedans; other religions, 15. Notwithstanding the heroic labors of missionaries of different denominations for the last two centuries and the expenditure of millions in efforts to convert the natives, the results have been very unsatisfactory. The mass of the people cling to their Buddhist faith with great tenacity. The bareheaded, barefoot yellow-robed priests remain in power and attend to the spiritual needs of the people. The Roman Catholic church has accomplished more than any other denomination. Those who have abandoned Buddhism and have joined a church do not always live in accordance with the teachings of the new religion and continue many of their former customs and practices, which perhaps unconsciously cling to them from force of habit. For instance, Christianity has made very little impression on the morality of the people. The natives are a temperate people, as the teachings of Buddha prohibit the use of alcohol in any form, and with few exceptions, indeed, the Buddhists are total abstainers. The Singhalese have taken kindly to the professions. The most prominent and successful physicians and lawyers in Ceylon are natives or half-castes.

PREVAILING DISEASES.

The bubonic plague has never had a foothold in Ceylon. This is the more remarkable, as its harbors are visited daily

by ships from all Oriental ports and the exemption from this scourge must be due to the extraordinary care exercised by the department of health. Accurate information regarding the present prevailing diseases can be gleaned from the Annual Report of Dr. Allan Perry, principal medical officer of the island.

Malaria.—In the western, central and north central provinces malarial fevers were very slight. The disease is most prevalent in the northwestern and eastern provinces. The disease is quite prevalent in Colombo and observations are now being made to determine the places where infection takes place.

Cholera.—During the year 1902, according to this report, there were 179 cases of cholera, with 116 deaths. The largest number of cases occurred in Colombo and vicinity.

Smallpox.—There were 146 cases of this disease, with 25 deaths, in the north of the island, and 118 cases were admitted to the Infectious Diseases Hospital, Kanatta, which, with two from another province, made 120, with 32 deaths.

Dysentery.—This disease is equally distributed throughout the island. It was most prevalent in the central and western provinces. The largest number treated in any one institution was at the General Hospital, Colombo, where 488 cases were admitted, of whom 89 died.

Enteric Fever.—The number of cases treated in the various hospitals throughout the island was 242, with 63 deaths. Pollution of water and milk are the commonest causes of this disease. The cesspit system, which exists in some of the large towns, notably Colombo, Kandy and Galle, has much influence in increasing the number of cases.

Leprosy.—The total number of cases reported during the year 1902 was 560, against 590 in the previous year, being a decrease of 30 cases; 382 cases were treated in the leper asylum, Ilendala, and 30 in the Kalmunai wards. The leper ordinance came into operation at the beginning of the year, and 113 cases have been reported.

Ankylostomiasis.—It seems that this disease, which is so very prevalent, is constantly being introduced from India by Malabar coolies. The disease is increasing. There were 1,609 admissions in all hospitals, with 257 deaths. The danger of the disease to life is in the profound anemia, which so lowers the vitality that the victim is carried off by any insignificant intercurrent affection.

Plague.—The Plague Committee is a standing committee, including besides the principal civil medical officer, the collector of customs of the ports, the government agent and the mayor of Colombo. Regular meetings are held and precautions instituted to combat an outbreak of the disease. All returns of plague from infected ports are received by the committee; telegraphic accounts of plague occurring in places adjacent to Ceylon are received regularly. It is to the eternal watchfulness of this committee and the prompt action of the staff of port surgeons that is due the freedom of the island from this Asiatic disease. Galle continues to be the plague port; only one case of this disease was reported from the harbor of Colombo during the year. The patient contracted the disease at Hongkong and was landed and isolated at Galle, and the contacts for this port were placed in quarantine. The patient recovered. Rat destruction was carried out at the customs premises and by the municipalities of Colombo and Galle.

Syphilis.—Colombo, Kandy and Galle are provided with a special hospital for the treatment of women suffering from venereal diseases. The total number of new cases admitted was 351 which, with 20 remaining from the previous year, makes a total of 371. Of the 371 women treated in these hospitals 27 were affected with primary syphilis, 68 secondary, 62 tertiary, 4 hereditary, 156 gonorrhoea and 54 unclassified syphilitic lesions.

Parangi.—The hospital records show that this disease has steadily increased during the last five years. The death rate is remarkably small; out of 3,434 admissions for this disease during the year there were only 10 deaths.

Vaccination.—Vaccination is carried out vigorously in the

island, as is shown by the Report on Sanitation. During the year 149,901 subjects were vaccinated; of this number 7,760 were revaccinations.

Lack of Sewerage.—In Colombo, Kandy and Galle the fecal matter is removed at night and buried. In Colombo the experiment was made of using the contents of the cesspits as a fertilizer, but it proved undesirable and was abandoned as a failure. What these cities need is a system of sewerage, as they all have an excellent location to carry out such a plan with success.

(To be continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Chlorosis.

The *Medical Times* suggests the following treatment for this condition: Iron is recommended as being the chief drug indicated. It should be begun within a few days after the diagnosis is made. It may be necessary at first to correct digestive disturbances. Iron sometimes can not be taken by the stomach, and in these cases the ammonium citrate may be given hypodermically in one-grain doses dissolved in ten minims of distilled water. Inject it very slowly and deeply into the back, where the pain from the injection will be comparatively slight. Of the other forms of iron many are recommended. If an organic preparation is given and it does not help the patient it is well to change and give an inorganic one, e. g., iron filing or iron reduced by hydrogen or saccharated carbonate or sulphate; one of the best is the protochlorid, which is a French preparation. On the theory that every preparation of iron is changed to the protochlorid this preparation would seem to be especially valuable.

Clark, believing that the disease is due to constipation, gave as a laxative:

R. Ferri sulphatis.....gr. iv-v	25-0.30
Magnesi sulphatis.....ʒi	4
Acidi sulphurici, dil.....m. x	65

With a little tincture of ginger or infusion of quassia. Or he gave sulphate of iron, bicarbonate of soda and sulphate of soda, the vehicle being chloroform water. Clark had these two prescriptions; he had his acid mixture and his alkaline mixture, and apparently he could not know, until he tried, which one of them would agree. So he tried one, and if it failed, tried the other, and if neither agreed with the patient he came back to Blaud's pill, which is the best thing after all.

Hemorrhage from Hemorrhoids.

The *Journal des Praticiens* states that the simplest remedy for such hemorrhage is an enema of very hot or very cold water, to which has been added 5 per cent. of alum. The following prescription may also be added:

R. Benzoin.....gr. xv	1
Aluminis.....gr. xxx	2
Aquæ Pagliarij.....ʒv	20

M. Sig.: Tablespoonful to a pint of hot or cold water as an enema.

The styptic liquid of Pagliari is made by boiling for six hours, 8 ounces of tincture of benzoin (containing about 2 ounces of the balsam), 1 pound of alum and 10 pounds of water, in a glazed earthen vessel, stirring constantly and adding hot water from time to time to supply the loss by evaporation. The liquid is then strained and kept in well-stoppered bottles. Cracked ice in a bag of goldbeaters' skin may be introduced into the anus. A valuable hot injection is:

R. Acidi carbolicis.....gr. iʒss	30
Glycerini.....ʒss	25
Aquæ bullientis.....ʒviiss	225

M. For an enema.

The following prescription has also been used:

R. Ext. suprarenalis (1-1,000).....m. l	3
Aquæ dest.....ʒss	15

M. Sig.: Saturate a cotton tampon with this solution and place in the rectum for ten minutes. It should then be replaced by a tampon powdered with antipyrin or iodoform.

R. Cocainæ hydrochloratis.....gr. 9/20	03
Ext. suprarenalis (1-1,000).....m. xxx	2
Petrolati.....ʒss	16

M. Sig.: Use a small quantity by rectum.

A suppository that has proved serviceable is:

R. Cocainæ hydrochloratis.....gr. 3/20	01
Ext. suprarenalis (1-1,000).....m. v	30
Olei theobromatis et cææ, q. s. ad.	

M. For one suppository.

A more elaborate formula is:

R. Ext. suprarenalis (1-1,000).....m. v	30
Antipyrin	
Salol, aa.....gr. iii ¾	25
Ext. belladonnæ.....gr. 3/20	01
Olei theobromatis et cææ, q. s. ad.	

M. For one suppository.

Suppositories, however, may bring on defecation and subsequent hemorrhages. Gelatin must be carefully sterilized before using, in 5 to 10 per cent. solutions in water. Hypodermic injections may be used of a combination of gelatin, 25 to 1,000 of water, and sodium chlorid, 7 to 1,000. Calcium chlorid may be given internally:

R. Calci chloridj.....ʒi	4
Inf. citri acidæ florum.....ʒiv	120
Syrupi.....ʒi	30

M. Tablespoonful every hour.

As an enema calcium chlorid may be administered once or twice daily in the proportion of 60 grains to one quart of water. The pressure should be mild.

Sycosis.

Hall, in the *Clinical Journal*, discusses this condition and gives the following treatment, which he states has been most successful in his hands. All authorities are agreed that sycosis is difficult to treat and requires a long time to entirely disappear.

SHAVING.

Authorities likewise disagree in respect to close shaving of the face. Some favor the removal of infected hairs by epilation and keeping the beard cropped with scissors. The author agrees with others who favor close shaving. He says: "For my part I am convinced that proper treatment consists primarily in constant close shaving. On the regularity with which this is done each day will largely depend the success of the treatment. On this point I have no hesitation in speaking strongly, and since adopting this method of treatment some years ago I have not seen a single case in which improvement has not quickly taken place." The close shaving will have to be kept up regularly for months, and it is best to advise the patient to do his own shaving. Barbers, as a rule, will only shave under protest a patient suffering from this disease. Sharp razors are essential. Two at least must be available. Very hot water, prolonged lathering and previous oiling of the face help to soften the beard.

LOCAL APPLICATIONS.

A boracic acid lint fomentation is applied over the whole chin and cheeks, covered with gutta percha tissue, and kept on by means of a handkerchief carried round and tied to the top of the head. This is worn every night for many weeks. In the daytime the ordinary compound calamin lotion:

R. Calaminæ	
Zinci oxididj, aa.....ʒi	30
Glycerini.....ʒiii	8
Lotio plumbi et opii.....ʒss	15
Aq. rosæ, q. s. ad.....ʒiv	120

Later, when the greater part of the inflammation has subsided, it will be found that pustules keep arising here and there, and the patient should be advised to pull out the hair with a pair of fine tweezers before shaving in the morning and to apply a little white precipitate ointment or biniodid of mercury in spirits on a pointed match stick in the follicle. Some patients may find the calamin paste too drying for the skin, in which case some simple ointment may be applied after shaving, such as Ung. glycerini plumbi subacetatis or a dusting powder of zinc oxid and starch, preceded by an ordinary bay rum spirit lotion. This method of treating must be varied according to the individual needs. Great stress is laid by the author on the persistence in shaving.

The following are also recommended for sycoosis: After the crusts have been softened with oil and removed, the hair should be closely cut and epilation of loosened hairs practiced daily.

R.	Resorcinum	ʒi	4
	Glycerini	ʒii	8
	Ung. aque rose, q. s. ad.....	ʒii	60
M. Sig.:	Apply several times a day.		
Also:			
R.	Acidi salicylicij	ʒi	4
	Ung. picis liquidæ.....	ʒi	4
	Petrolati mollis, q. s. ad.....	ʒi	30
M. Sig.:	Apply several times a day.		

Medicolegal.

SOME LEGISLATION OF THE YEAR 1904.

Massachusetts.

Gives Hospital Ambulances Right of Way.—Chapter 161 of the Acts of Massachusetts of 1904 provides that hospital ambulances shall have the same right of way which fire engines or police patrol wagons now have in the streets of all cities and towns.

Care of Infected Poor.—Chapter 395 of the Acts of Massachusetts of 1904 provides that the State Board of Charity may, if found expedient, remove any person who is infected with a disease dangerous to the public health and who is maintained or liable to be maintained by the commonwealth, to any hospital provided for state paupers, or may provide such place of reception for such person as is judged best for his accommodation and the safety of the public, which place shall be subject to the regulations of the board, and may remove such person thereto. Any expense incurred may be paid from the annual appropriation for expenses in connection with smallpox and other diseases dangerous to the public health.

New Jersey.

Free Diphtheria Antitoxin.—Chapter 232 of the Laws of New Jersey of 1904 provides that, whereas, diphtheria antitoxin has become of vital importance in the treatment and prevention of diphtheria; but, whereas, by reason of its cost, it is impracticable to use it to any great extent; therefore, the State Board of Health shall contract with some responsible manufacturer to supply free of charge, on the certificate of the attending physician, to such indigent patients as shall require it, such antitoxin as may be necessary for their proper relief, at a cost not exceeding \$4,000 per annum.

Prohibits Selling or Prescribing Cocain.—Chapter 76 of the Laws of New Jersey of 1904 provides that no person shall knowingly sell, furnish or give away any cocain, or any patent or proprietary remedy containing cocain, except on the prescription of a registered practicing physician, dentist or veterinarian in his own practice; nor shall any such prescription be refilled; nor shall any physician or dentist prescribe cocain, or any patent or proprietary remedy containing cocain, for any person known to be a habitual user of cocain; provided that the provisions of this act shall not apply to persons engaged in the wholesale drug trade, regularly selling cocain to persons engaged in the retail drug trade.

Forbids Marriage of Epileptics, Etc.—Chapter 137 of the Laws of New Jersey of 1904 provides that it shall be unlawful hereafter for any person who has been confined in any public asylum or institution as an epileptic or insane or feeble-minded patient, to marry in New Jersey, without a certificate from two regularly licensed physicians of the state that such person has been completely cured of such insanity, epilepsy or feeble mind, and that there is no probability that such person will transmit any of such defects or disabilities to the issue of such marriage; any person of sound mind who shall marry with any such epileptic, insane or feeble-minded person, with knowledge of his or her disability, or who shall advise, aid or assist in procuring any marriage contrary to the provisions of this act, shall be guilty of a misdemeanor.

As to Distributing Medicine and Circulars.—Chapter 88 of the Laws of New Jersey of 1904 provides that it shall be lawful for the common council or other governing body of any city, town, township, borough, etc., by ordinance, to regulate and prohibit the distribution or leaving on the public streets, highways, public places, or on private property, or in any private place within any such municipality, any medicine, medicinal preparation or preparation represented to cure ailments or diseases of the body or mind, or any samples thereof, or any advertisements or circulars relating thereto; provided, however, that such municipality shall not be authorized to prohibit a delivery of any such article by handing the same to any person above 12 years of age willing to receive the same. Any such municipality may provide for a penalty of \$50 for any violation.

New York.

Appropriation for Antitoxins and Investigations.—Chapter 728 of the Laws of New York of 1904 making appropriations for the support of the state government appropriates for necessary expenditures for the manufacture and standardization of tetanus, streptococcus and diphtheria antitoxin, and for further investigations of serum therapy in tuberculosis, typhoid fever and kindred diseases, \$14,000, or so much thereof as may be necessary.

Virginia.

Restricts Location of Pest Houses.—Chapter 179 of the Acts of Assembly of Virginia of 1904 provides that it shall be unlawful for the council or board of health of any city or town, or the board of supervisors or the board of health of any county, to establish, locate or maintain any hospital or pest house for patients suffering from smallpox, yellow fever or cholera within fifty yards of any street, public road, public park, or public cemetery, in any city, town or county, nor shall any such pest house be hereafter established within 150 yards of any public road, etc.

Provision for Inspection of Laborers.—Chapter 186 of the Acts of Assembly of Virginia of 1904 provides: Whereas, There are prevalent throughout many sections of the state smallpox and other contagious diseases, by reasons of collecting large bodies of laborers without proper medical inspection or attention thereto, Be it enacted that any person, firm, or corporation employing large bodies of laborers in Virginia constructing works of public improvement, shall, unless said firm, etc., has its own physician for that purpose, be required to have a regular inspection by the board of health of the counties in which the laborers are employed at such times as the board of health may determine. And the said firm, etc., shall pay to the physician designated to make such inspection by the board of health of said county \$10 for such inspection; in the discretion of the examining officer the laborers shall be vaccinated at the expense of said firm, etc., the said obligation of \$10 and cost of vaccination to have the force and effect of a fee bill of an officer and be collected by the sheriff as any such fee bills may be collected.

Authorizes New Procedure in Rape Cases.—Chapter 18 of the Acts of Assembly of Virginia of 1904 provides that before or during the trial of an indictment for rape, or attempted rape, in which the female who is alleged to have been assaulted is a witness, the judge of the court in which the same is tried may, in his discretion, direct that the deposition of such witness be

taken at a time and place designated in said order. Such deposition shall be taken by said judge, by the clerk, or by any officer authorized to take depositions in the presence of said judge, who shall rule on all questions of evidence, and otherwise control the taking of the same as though it were being taken in open court; and there shall be present also the attorney for the commonwealth, as well as the accused and his attorneys, who shall have the same rights in regard to the examinations of such witness as if she were testifying in open court; and no other person shall be present unless expressly permitted by the judge. Such deposition shall be read to the jury at the time such witness might have testified if such deposition had not been taken, and shall be considered by them, and shall have the same force and effect as though such testimony had been given orally in court. But the clerk of the court, in case no appeal is taken, shall, after the time for granting a writ of error has elapsed, withdraw the deposition from the record of the case and destroy the same.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

October 29.

- 1 The Domain of Physiology and its Relations to Medicine. S. J. Meltzer.
- 2 *Observations on Latent and Masked Malarial Infections with an Analysis of 365 Cases. C. P. Craig.
- 3 *Is Not the Treatment of Congenital Clubfoot Begun Too Early? A Plea for Infantile Hygiene and Feeding. V. P. Gibney.
- 4 *Angina Pectoris. John Knott.
- 5 Modern Medicine. Wm. E. Ulrich.

2. **Masked Malarial Infections.**—Craig emphasizes the importance of a blood examination as a routine measure in every case of disease, because in that way only is it possible to discover these cases of malaria that closely simulate other conditions.

3. **Treatment of Congenital Club Foot.**—Gibney cites a number of cases that were treated while the patient was still of a tender age and which show that the results obtained were far from being perfect. The long course of treatment to which nearly all cases of congenital club foot must be subjected leads him to question the propriety of beginning treatment before the child is ready to walk. He advises that the treatment be deferred until after such time when the problems of infant feeding and hygiene have been solved. He feels that excoriations, the strained tendons and ligaments, must surely inhibit digestion, and if digestion is inhibited nutrition can not proceed to our satisfaction. During the first 18 months of life, Gibney says his contention has been along the lines of mitigating the severe forms of treatment. It is known to all orthopedic surgeons, as well as to many general practitioners, that a certain number of cases of club foot of moderately high degree are corrected, fully 80 per cent. or 90 per cent., by the mother's hand alone. In such cases physicians are called in to supplement this good work by simpler forms of apparatus. The mother can be taught to apply a side splint with a soft roller bandage reinforced by a strip of rubber adhesive plaster, and this can be removed as often as she has time for manipulation and stretching and unrolling. The medical man in attendance can give her the necessary instructions, and it is safe to say that the "worrying of the child" will not be carried to the extent of inhibiting digestion and, as a corollary, nutrition. Gibney regards the feeding and the hygiene as supreme, and that a congenital club foot, to be cured, must be treated by mechanical as well as operative means immediately after birth. He also emphasizes that the weight-bearing function is a very important factor in the treatment of the deformity.

4. **Angina Pectoris.**—Knott's paper is a very extensive review of this subject, historical and clinical, containing a great number of citations from several prominent writers, especially with reference to its etiology and pathogenesis. Nothing new is presented.

Medical Record, New York.

October 29.

- 6 *Surgical Reflections on the Diagnosis of Cancer of the Stomach. A. G. Gerster.
- 7 *Conditions Simulating and Mistaken for Acute Appendicitis. H. Roth.
- 8 Some Random Considerations on Tuberculosis. A. A. Eshner.
- 9 *Sterile Water Anesthesia in the Operative Treatment of Anorectal Disease. S. G. Gant.
- 10 *The Role of the Prostate in Affections of the Urinary Tract. A. L. Wolbarst.
- 11 *Music as a Therapeutic Agent. F. S. Kennedy.

6. **Diagnosis of Cancer of the Stomach.**—Gerster argues that what the practitioner needs is a recognition and sound interpretation of the symptoms to be observed during the initial stages of the disorder, by the aid of which the surgeons may be enabled to take the active measures at a time when the inherent conditions are still, and in an overwhelmingly hopeful manner, favoring curative success. We are confronted, however, by the dilemma that if we wait until the diagnosis is reasonably certain, especially if we delay until a palpable tumor exists, it is too late to expect cure from operation. A reliable diagnosis of cancer of the stomach in the incipient stage, in which it is susceptible of successful operative treatment, is with our present knowledge a sheer impossibility, and therefore we must make up our minds to submit the patient to the risk of an operation before the diagnosis is firmly established. The author concludes that when in a clearly progressive case of an intractable disorder of the stomach the local and general symptoms, conscientiously collected and weighed, strongly justify the suspicion of cancer, diagnostic laparotomy should be considered not only admissible, but obligatory.

7. **Conditions Simulating Acute Appendicitis.**—H. Roth gives in detail the histories of nine cases in which inflammation of the appendicular region was simulated by various other conditions, such as cholecystitis, intermittent hydronephrosis, intussusception, two cases of inflammatory disease of the uterine adnexa, ovarian cyst with twisted pedicle causing general peritonitis, a prevesical and a preperitoneal abscess, and pneumonia.

9. **Sterile Water Anesthesia in Rectal Operations.**—Gant describes the excellent results he has had in substituting plain sterile water for cocaine and other solutions that are in vogue for the production of local anesthesia. The method has been found of such value that the author has been able by its means to operate on most rectal cases without a general anesthetic or sending them to a hospital, circumstances much appreciated, especially by the better class of patients. Anesthesia apparently is produced merely by the pressure of the fluid on the nerve terminals in the tissues, and sufficient water should be introduced thoroughly to distend the tissues, causing them to become anemic and assume a glassy, whitish appearance, when anesthesia immediately follows. This distension does not require a large amount of water, from 10 minims to half a dram only being necessary for small hemorrhoidal tumors, and from one-half to four drams in more extensive operations. In introducing the water it is not necessary to use more force than is usually employed in making the ordinary hypodermic injection. In conclusion, he states that, while anesthesia by the injection of sterile water is not effective and can not be applied in all major operations, he has employed it, to the exclusion of general and local medicinal anesthetics, in nearly all of his operations on the rectum (for hemorrhoids, fistula, fissures, etc.), and with such gratifying results that he would heartily recommend its thorough trial by other surgeons for operations in the anorectal and other regions of the body.

10. **Prostate in Affections of the Urinary Tract.**—Wolbarst discusses the anatomic and functional peculiarities of the prostate, which give it a double rôle, for, although a sexual organ in health, in disease it is essentially a urinary organ. The author's conclusions are summed up as follows: Urinary symptoms are most often directly due to prostatic disease. Any pathologic lesion of the prostate which increases its size favors interference with the urinary stream to a greater or lesser degree. Inflammation of the prostate is always accompanied by urinary symptoms. The genital symptoms are least marked. In reference to gonorrhœa, the prostatic urethra is the most important portion of the urinary tract: it is the favorite seat of

chronic urethritis; it is the way by which the inflammation travels from the urinary to the genital tract. The prostate is solely responsible for the important urinary conditions which result as a consequence of its senile hypertrophy. Prostatic concretions may lodge in the bladder and act as the nucleus of larger vesical calculi. Chronic contracture of the bladder neck, neuralgia of the prostatic urethra, prostatic tuberculosis, malignant prostatic disease, prostatic cysts and trauma of the organ, are all made evident by their effect on the urinary function. Lastly, the numerous urinary effections justify the consideration of the prostate as a urinary organ, second only to the kidneys in importance.

11. Music as a Therapeutic Agent.—Kennedy says that much assistance is in many instances to be derived from the intelligent use of music, either vocal or instrumental, as a therapeutic adjunct. Melancholia, insomnia, hysteria, family affliction, business reverses, delirium, pain, fatigue, mental or physical, will all be helped by the beneficial influence of music, rightly used. As a postoperative measure it would have an undoubted influence for good in taking the patient's mind from his bodily distress. So also could "painless" dentistry be relieved of some of its pain and distress by the quieting influence of music, which would, as has been amply demonstrated, produce a pleasant mental influence during the administration of nitrous oxid or other anesthetic. A German writer recently stated that in a number of test cases in which music was provided during the administration of the anesthetic, there was an absence of distress and resistance on the part of the patient; also an absence or reduction of the postoperative nausea under the same circumstances. To be advantageous the nature of the composition must be carefully selected with a view to the needs of the individual case, and the execution must be as nearly faultless as possible.

Medical News, New York.

October 29.

- 12 "The Treatment of Scarlet Fever with the Moser Antistreptococcus Serum." H. L. K. Shaw.
- 13 "Osteoplastic Gastrostomy for Impermeable Cicatricial Stricture of the Esophagus." W. Meyer.
- 14 "The Etiology of Gastric Hemorrhage." F. G. Connell.
- 15 "A Series of Nearly Six Hundred Spasms in an Epileptic Without Disturbance of Consciousness in the Intervals." L. Newmark.
- 16 "The Agnes Memorial Sanatorium. A Description of a Sanatorium for the Treatment of Pulmonary Tuberculosis Built by Mr. L. C. Phipps at Denver, Colo." C. E. Edson and W. H. Bergtold.

12. Moser Antistreptococcus Serum in Scarlet Fever.—The method of preparation and the use of Moser's serum are described by Shaw. Up to the present time Moser has isolated nearly thirty different types of streptococci, bouillon cultures of which, taken directly from the patient, are injected into horses, so that the serum is a true polyvalent one. The subcutaneous injections are given for over a week in gradually increasing doses. It takes from seven to nine months to produce a suitable serum. When sufficiently cogent, the serum, in a dilution of 1 to 250,000, should agglutinate these streptococci. The serum is generally employed in only the very severe cases, those having symptoms of general intoxication, and in the lethal cases. It is injected, in doses of 200 c.c., subcutaneously in the abdomen. Results are noticed within a few hours. There is a marked improvement in the general condition of the child, all the symptoms of toxemia rapidly disappearing. Sequelae and complications are less frequent, and when they do occur they are less severe. No fatal case of nephritis has occurred in any of the injected cases. During a period of three and one-half years 1,069 cases of scarlet fever were admitted to the Anna Children's Hospital of Vienna, 228 of which received the serum. The mortality for four years before the serum treatment averaged 14.5 per cent., and for the four years since its employment the mortality averaged 8 per cent. For the same period, in other hospitals in Vienna, where the serum was not used, the mortality averaged 13.1 per cent. The only unpleasant result following the use of this serum is the serum exanthem. This is accompanied by fever, and while it is not dangerous, it makes the children very uncomfortable. The younger the child the more pronounced are the symptoms, and

the smaller the quantity of serum injected the less apt is the exanthem to follow. Serum sickness followed the injection in 73 per cent. of the cases. Moser injected 10 c.c. of the serum as a prophylactic measure in 14 children, and of these four came down with the disease. The attacks in all these cases were lighter than the ones to which they were exposed. Twenty-five children, who were exposed in a hospital ward, received a prophylactic dose and not one contracted the disease. The fact that the serum is prepared only at the Vienna Serum Institute, and is not on the market, has necessarily limited its use.

13. Osteoplastic Gastrostomy for Stricture of the Esophagus.—Meyer reports the case of a boy, aged 14, who swallowed a large quantity of caustic lye by mistake. One month later a gastrostomy and division of the stricture by Abbe's string method was done. The patient remained in the hospital about a year, a bougie being introduced every few days and left in the esophagus for from 24 to 48 hours. But in spite of all that was done the stricture re-formed at the end of the year and a gastric fistula, according to Witzel's method, had to be established. The boy was fed through the fistula for seven years. The stricture was then absolutely impermeable. The electric cystoscope, introduced through the gastric fistula, failed to reveal the cardia. Examination with the Rochester cystoscope and with a long urethroendoscope likewise proved futile. All efforts at passing the stricture failing, Meyer resolved to raise the left border of the ribs by means of an osteoplastic operation, as recently described by Marwedel. He did not, however, succeed in re-establishing the patency of the esophagus and the osteoplastic flap was fitted back in its former place and sutured. Feeding through the gastric fistula was resumed, the patient improving steadily in general health. Meyer expects to repeat his efforts at some later time.

The Boston Medical and Surgical Journal.

October 27.

- 17 Hematuria Due to the Bilharzia Hematobia, with the Report of a Case." R. F. O'Neil.
- 18 "Some Observations of the Occurrence of Broadbent's Sign." A. W. Tallant.
- 19 "The Mamma, Its Physiologic Purposes." T. H. Manley.

18. Broadbent's Sign.—According to Tallant, retractions in the left back are much more common than is generally supposed, although it is probable that they would be noted more frequently if always looked for during the routine physical examination. Systolic retraction of a marked degree, similar to and often identical with that described by Broadbent, is found in many cases of cardiac hypertrophy in which there is no other reason to suspect pericardial adhesions. Systolic retraction, more often involving the interspaces only, may be seen in the left back in thin individuals, especially if there is marked emaciation. The reason for many of these retractions would seem to be as follows: Since the pericardium is even under normal conditions adherent to the central tendon of the diaphragm, it is conceivable that with each systole there is a slight pull on the diaphragm. Under ordinary circumstances this is not marked enough to be transmitted to the points of attachment of the diaphragm to the chest wall, but if the heart is hypertrophied or is acting very vigorously, the pull may be sufficient to be visible externally, while in a thin individual even a slight movement would be more easily perceived.

19. See abstract in THE JOURNAL, October 29, page 1327.

St. Louis Medical Review.

October 29.

- 20 "The Tunica Mucosa Utereri (uterine mucosa)." B. Robinson.
- 21 "Exposure of a Portion of the Temporal Lobe of the Brain Following Atrophy of the Petro-Mastoid Bone from Cholesteatoma." J. C. Buckwalter.

Cincinnati Lancet-Clinic.

October 29.

- 22 Nasal Therapy." J. A. Thompson.
- 23 Cholecystotomy." B. Merrill Ricketts.

Annals of Ophthalmology, St. Louis.

October.

- 24 Pigment Streaks in Macular Region of Both Eyes." J. E. Jennings.
- 25 "The Precise Measurement of the Primary and Secondary Deviation in Paralysis, with Remarks on the Regular Occurrence of Secondary Deviations in Congenital Paralysis." Alexander Duane.
- 26 "Injuries of the Iris, with Report of a Case of Iridodialysis in Which There Was a Complete Reattachment of the Iris." E. O. Sisson.

- 27 Pseudoneurophthalmoma of the Retina with Increased Intra-ocular Tension. James M. Ball.
 28 The Reception of Medical Discoveries. George M. Gould.
 29 *Haab's Giant Magnet the Best Means to Extract from the Vitreous Steel or Iron Which Entered Through the Cornea. N. J. Weill.
 30 Microcornea Without Microphthalmos. H. B. Young.
 31 The Education of the Blind, with Special Reference to the Use of the Moon Alphabet. Robert C. Moon.
 32 A Case of Unilateral Retinitis Pigmentosa. Robert C. Moon.
 33 Details of a Scheme for the Subjective Measurement of the Pupil. Clinton T. Cooke.
 34 The Question of Cycloplegia and Latent Hypermetropia. David DeBock.
 35 Myopia in Marksman. Harold G. Goldberg.
 36 A Case of Traumatic Bitemporal Hemianopsia with Hemianopic Pupillary Reaction. O. Lange.

29. **Haab's Giant Magnet.**—The ease with which the Haab magnet attracts from the vitreous, without injury to the crystalline lens, splinters of iron or steel, into the anterior chamber, from which location they are easily removed, prompts Weill to cite a few examples. He says that there is no danger of the magnet attracting too forcibly, since the strength of the magnet can be regulated with a rheostatic arrangement. In all cases it is well to administer the mydriatic frequently during the two hours preceding the operation, so as to dilate the pupil to its maximum in order that the iris shall not interfere with the passage of the splinter into or from the anterior chamber. When the steel in the eye is anterior to the vitreous, the corneal route is the natural one for its extraction and, if possible, this should be accomplished without the entry of any portion of the instrument into the anterior chamber. Those cases where the splinter enters the vitreous via the sclera, in which there is promise of some vision, should invariably be extracted with the giant magnet around the lens and through the cornea. In the first case cited, a small pyramidal splinter pierced the cornea and iris without injury to the lens and lodged in the vitreous. Five days after the receipt of the injury the splinter was extracted. The giant magnet guided it forward around the lens, where it caught in the pupillary portion of the iris, although the pupil was dilated ad maximum. An iridectomy was done and the splinter extracted. In the second case an exceedingly small splinter, which had penetrated the crystalline lens and had lodged in the vitreous, was extracted two days after the receipt of the injury. The vision in both cases is improving.

The Laryngoscope, St. Louis.

October.

- 37 *Relations of Laryngology, Rhinology and Otolaryngology with Other Arts and Sciences. Felix Simon.
 38 *The Etiology and Diagnosis of Ozena and Its Relation to Pulmonary Tuberculosis. Clement P. Theisen.
 39 Medical Treatment of Laryngeal Tuberculosis, with Special Reference to the Use of Formalin. L. B. Lockard.
 40 Report of Two Cases of Laryngeal Tuberculosis Operated on by Thyrotomy. Otto J. Stein.
 41 *The Prognosis of Laryngeal Tuberculosis. Robert Levy.
 42 Pharyngocele, or Diverticulum of the Pharynx. Wm. D. Black.
 43 Congenital Bony Atresia of the Posterior Nares; Operation; Partial Result. W. Scott Franklin.
 44 Parenteral Typhoid Media Complicating Typhoid Fever. E. W. Day and Chevalier Jackson.

37.—This article appeared elsewhere. See THE JOURNAL, October 15, p. 1177.

38. **Ozena and Pulmonary Tuberculosis.**—Theisen considers the etiology and diagnosis of ozena and also the relation of this disease to the etiology of pulmonary tuberculosis. Forty cases of ozena are recorded, 14 of which had pulmonary tuberculosis, 2 of them being also complicated by a laryngeal tuberculosis. Tubercle bacilli were found in the sputum of 9 cases, and physical signs were present in all the cases, so positively in the remaining 5 that a sputum examination was deemed unnecessary. Five of the 14 patients died while under Theisen's observation. He believes that this is more than a coincidence; in fact, points to an etiologic relationship. When it is considered that in ozena the normal functions of the nose are interfered with, it can readily be understood how a tendency to tuberculosis may be established. Normal nasal mucus has bactericidal properties. In ozena there is no normal nasal mucus. All inspired substances cling to the thick tenacious crusts, which are so characteristic of ozena and which in many cases consist of nothing more than dried pus from the accessory sinuses in which bacilli find a perfect culture medium and may later be carried to the throat and lungs.

41. **Prognosis of Laryngeal Tuberculosis.**—Levy maintains that all cases of laryngeal tuberculosis are not hopeless, but that early recognition of a primary lesion or secondary complication is essential to a favorable termination. The patient's environment, his ability to rest his voice, suitable hygienic and climatic conditions also are necessary to a favorable outcome. On the other hand, Levy cautions that one cure should not cause too much optimism. The prognosis of laryngeal tuberculosis depends very largely on an understanding of its nature, its varieties and its stages. Disturbances of phonation are due to infiltration, to ulceration, or both combined. In many cases the voice may be much improved. In extreme infiltration, where improvement may not be obtained, the process does not necessarily go on to ulceration or cause general decline. Intra-laryngeal lesions improve more rapidly than those situated on the epiglottis or ary-epiglottic folds. Disturbances of deglutition may be due to swelling without pain, or to pain, namely, dysphagia or odynophagia, and here the character of the lesion influences the prognosis. Laryngeal tuberculosis materially influences pulmonary and general symptoms, although in some cases, it may possess no bearing on the general course of the disease. The course of pulmonary invasion always markedly affects the laryngeal complication.

Archives of Pediatrics, New York.

October.

- 45* An Investigation of the Influence of Laboratory Feeding on 216 Infants with Diseases of the Gastroenteric Tract, with Special Reference to the Weight Index. Maynard Ladd.
 46 Acute Otitis in Children: a Study of 51 Operative Cases in Private Practice. Charles G. Kerley.
 47 A Cure of Chronic Nephritis Following Renal Decapsulation. Augustus Callie.
 48 The Influence of Sugar on Fermentations in Milk and Milk Curds. H. L. Russell.
 49 *The Rachitic Hand. Henry Koplik.

45. **Influence of Laboratory Feeding on Infants.**—Ladd studied the influence of laboratory feeding on 216 infants with diseases of the gastroenteric tract, the great majority of which were cases of fermental diarrhea and ileocolitis. The acute cases were ill on the average, 17 days, and the chronic cases 3.2 months before they were brought to the clinic for treatment. They were kept on the laboratory milk for periods varying from one to 31 weeks. As an aid in comparing the influence of the feeding on infants at different ages and stages of development, the nutrition of each infant at the beginning and at the end of treatment was judged by the estimation of its weight development. This was calculated from the weight index, which is simply the ratio of the weight of a given infant to the weight of the average normal infant of the same age. Judged by this standard, over 50 per cent. of the cases had a weight development of only from 40 to 70 per cent. when first seen. As a result of the treatment the series is divided into four groups: Group 1.—Cases which maintained or increased their weight index while on laboratory milk and entirely recovered from the acute gastric and intestinal symptoms for which they were brought to the clinic. This group comprised 109 cases or 50.4 per cent. The group, as a whole, gained 8 per cent. in weight index or a maximum average gain per week of 156 grams from the lowest weight reached during treatment. Group 2.—Cases which showed a loss in the weight indices and yet recovered from their acute gastric and intestinal symptoms and showed material gains in weight. This group includes 58 cases, or 26.8 per cent. The maximum average gain per week from the lowest weight reached was 94 grams. This group received treatment on the average for only 5.9 weeks, as compared with 8.5 weeks in Group 1. Group 3.—Cases which for the most part recovered from the acute gastric and intestinal symptoms while under treatment, but whose weight was not materially increased. This group includes 37 cases, or 17.2 per cent. The average length of treatment was 3.7 weeks; the loss in weight index 7.2 per cent., and the average loss in weight from the lowest point reached was 6.5 grams per week. Eleven cases in this group were "not improved" while under treatment. Of these 8 could not be traced, and some of them have died. Group 4.—The fatal cases. They were 12 in number, making a mortality of 5.6 per cent. in the series of 216 cases, the results of which were known the time treatment was stopped. All the

cases in the series were sick infants, and the results are not to be compared, says Ludd, with those obtained in the feeding of average healthy infants. The infants were fed on appropriate modifications of laboratory milk, usually beginning with very weak whey-cream mixtures. This milk was administered within twelve to eighteen hours after the first visit, and was gradually increased in strength. In half of the cases there was no initial loss in weight following this method; in 87 per cent. of the cases the initial loss was less than one-half pound (248 grams).

49. **The Rachitic Hand.**—Attention is called by Koplik to a peculiar manifestation of rachitis observed by him, one which might easily be mistaken for syphilitic disease of the bones, to which he has given the name of the "rachitic" hand. Most of the infants and children in whom he succeeded in demonstrating the rachitic hand suffered from marked rachitis accompanied by pain in the bones, to such an extent that one would be apt to think of syphilis. The phalanges of the fingers are thickened and bowed, at first glance giving one the impression that the hand was very fat. The fingers of the rachitic hand are longer and more tapering than is usual and this is probably due to a laxity of ligamentous structures of the joints or the phalanges. The distance between the extremities of the phalanges which make up the joints is greater in the rachitic than in the normal hand.

Dominion Medical Monthly, Toronto.
October.

- 50 *Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. A. W. Mayo Robson.
51 Some Cases Illustrating Difficulties in the Diagnosis and Treatment of Tumors. (To be continued.) Wm. Oldright.
52 *Tubercular Peritonitis. C. H. Mayo.
50. **Pancreatic Inflammations.**—Mayo Robson shows that recent clinical observations and operative experience prove that inflammatory affections of the pancreas or its ducts are very much more common than is generally supposed. In showing the frequency of pancreatitis, and the very serious nature of the acute, subacute and chronic varieties of the disease, Robson demonstrates that very much can be done for these patients by timely surgical intervention. Cases of pancreatitis due to gallstones may be prevented by timely interference, and that with barely 1 per cent. of risk. Gallstones may exist in the gall bladder without causing trouble, and without giving notice of their presence, but, as is well known, as soon as they pass into the cystic duct, or as soon as they begin to produce catarrh, they give evidence of their presence. If the concretions are removed in that stage there should be no mortality and, Robson continues, the operative treatment of cholelithiasis, undertaken before the onset of deep jaundice and infection of the bile and pancreatic ducts, with due care and in skillful hands, is almost devoid of danger. Furthermore, the early surgical treatment of gallstones will prevent the occurrence of many serious cases of pancreatitis that cause danger to life. This paper is an excellent résumé of modern knowledge of the subject of pancreatitis, but is so lengthy that we must refer our readers to the article itself, contenting ourselves with the few excerpts given above.

52. **Tubercular Peritonitis.**—After a brief review of the subject in general, Mayo discusses the treatment. He has practiced many of the methods in vogue at the particular time the operations were made, but as some cases required two or three operations and a few relapsed after apparent cure, and others were not cured at all, he was gradually led to search for the original lesion and remove it, leaving the peritoneal condition to cure itself, and closing the abdomen without drainage. The abdominal conditions always point to the source of disease by the congestion, increased matting of the miliary deposit, or increase of general adhesions. Of course, says Mayo, some cases must be refused operation, as their general condition is such as to render an operation extremely hazardous as well as futile. In males the incision is made over the appendical region, while in women it is so arranged as to explore the pelvis. A tubercular appendix at an early stage, before miliary deposits appear, may at times be diagnosed at operation by the large size of the glands of the mesenterium. The utmost care must be em-

ployed not to open the bowel in separating plastic adhesions of the intestine, as they are the most difficult fistula to close, and usually gradually exhaust the patient. As a rule, it is best to keep close to the parietal or pelvic peritoneum, separating as few adhesions as possible in exposing the region affected. In some cases of tubal infection the mass can be pierced and its entire contents of caseating debris removed, leaving the outer fibers and peritoneal layer in situ, then applying iodine or iodiform emulsion in glycerin to the diseased area and closing the abdomen without drainage. Of 59 operations for tubercular peritonitis by the older methods 42 were cured, 15 improved and 2 died. There were 58 operations for the removal of tubercular tubes, with 56 recoveries and 2 deaths, and 27 cases of tubercular appendicitis without a death.

American Journal of Medical Sciences, Philadelphia.
November.

- 53 Case of Dislocation of the Atlas, Shown by a Sklagraf. Causing Paralysis of the Left Arm and the Syringomyelic Dissociation Symptom on the Opposite Side. James Hendrie Lloyd.
54 Venereal Warts: Their Etiology, Pathology, Diagnosis and Treatment. C. W. G. Rohrer.
55 *Pneumococcus Endocarditis. Robert H. Preble.
56 *Contribution to the Study of Ulcerative Endocarditis. Montgomery H. Sicard.
57 Angioneurotic Edema. Report of Two Cases with the Histology of a Portion of the Gastric Mucosa Obtained by the Stomach Tube. Robert S. Morris.
58 Primary Carcinoma of the Duodenum. N. E. Brill.
59 *Pseudoleukemia Gastrointestinalis. H. Gideon Wells and Maria B. Mayer.
60 *Three Recent Cases of Cramp Due to Staphylococcus and Requiring Tracheotomy. F. P. Anzinger.
61 A Study of the Group of Actinomyces. With the Report of a Pathogenic Species for Man. William Royal Stokes.
62 Associated Movements of the Head and Eyes in Infants. Samuel McC. Hamill and William C. Posey.
63 Study of a Case of Splenomyelogenous Leukemia. Alexander H. Peacock.
64 Two Cases of Wolf's Disease Complicated by the Temporary Appearance of Small Tumors in the Liver. Max Elmhorn.
65 Volumetric Determination of the Purin Bodies (Uric Acid and the Purin Bases) in Urine. J. Rudisch and K. Kleeborg.
66 The Vasometric Factor in the Clinical Measurement of the Blood Pressure. Albert Abrams.

55. **Pneumococcus Endocarditis.**—Preble's paper can be summarized as follows: Endocarditis complicates pneumonia in about 1 per cent. of all cases, and in 5 per cent. of the fatal cases. The pneumococcus may cause endocarditis of any degree of intensity, but in over three-fourths of the cases it is of the severe or so-called malignant type. The exudate is usually massive, but there is less disposition to ulceration and perforation of the valves than in endocarditis due to the streptococci and staphylococci. Endocarditis due to the pneumococcus comprised about 25 per cent. of all cases of bacterial endocarditis. The affection is much more often left than right-sided, but involvement of the tricuspid and pulmonary valves occurs about four times as often as it does with endocarditis in general. Aortic valves are attacked more often than the mitral. Infarcts occur in about one-half of the cases. Meningitis complicates the pneumococcus endocarditis in about 60 per cent. of the cases. The clinical picture of pneumococcus endocarditis does not differ from that due to any acute endocarditis. The complication may develop before, during or after the pulmonary involvement. A considerable number of cases show a period of normal temperature, usually three to four days and rarely longer than a week between the fever due to the pneumonia and that due to endocarditis. The pulse is usually rapid and irritable, but bradycardia is more frequent than in other forms of acute endocarditis. Subjective symptoms referable to the heart are usually absent, except in cases where there is an old heart lesion, when they are due to the old, rather than the recent endocarditis. Physical signs may be absent. Leucocytosis is frequently absent. Blood culture will usually show the pneumococci. The diagnosis is difficult, impossible, in fact, when the affection develops during the course of the pneumonia, but endocarditis should always be suspected in a case of pneumonia which is followed by an irregular temperature not sufficiently accounted for by some other complication, such as empyema. The prognosis is extremely grave, for 60 per cent. of the cases have a complicating meningitis, but it is probable that the percentage of recovery is higher than the reports so far published would lead one to infer. The

treatment consists merely in rest, absolute rest, with good, supporting food and stimulation, as required.

56. **Ulcerative Endocarditis.**—Sicard gives a short résumé of the history of ulcerative endocarditis, the pathologic anatomy of the disease and the etiologic factors, together with a short synopsis of 32 cases. Eight occurred coincidentally with rheumatism, one apparently with a strain of the back accompanied by hematuria; 7 gave a history of old rheumatic attacks; 3 of having had scarlet fever or diphtheria; 2 of palpitation and dyspnea; 7 of typhoid fever, influenza or malaria; the remainder having apparently always been well. The disease is rare among young children. No cases have occurred in the children in the Presbyterian Hospital of New York during the last ten years. In the 32 cases reported, staphylococci were found in 4, micrococcus lanceolatus in 3, staphylococci and pneumococcus together in 1, and streptococcus in 2 cases. In 22 cases the blood cultures failed to give results and the diagnosis rested on pathologic findings or clinical signs. From an observation of these cases Sicard concludes that malignant endocarditis is a disease of bacterial origin; that it differs from simple acute endocarditis in the extent of endocardial inflammation and tissue necrosis; in the fact that the right heart is more often attacked; in the more frequent embolic processes which are septic in character. Micro-organisms are found in the blood during life, in the emboli and on the heart valves after death. There is nothing in the clinical appearance distinctive of any particular variety of germ causing them. Primary cases are rare, though they do exist. More cases accompany rheumatism, septicæmia, the acute infectious diseases, or are engrafted on an old endocarditis. Almost all cases are fatal; those due to severe infection in a few days; the septic ones in a few weeks. The first variety have a leucocytosis of 15,000 or over, the latter usually below that number, some being very slight. Emboli and hemorrhages are of frequent occurrence, and may be fatal in their results. The urine usually shows evidence of nephritis; it may contain blood and pus from hemorrhage or infarct. Treatment is usually unavailing, excepting the serum therapy, which is of uncertain value.

59. **Pseudoleukemia Gastrointestinalis.**—Wells and Maver report a case of pseudoleukemia which supports the conception that the infective agent, if such there be, might have entered by way of the tonsils, infected the cervical glands, and later became generalized throughout the body. In this instance, however, by far the most advanced manifestation of the disease was in the stomach, and next to the stomach the glands that receive its drainage. Although all the lymph glands were more or less enlarged, none compare with those about the stomach in size. Another peculiarity noted by the authors in reviewing over 200 autopsies in pseudoleukemia as reported in the literature, was that whereas in the universal enlargement of lymphatic tissue that of the alimentary canal usually participated little or not at all, yet when it does become involved to any extent, it is likely to happen that it is then involved much more in proportion than any of the other lymphatic tissue. These cases do not differ either clinically or etiologically from the ordinary cases, and anatomically the difference lies solely in the distribution of the lesions. Such cases stand particularly near the lymphosarcoma and the confusion in nomenclature of pseudoleukemia has added to the difficulty of distinction in many of the reported cases. Tuberculosis as a cause of Hodgkin's disease was negative in this case, inasmuch as animal inoculation as well as microscopic examination failed to demonstrate the presence of tubercle bacilli.

60. **Croup Due to Staphylococcus.**—Anzinger's cases were cases of preliminary sore throats in children, followed by severe obstructive symptoms in the larynx and requiring tracheotomy. In none of the cases was there evidence of a pseudo-membrane. The clinical symptoms pointed to a local infectious process with the elaboration of toxins. In two of the cases the diagnosis of diphtheria was entertained, and antitoxin was given, but with negative result. Bacteriologic examination revealed the presence of practically pure cultures of staphylococci in the trachea and larynx. The organism in recent

artificial cultures proved to be unusually pathogenic to white mice. Pathogenesis was displayed only by direct inoculation into the lymph or blood circulation. From an analysis of his investigations, Anzinger draws the following conclusions: 1. The winter epidemics of tonsillitis and sore throat in children at times give rise to laryngeal complications. 2. This condition is always serious owing to the ease with which the juvenile throat may be obstructed. 3. Individual predisposition to laryngeal complication is quite probable. 4. Staphylococcus, a common denizen of the throat, may, under favorable conditions, give rise to grave symptoms, as exemplified in the cases reported. 5. The rapidity of onset and severity of symptoms may at times suggest diphtheria. 6. A reliable bacteriologic examination of the throat is a prerequisite. 7. Antitoxin, although to be used in doubtful cases, will be of no service in cases in which the Klebs-Loeffler organism is not the causative factor. The failures of antitoxin are often credited to such cases. 9. A careful analysis should be made of each case, basing the diagnosis on both clinical and bacteriologic evidence.

Western Medical Review, Lincoln.

October.

- 67 *Case Simulating Abscess of the Liver. S. C. Beebe.
68 *A Simple Method for Gastroenterostomy, Ureteral and Intestinal Anastomosis. H. M. Hepperlen.
69 A Plea for Better Surgery in the Country. W. J. Pinkerton.
70 Burns of the Conjunctiva. J. W. Bullard.
71 What Relation Does Syphilis Bear to Abdominal and Pelvic Surgery? R. D. Mason.

67. **Case Simulating Abscess of the Liver.**—Beebe reports a case in which a collection of pus in the pleura immediately over the diaphragm burrowed through the latter into the liver, producing symptoms resembling those of abscess of the liver.

68. **Simple Method of Gastroenterostomy.**—Hepperlen makes use of a mechanical device, consisting of gelatin molded in size and form to meet the requirements for the different operations in which it may be used. It is made aseptic and of proper thickness and hardness to retain its shape 15 to 30 minutes, after which it is absorbed. When the gelatin support is placed in position, he inserts a few interrupted sutures through all the coats of the bowel to hold the parts in coaptation. He then completes the work by using a suture which is original with him. He uses a fine intestinal silk 24 inches long, double, with a needle on each end, having the knot where the silk is tied in the center. He starts his first suture under the mesentery attachment, inserting a needle with each hand, at the same time, through the two outside coats of the bowel, an eighth of an inch from the cut margins, picks up a loop about one-twelfth of an inch in length, draws the parts together and ties them at each stitch, continuing thus until he has completely encircled the bowel. The opening in the mesentery is closed with the same suture, care being taken to pass the needles under the small vessels in the peritoneal coat so as not to constrict the blood supply more than necessary. The gelatin device used for gastroenterostomies has a small flange molded on one end of the gelatin cylinder to hold it securely in the bowel where opened. This secures practically the same result obtained by the Murphy button, is as rapid, and is a much safer operation because there is no danger of retention of the device. For ureteral work he uses a small cylinder with an opening through the center, oval at each end. The technic of the operation is the same as described above.

St. Louis Medical Review.

October 22.

- 72 Observations on Cerebellar Tumors. Charles K. Mills.
73 Indications for Surgery in Injuries Involving the Cord. Harold N. Moyer.

Medical Bulletin, Philadelphia.

October.

- 74 Chorea in Pregnancy. John V. Shoemaker.
75 Compression of the Umbilical Cord. Ch. Newgrier.
76 Diseases of the Ear, Nose and Throat of School Children. E. B. Gleason.

St. Louis Courier of Medicine.

October.

- 77 Modern Treatment of Prostatic Hypertrophy with Obstruction. Arthur T. Cabot.
78 Climatology: Its Value to the Student and Practitioner of Medicine. S. E. Solly.

Kansas City Medical Index-Lancet.

October.

- 79 Carcinoma of the Intestine. C. B. Taylor.
80 Varicocele. Walter E. McKinley.

Denver Medical Times.

October.

- 81 Address, Rocky Mountain Interstate Medical Association. H. D. Niles.
82 The Obstetric Anatomy of the Petus at Term. T. Mitchell Burns.
83 X-ray Treatment of Urethral Caruncle. G. H. Stover.
84 Charcot's Joints. Byron C. Leavitt.
85 Pernicious Anemia, with a Report of Cases. J. N. Hall.

Interstate Medical Journal, St. Louis.

October.

- 86 Recent Experiences in Gastroenterostomy, with Especial Reference to the Value of Discrimination in the Method to Be Used. Willard Bartlett.
87 The Treatment of Chronic Non-suppurative Otitis Media. M. A. Goldstein.

Louisville Monthly Journal of Medicine and Surgery.

October.

- 88 Sutures and Ligatures. A. M. Cartledge.
89 Diagnosis of Surgical Diseases of the Kidneys. John R. Watben.
90 The Trained Nurse. William F. Barclay.

International Journal of Surgery, New York.

October.

- 91 Induction of Premature Labor. Henry C. Coe.
92 Gastric Tumor. Its Clinical, Pathological and Surgical Phases. A. H. Cordier.
93 Melano-sarcoma of the Scrotum. B. D. Black.

Cleveland Medical Journal.

October.

- 94 John of Gaddesden, Variola and the Flinsen Light Cure. H. E. Handerson.
95 Fluid in the Pleural Cavity Simulating Pneumonia. Charles F. Hoover.
96 Report of a Case of Salivary Calculus. C. E. Ford.
97 Report of Two Cases of Presenile Delusional Insanity. John D. O'Brien.
98 Report of Two Cases of Cerebrospinal Fever. M. J. Lichty.

New York State Journal of Medicine, New York.

October.

- 99 The Importance of Distinguishing Between Primary and Secondary Low Arterial Tension in the Treatment of Circulatory Disease. Louis P. Bishop.
100 Typhoid Fever. R. Sayre Hamden.
101 Treatment of Typhoid Fever. Asa G. Henry.

Iowa Medical Journal, Des Moines.

October 15.

- 102 The Relation of Childbearing to Insanity. Arthur S. Hamilton.
103 Abscess of the Brain. F. E. Walker.
104 A Case of Tetanus in Practice. Robert Robb.
105 Infected Wounds. Henry Wiedow.

Journal of the Mississippi State Medical Association,

Vicksburg.

October.

- 106 Instruct an Important Factor in the Diagnosis and Treatment of Diseases. T. J. Mitchell.
107 Scabies. J. C. Hall.
108 Obstetrics. B. L. Culley.
109 Enterocolitis. R. R. Wyatt.
110 Doctors' Nerves and Some Others. W. D. Hubbard.
111 Some Neuroses Resulting from Foreign Bodies in the Stomach. P. R. Brown.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

October 22.

- *Discussion on the Treatment of Accidental Hemorrhage. A. Vernon Macan, A. L. Galabin and others.
- *Discussion on the So-called Ovarian Pain: Its Causes and Treatment. G. E. Herman, F. B. Jessett, A. Rabagliati, W. E. Fothergill and others.
- The Standpoint of Operation for Cancer of the Womb in Germany. Professor Olschansen.
- Further Notes on the Treatment of Birth Paralysis of the Upper Extremity by Suture of the Fifth and Sixth Cervical Nerves. R. Kennedy.
- Large Fibromyoma of the Left Ovary. J. S. Darling.
- *Discussion on the Indications for Hysterectomy and the Methods for Performing It. J. Bland-Sutton, A. Doran, J. A. Shaw-Mackenzie and others.

1. Treatment of Accidental Hemorrhage.—Macan summarizes his paper as follows: In the absence of disease, all accidental hemorrhage has a natural tendency to stop. It commences as an internal hemorrhage, and many times ceases spontaneously without having been diagnosed, or, if so, only by finding old

clots on the surface of the placenta postpartum. A large proportion of cases of so-called accidental hemorrhage is due to low insertion of the placenta. The diagnosis of this condition is difficult, and can not always be made with the finger. Hemorrhage from low insertion of the placenta is not likely to cause either internal or combined hemorrhage. Rupture of the circular sinus of the placenta gives symptoms that are very similar to those of internal or even combined hemorrhage. There are other factors besides want of tone in the uterine walls that tend to cause the hemorrhage to remain internal—for example, lessening of the first *vis a tergo*; the position of the first hemorrhage; its amount, and the firm adhesions around it. In the worst cases, where the cervix is long and the os rigid, it is (probably ?) necessary to deliver the woman immediately. Cesarean section, either vaginal or abdominal, is a better way of doing this than accouchement forcé. Less severe cases, when the cervix is long and the os rigid, should be treated by a properly applied vaginal tampon.

Uterine contraction may cause the hemorrhage to cease during the contraction, but not during the intervals, except indirectly as favoring thrombosis. Accidental hemorrhage is often due to uterine contractions—for example, after the sudden escape of excessive liquor amnii and after the birth of the first of twins. When the hemorrhage escapes from under the placenta, the tendency to further separation of the placenta is lessened, because the membranes (unless morbidly adherent) are more easily separated than the placenta. Rupturing the membranes must always cause a diminution in the intrauterine tension, and makes it more difficult to increase this tension by tamponing the vagina. Therefore, rupture of the membranes is not good treatment for ordinary cases of accidental hemorrhages, unless it causes rapid expulsion of the child. It is, however, a most efficient way of stopping accidental hemorrhage which is caused by a persistence of the bag of waters far into the second stage or by a low insertion of the placenta. The great danger in affecting delivery of the child *per vias naturales*, when the cervix is only partially dilated, is due to the difficulty there is in judging how much time is at our disposal to affect the dilatation. In tamponing the vagina and in the application of a tight binder and a firm perineal bandage we have a most efficient method of treating all but the worst cases of accidental hemorrhage, perhaps even these. Adhesions may stop internal accidental hemorrhage by causing localized increase of tension, but their presence can not be determined. If the original seat of the hemorrhage is at the very center of the placenta, the whole of the placenta will become detached; and if the placenta is situated exactly at the fundus, the membranes also will be all separated before the hemorrhage becomes external. Prolapse of the placenta depends on both these conditions being present. All cases of accidental hemorrhage should be reported, not the severe cases only, and the position of the rupture in the membranes carefully noted.

2. "Ovarian" Pain.—Herman states that he knows of no morbid change in a freely movable ovary that causes chronic pain. The so-called "chronic ovarian pain" is either a reflected pain due to some cause other than the ovary, or is due to neurasthenia, or is a manifestation of hysteria. It is not curable either by surgical treatment of the ovaries or by their removal. The only exception to this is the reflected pain of dysmenorrhea, which is cured when menstruation is stopped.

6. Hysterectomy.—In the course of a discussion on the indications for this operation, Bland-Sutton says that in suitable, carefully selected cases of cancer of the cervix uteri, the uterus is best removed by the vaginal route, as it enables the surgeon to excise the tissues about the cervix widely and to avoid the bladder, the ureters and the rectum. Out of 100 consecutive patients with cancer of the neck of the uterus, about 5 per cent. are favorable subjects for operation. The disease should be limited to the cervical tissues, and the broad ligaments should be free from any suspicion of infiltration. This must be determined with the patient fully anesthetized. The remote results of hysterectomy for cancer of the body of the uterus are very good when performed before the disease has perforated the uterine wall.

The best results are met with in the rarer instances in which the disease arises in a senile uterus. When it is absolutely necessary to remove the uterus for fibroids complicating pregnancy, it is usually to the patient's advantage to perform supravaginal hysterectomy. Under certain conditions, however, myomectomy, abdominal enucleation and hysterectomy are very useful measures. Panhysterectomy is as safe an operation as supravaginal hysterectomy; it is desirable in many cases to remove the lower cervix, but it is not necessary. says Bland-Sutton, to do this as a routine procedure. The reasons for these opinions are discussed by the author at great length.

The Lancet, London.

October 22.

- 7 An Address on "Wm. Hey: Medical Education." E. Owen.
- 8 "An Address on the Treatment of Lupus Vulgaris During the Last 25 Years. Malcolm Morris.
- 9 "The Physiologic Action of Ethyl Alcohol Considered as a Food;" a Research. W. H. Goddard.
- 10 "The Value of Hætol in Pulmonary Tuberculosis. T. B. Heggs, M.D.
- 11 The Action Exerted on the Tubercle Bacillus by Human Blood Fluids, and the Elaboration of Protective Elements in the Human Organism in Response to Inoculations of a Tubercle Vaccine. A. E. Wright and Stewart R. Douglas.
- 12 "The Treatment of Pyopneumothorax." S. West, M.D.
- 13 Drainage of the Pericardium. H. S. Penningbury.
- 14 The Action of the Venoms of Different Species of Poisonous Snakes on the Nervous System. George Lamb and Walter K. Hunter.

8. **Lupus Vulgaris.**—Morris gives a brief record of his experience of a quarter of a century in dealing with lupus vulgaris. In choosing a method of treating this affection, he says a number of things have to be taken into account. First, the seat of the disease; second, the extent; third, the type of the lesion and the stage of its evolution; fourth, the health of the patient. He has treated more than one thousand cases by various methods. In the large majority of the cases the treatment was so mixed that it is impossible to say how much of the result was due to one and how much to another agent. His experience, like that of every other dermatologist, has been that while small superficial patches are curable by almost any of the recognized methods, when the disease is at all extensive it often resists all kinds of treatment. As a rule, he uses chemical caustics only after the application of the light rays or cautery. In cases in which these agents are inapplicable, he employs salicylic or pyrogallic acid, or both together. Minute nodules may be bored with a solid stick of nitrate of silver. Acid nitrate of mercury is very effective, but if used freely produces an unnecessary amount of scarring and pain. Lactic acid he has found useful, at times, as an application to ulcerated surfaces. He believes that the galvanocautery is still the best method in cases in which the Finsen light or the x -rays can not be applied, especially when the areas to be treated are small. The cautery should be used at white heat, and care should be taken not to do much at one sitting, so as to avoid severe reaction. The scarification method he has practically abandoned. Volkmann's method of scraping has yielded excellent results in his hands. In some cases a single operation has effected a permanent cure. Of course, the method has its disadvantages. Excision is applicable when the patient has no time nor money to spare for the use of less vigorous but more tedious procedures. He has used the Finsen light method for four years and a half and arrives at the conclusion that phototherapy, while no more infallible than any other method, gives on the whole more satisfactory results. The x -rays are most useful in supplementing phototherapy. When the disease is extensive, the ground may be prepared with advantage for the light by the preliminary use of the x -rays. When mucous membranes are the seat of disease, the x -rays are more effectual than light. They are also of value as a palliative treatment. It must, however, be admitted, says Morris, that although the x -rays rapidly dry up discharge, heal ulceration, and disperse edema, they are of less use in eradicating the disease than is Finsen's method. Morris concludes his paper as follows: 1. It must be confessed that after every kind of treatment, whether used alone or in combination with others, recurrence is still very common. 2. As a general statement it may be laid down that small superficial quiescent

patches are curable. 3. When the disease is of moderate extent and situated on the face, Finsen's method, either alone or combined with the application of the x -rays and supplemented by the use of caustics, is the most efficient method in regard to cosmetic effect and probably also in regard to permanency of result. The treatment, however, requires so much time that it is practically incompatible with the pursuit of any avocation needing close personal attention, and directly or indirectly entails considerable expense. 4. If a rapid effect is desired, reliance must still be placed on gentle cautery, if the disease is on the face, and excision if it is on the limbs or the trunk, supplemented in the former case by salicylic acid, nitrate of silver, or other caustics. 5. Very extensive and severe cases in which the health is affected must be dealt with by the general methods used at the present day in the treatment of pulmonary tuberculosis.

9. **Alcohol as a Food.**—Goddard concludes that in small doses only, alcohol is most undoubtedly a food, but when large doses are taken about 50 per cent. of it is excreted from the system and it cannot, then, be considered a food in the proper sense of that term; and if still larger quantities be taken, it is more than probable that this contention would apply with even greater force.

10. **Hætol in Tuberculosis.**—Heggs cites seven cases in which hætol was administered intravenously. The technic and method employed were as follows: Thorough disinfection of the skin and sterilization of all instruments. Any sufficiently large veins of the arms were used. The method of graduated increase of dose on alternate days, as advised by Landerer, was followed. The maximum dose varied from 20 to 50 milligrammes, never getting any ill effects. In all the cases a definite leucocytosis was produced by each injection. As the result of his experiences, Heggs concludes that hætol, though not a specific, is a useful adjunct to any other treatment of tuberculosis.

12. **Treatment of Pyopneumothorax.**—The following general rules are laid down by West: 1. In the early stage when suffocation threatens, the air should be removed and the pressure relieved by paracentesis, repeated if necessary; if this is not sufficient, it is justifiable even to leave the side fully open rather than to lose the patient. 2. In the later stage, when effusion forms, its nature should be at once ascertained. 3. If the effusion is serous, the case should be treated on the general lines of serous effusion. 4. If it is purulent, immediate evacuation by free incision should be carried out. A piece of rib should not be excised, for it is rarely necessary. If it is necessary, no more should be removed than is required to get free drainage. 5. An aspirator should never be used in pneumothorax under any condition; it is unnecessary and dangerous.

Presse Médicale, Paris.

- 15 (No. 71.) Status of Radiotherapy. Klenböck. Abstract.
- 16 Hæmie épigastrique, de la muqueuse de l'estomac. Adenot.
- 17 De l'empyème pulmonaire. Malibrán.
- 18 De l'angine pseudo diphtérique causée par streptocoques et pneumocoques. G. Testevin and P. Busquet.
- 19 (No. 72.) Des hypersecretions multiples dans la paralysie générale progressive. E. Marandon de Montyel.
- 20 "Traitement des fistules stercorales consécutives aux hernies crurales étranglées et sphacolées." P. Delbet.
- 21 (No. 73.) "Du principe phosphorocanique des graines végétales. L'acide anhydroxyéthylène-diphosphorique: son emploi thérapeutique. A. Gilbert and A. Lippmann.
- 22 "Remarque sur le sol-disant 'état naissant' en thérapeutique (naissant state). D. Tommasi.
- 23 Table pour examens médico-chirurgicaux, voles urinaires et gynécologie. D. Estrabaut.
- 24 Théorie réflexe de la production des muco-membranes intestinales. M. Jouanet. Abstract.
- 25 (No. 74.) L'état dit "naissant" des substances employées en thérapeutique (naissant state). II. Labbé.
- 26 "L'acide phosphorique: son innocuité; ses principales indications en thérapeutique." F. Cantra.
- 27 Urethrotomie externe sans conducteur par la voie médiane latérale. L. Martel.
- 28 Conception du mot hystérie. Fernheim. Abstract.
- 29 (No. 75.) Hystérectomie abdominale totale pour fibromes. G. Rousset.
- 30 "Adipose douloureuse (maladie de dercum)." Delucq and Alaux.
- 31 "Sur l'anasarque glycémique et la rétention des chlorures." P. Remlinger. Abstract.
- 32 (No. 76.) La lèpre en France et dans ses colonies. E. Jean selme.
- 33 Hémorragies gastro-intestinales du nouveau-né. Lop.

- 34 (No. 77.) De la diminution brusque du poids à l'approche de la mort dans certaines infections aiguës (pregnoidal loss of weight). Garnier and Sabarreau.
- 35 Les dangers de contagion au sanatorium. C. Mailbran and L. Gassot.
- 36 *Exploration fonctionnelle de l'intestin, par l'analyse qualitative des matières dans les fèces (fats in stools). R. Gaultier.
- 37 (No. 78.) *Indications thérapeutiques du képhir. G. Hayem.
- 38 La radiologie en médecine interne. G. Holzknecht.
- 39 Tenth International Congress of Dermatology, Berlin, 12-17, 1904. (Continued in No. 76.)
- 40 (No. 79.) Delirium d'albumin. H. Topet and G. Lehret.
- 41 *Traitement de l'incontinence essentielle nocturne d'urine par la méthode épidermique. Cantas.
- 42 Unequalé Ichtyose des Pupilles in Respiratory Affections. F. Debréau.—L'algéité pupillaire dans les maladies du poumon et de la plèvre.
- 43 (No. 80.) Sciatique radiculaire unilatérale. L. Lortat-Jacob and G. Sabarreau.
- 44 Les neurofibromes d'après la méthode et les travaux de S. Ramon y Cajal. L. Azoulay. (Continued through Nos. 59, 68 and 74.)
- 45 Des lésions du foie, des reins, de l'organisme en général dans la genèse des accès éclamptiques. Thuveny.
- 46 Les éliminations urinaires au cours des vomissements incoercibles de la grossesse (vomiting of pregnancy). A. Schwab.
- 47 (No. 81.) Les cardéo-rénaux. L. Bernard.
- 48 La réaction dite "de l'urohématine." L. Lemaire.

20. Treatment of Fecal Fistula Consecutive to Femoral Hernia.—Delbet explains that the reason why these fistulas persist so long is that the inner, adherent walls of the two loops forming the hernia are not sloughed off like the rest, but remain, forming a barrier to the passage of fecal matters from one loop into the other. As soon as permeability of the gut is re-established by removal of this obstructing wall the feces pass on through the natural passages and the fistula heals. Le Dentu uses to resect this barrier Dupuytren's enterotome, and calls the little operation "kentrotomy." In the 15 cases on record conditions were restored practically to normal by this kentrotomy in a few instances, but in 9 it proved to be impossible of application for anatomic reasons. Laparotomy was necessary and a vertical incision along the outer margin of the rectus proved to be best suited for the purpose. The incision terminated below, 2 cm. from the previously tamponed fistula. By thus operating at a distance from the fistula the surgeon works in sound tissue and the exclusion of the fistula insures its rapid healing. Kentrotomy and direct suture are applicable only for the simplest cases.

21. The Organic Phosphoric Principle in Grains.—On page 1013 the previous announcements of Gilbert on this subject were summarized. He here gives his clinical experience with the organic phosphorus derived from the cereals applied to the treatment of pathologic conditions due to defective assimilation or excessive elimination of phosphorus. Out of 200 patients thus treated he has followed 75 for a sufficiently long period to fully establish the direct nutritive and dynamic properties, the latter manifested in the stimulation of the general nutrition of the tissues and cells. In convalescence from severe illness, in anemia and chlorosis, in pulmonary tuberculosis and in neurasthenia, rapid improvement in the general health was almost constant. The most striking effect is the increased appetite apparent from the first. In the 18 cases of neurasthenia this improvement in the appetite impressed the subjects themselves, and was soon followed by the subsidence of the other troubles and morbid tendencies disappeared. In short, he concludes, the new phosphoric principle isolated by Posternak from the grains of chlorophyll plants must be ranked as one of the most powerful stimulants of nutrition yet known.

22. The Nascent State.—Tommasi ascribes the peculiar energy of drugs in the nascent state to the heat generated by their liberation. With peroxid of hydrogen as much as 21.6 cal. is generated as the oxygen is liberated. This heat favors its entering into other combinations and explains its greater activity in the nascent state.

26. Phosphoric Acid in Therapeutics.—Cautru affirms that anhydrous phosphoric acid has no toxic action. Guinea-pigs killed after having ingested what would be equivalent to doses of 200 gm. a day for a man, showed no evidences of fatty degeneration of the kidneys or liver. The microscope findings were those of normal organs, as also in dogs. Some of his patients have been taking from 2 to 4 gm. for more than five years, without showing evidences of intolerance. The morbid

conditions in which it is most beneficial are those in which there is demineralization of the organism with hyp acidity of the urine. It is especially effectual when the nervous system seems to have partially lost its resisting power. True neurasthenia, for instance, is accompanied by considerable elimination of the alkaline phosphates in the urine, the logical consequence of the exaggerated consumption of phosphoric acid occasioned by the overexertion of the brain. The nervous balance can not be restored until the lost phosphorus has been replaced. In neurasthenics in whom the nerve cells are secondarily affected from some digestive or other trouble, the urine will be found hypoaacid with phosphaturia or "hypophosphatia" and the phosphoric acid may be required for years. In arthritis, rheumatism, tuberculosis, malaria, dyspepsia, etc., during the phases accompanied by demineralization of the organism, phosphoric acid will be found surprisingly effective, as also in the nervous troubles of pregnancy and overrapid growth. Years of experience have only rendered him more emphatic in the recommendation of phosphoric acid in therapeutics.

30. Adiposis Dolorosa.—In the case described a tumor had developed in the orbit during youth. It grew to considerable size, but seemed to become arrested about the twenty-fifth year. During the thirtieth year symptoms of Dercum's disease began to develop, and at 60 the patient presented a typical case of adiposis dolorosa. Thyroid and other treatment had no effect, and Delbecq is now trying an extract of the pituitary body, thinking that possibly pressure on this organ from the tumor in the orbit may have been the cause of the affection.

31. Dysenteric Anasarca.—Remlinger writes from Constantinople to call attention to the anasarca observed during and after dysentery in certain subjects free from heart or kidney trouble. By exclusion he arrives at the assumption that the sodium sulphate given copiously during the dysentery may possibly have induced retention of chlorids and this in turn have induced the anasarca. Sodium sulphate is the classic remedy for diarrhea in certain localities, but these experiences show possibly the need for caution in its use.

36. Fat in the Stools.—Gaultier points out that it is not the quantity of fat eliminated, but its condition, that is important from a diagnostic point of view. When normally digestible fat is found untransformed in the feces, some affection in the biliary apparatus or the pancreas may be assumed, or both together. The entire lack of any change in the fat ingested speaks for the last two conditions. When fat is found in the feces transformed into an easily assimilated form, but yet not utilized, the trouble must be some functional disturbance in the small intestine. The proportion of fat utilized averages 95 per cent. in normal conditions. In case of obstruction to the flow of bile the proportion of unutilized fat rises to 49 per cent. on a milk diet, but about a third of the fats are found transformed into a readily assimilable form (Müller). In case of obstruction to the flow of pancreatic juice, the proportion of unutilized fats is from 52 to 83 per cent. (Deutscher), and in intestinal catarrh and other affections the proportion ranges from 18 to 40 per cent. or more, but in these latter cases more than three-quarters of the total amount is transformed into an assimilable form. Gaultier urges that the general physician should pay more attention to these findings, perhaps not wasting time on the search himself, but consulting some working laboratory where such research can be done at trifling expense.

37. Kephir in Therapeutics.—Hayem regards kephir as both a food and a medicine. As a food it is milk already undergoing digestion and thus rendered much more easily assimilated, while the large proportion of carbonic and lactic acid and traces of alcohol, confer on it the properties of a medicine. Kephir is almost the only food which nourishes while allowing the stomach almost absolute rest. It has also some antiseptic and sedative action. Hayem reviews its various indications, which can be deduced from the above. It is contraindicated in case of pyloric obstruction or stagnation in the stomach from any cause.

41. Epidural Injections in Treatment of Urinary Incontinence.—Cantas reports 15 cases in which the incontinence

dated from two to eight years, all completely cured by Cathelin's epidural injections with 2 exceptions, and in the latter the improvement nearly amounts to a cure. The simplicity, entire harmlessness and efficacy of this method commend it, he thinks, above all others for the treatment of incontinence. He found the dose of 10 c.c. more effectual than a smaller one, and cocaine better than mere salt solution. The interval between injections should be long enough to prevent habituation.

Archiv f. path. Anatomie, Etc., Virchow's, Berlin.

Last indexed page 137.

- 49 (CLXXVII, No. 2.) Die oberen cardialen Oesophagus-Drüsen und ihre Entstehung, nebst Bemerkungen über Epithel-Metaplasie (esophageale glands). J. Schäfer.
 50 Zur Pathologie des Gefäßsystems (vascular system). C. Hart.
 51 Zur Kenntnis der pathologischen Anatomie der Nebennieren (of suprarenals). G. Marchetti.
 52 Zur Kenntnis der fetthaltigen Pigmente (fat-containing pigments). E. Sehr.
 53 Ueber Peritonitis bei eitriger Lymphangiolitis des Ductus thoracicus. M. Löhlein.
 54 Ueber die unter dem Namen (Paget's disease of the nipple) bekannte Hautkrankheit und ihre Beziehung zum Carcinom. K. Zieler.
 55 Zur Kenntnis der Fibrosarkomatose des Nerven-Systems. J. O. L. Hulst.

Beiträge z. Geb. und Gynäkologie (Hegar's), Leipsic.

Last indexed page 288.

- 56 (IX, No. 1.) Zum Studium der menschlichen Placentation. H. Fricole.
 57 Zur spontanen Uterus-Ruptur in der Gravidität. K. Meyer.
 58 Fall von intrauterinem Luftmaten (air breathing). O. Wille.
 59 Ueber die möglichen Konzentrations-Verhältnisse des Blutes und des Liquor amnii. E. Schiades und G. Farkas.
 60 *Die Resultate von 40 Frühgeburtseingleitungen mittels Eihautstich (puncture as first step in premature delivery). L. E. de Reynier.
 61 *Results of Artificial Premature Delivery on Account of Contracted Pelvis. H. Hunziker.—Ueber die unmittelbaren und späteren Resultate der künstlichen Frühgeburt eingeleitet weesen Beckenenge.
 62 Zur Frage der Entstehung des Promontoriums während der Fetal-Periode. H. Lammer.

60. Puncture of Membranes in Artificial Delivery.—Eighty-two per cent. are still living of the children artificially delivered on account of contracted pelvis in 54 cases at von Herff's clinic. When delivery is not urgent, and the diameter of the pelvis ranges from 7.25 to 9.5 cm., early puncture of the membranes has established its usefulness, according to de Reynier, as affording the best prognosis for mother and child.

61. Results of Artificial Delivery in Contracted Pelvis.—It has been the experience at Basle that fully 20 per cent. more children are born alive when delivery is induced prematurely than when Nature is left to deliver the child spontaneously in cases of contracted pelvis. Twice as many children are alive by the tenth day among the artificially delivered as among the spontaneously born infants. The number of women with pelvis from 6.9 to 8 cm. in diameter was 498. Out of the 2,080 deliveries, 774 were artificially induced, and 188 of the children were born spontaneously. Only 29 per cent. of the latter were alive the tenth day, while 59.1 per cent. of the artificially delivered children were then alive, and 53.6 per cent. are still living. Only a small percentage of the children naturally delivered have survived to date.

Deutsche medicinische Wochenschrift, Berlin, and Leipsic.

- 63 (XXX, No. 40.) *Zur direkten Bronchoskopie zwecks Exstruktion entzündeter Fremdkörper (of foreign bodies liable to swell). Nehrkorn.
 64 *Ueber die Antikörper des Streptokokken- und Pneumokokken-Immuns-Serums. F. Neufeld and W. Klmpau.
 65 *Ueber die Bedeutung der Sensibilitätsprüfungen mit besonderer Berücksichtigung des Drucksinnes (tests of sensibility and pressure sense). (Commenced in No. 39.) A. Strümpel.
 66 *Einlezes über Naht und Nahtmaterial (suture material). J. Mikulicz.
 67 Inhibiting Action of Radium on Developmental Processes. A. Schaper. (Commenced in No. 39.)
 68 Report of Fifth Northern Congress of Internal Medicine.
 69 Report of Cancer Research Committee.
 70 (No. 41.) *Oesophagusrupture und Oesophago-Malacie. R. Beneke.
 71 Zur Kasuistik des Ileus. E. Roos.
 72 *Ueber die operative Behandlung der narbigen Kieferklemme (Cleft-jaw locking). F. Manasse.
 73 *Ueber weitere Anwendung des lokalen dauernden Druckes (permanent pressure). Dr. Heermann.
 74 Ueber die Agglutination der Milzbrandbakterien durch spezifisches Serum (agglutination in anthrax). G. Sobornheim.
 75 Technical Vesivels. Schotten.
 76 Das Sanitäts-Wesen in der russischen Feld-Armee. A. Hippus.
 77 Wilhelm Hiss. Obituary. (Commenced in No. 40.)

63. Extraction of Beans, Etc., from Air Passages.—Nehr-korn has had occasion to treat 3 children who had drawn beans into their air passages. After the first symptoms of suffocation had subsided as the bean settled down in some nook, a period of calm followed, which lasted for twelve to twenty-four hours, or until the bean began to swell. As it swelled it caused increasing suffocation. In one case the extraction of the bean by upper bronchoscopy took three hours, and tracheotomy was necessary the next day on account of inflammatory swelling of the glottis, evidently the result of compression by the bronchoscope. For this and other reasons he advocates immediate tracheotomy for low bronchoscopy, without wasting time on upper bronchoscopy, in case of aspiration of a foreign body by young children. He indorses von Eickens' warning that bronchoscopy should be done whenever there is even the slightest suspicion of aspiration of a foreign body into the bronchial system, and with the greater urgency if it is one liable to swell.

64. Antibodies of Streptococcus Serum.—The results published from the research described indicate that there is a third kind of specific action by the specific serums, which is different both from the antitoxic and the bactericidal action. This third action resembles the bactericidal, but it requires direct co-operation on the part of the cells. Phagocytosis is induced, but not until the bacteria have been acted on in some specific manner.

65. Technic of Tests for Cutaneous Sensibility.—Strümpel's extensive experience has demonstrated that the sensation of pressure may be missing while the most delicate sense of contact persists intact. He thinks the sense of pressure is transmitted by the soft parts below, and suggests the following schedule for diagnostic determination of the sensibility: A. Sensibility of skin, 1, for simple differences in tension. Contact sensitiveness. Sensibility of the hairs; 2, for injurious painful stimuli (pricks). Pain sensation; 3, for heat stimuli. Heat sensation; 4, for cold stimuli. Cold sensation. B. Sensibility of the deeper parts, 1, sense of difference in tension in the fascia, muscle and periosteum. Pressure sensation. Pressure sense; 2, sensation for differences in tension in the tendons, muscles, ligaments and joint surfaces. Movement sensation. Muscle sense. Tests for the above with a brush, needle, hot and cold water and the hands, answer all practical purposes.

66. Suture Material.—Mikulicz has been using for seven years the Hofmeister formalin catgut, and has had no cause for changing. He does not venture to use silk for buried sutures, except in surely aseptic wounds. In his private clinic he always operates in thread gloves, and his assistants wear the same, frequently changed, but in the less favorable conditions of the polyclinic they all wear rubber gloves. In order to delay absorption of catgut, he has it prepared in a special fashion by a kind of tanning process devised by Miyake. The catgut is stretched tight over a sheet of glass and tanned for twenty-four hours in a 5 per cent. aqueous solution of quebracho, after which it is prepared for use by the Hofmeister formalin technic. Quebracho extract is derived from a kind of oak that grows in Argentina, peculiarly rich in tannic acid. It is being used more and more in the tanneries instead of native trees. Catgut thus prepared is stronger than the untanned, and persists for four weeks and more with scarcely any indications of swelling. After this it gradually yields and is absorbed, but it still held to the sixty-fifth day in the tests and was not finally absorbed until the eighty-third to the ninety-ninth day. He remarks that the reputation of a surgeon sometimes depends on the manner in which the skin is sutured, and he always insists on his pupils paying special attention to this suture. He uses alternately fine silver wire and catgut, where the aspect of the scar is important. Halsted's percutaneous silver wire suture ensures ideal scars. Another means to avoid stitch-hole suppurations is to remove the threads promptly, and incise parallel to the folds of the skin, as, for instance, circular in operating on the neck. An incision made on this principle gapes so little that the stitches can safely be removed as early as the second day. Another advantage is that the scar remains linear and tends to shrink instead of broadening.

70. **Softening and Rupture of Esophagus.**—Beneke comments on the 25 observations of rupture of the esophagus on record. The subjects were usually drinking men, and the rupture occurred during convulsive vomiting. In 11 cases of softening of the esophagus which he has discovered at necropsies, the microscopic findings indicated that the process was intravital. He suggests as a possible explanation that the gastric juice may become corrosive under the influence of some severe disease, such as tuberculous meningitis, peritonitis or cancer. If the cardia should relax the gastric juice might find its way into the lower part of the esophagus and, stagnating there, injure the walls and entail their softening with consecutive rupture. If a pleural effusion should be noted it would presumptively confirm the existence of such a rupture, and aspiration would show either a simple effusion or stomach content. To decide the question the necropsy should be done early, and the body should be laid in the ventral decubitus in order to prevent postmortal softening at other points.

72. **Operative Treatment of Cicatricial Lockjaw.**—Manasse illustrates several ways of treating cicatricial lockjaw. He followed Israel's technic, slightly modified, in the case described, taking a flap from the neck to cover the gap left by resection of the corner of the mouth on each side.

73. **Therapeutic Application of Permanent Pressure.**—Heermann has been using for several years a mode of local treatment by permanent pressure. He illustrates the various devices which have proven their usefulness in his experience, an elastic wet sponge, a rubber bag or cushion, placed on the part, with a folded compress opposite, the whole strapped tight by a broad strap wound once or twice around the region and buckled. The most effectual is the rubber cushion, inflated after it has been strapped to the part. The aim is to apply compression only at one or two points, not circular. He uses permanent compression to reduce swellings, to maintain what has been accomplished in treating stiff joints and cicatricial contractions, especially after burns and after injuries liable to cause stiffness. Superheated air can be applied with the part thus dressed.

Monatshefte für prak. Dermatologie, Hamburg.

Last indicated page 577.

- 78 (XXXVIII, No. 11.) Keratosis circumfilaris (Keratosis plilaeae engainante). C. Andry.
- 79 Ueber einige neue Färbungsmethoden mit Anwendung der Zenkerschen Färbungssilberfärbung in der histologischen Technik der Haut (of skin). Felagatti.
- 80 Ueber das gehäufte Auftreten von Talgdrüsen an der Innenfläche des Praputium (sebaceous glands in prepuce). E. Delbanc.
- 81 Caseln-Albumosesäure (a permanently neutral soap). Ibid.
- 82 (No. 12.) Fa) von Lichen pemphigoides. S. Meedes da Costa.
- 83 Zur Infektiosität des Gumma. E. Delbanc.
- 84 (XXXIX, No. 1.) Psoriasis vulgaris der Haut und Schleimhaut ihre pathologische Stellung und Ätiologie. P. Thimm.
- 85 Der therapeutische Wert des "Arbovin" als Antigonorrhöikum. Harmsdesinfektions und Prophylaktikum. J. A. Goldmann.
- 86 (No. 2.) Ueber Keramina-Seife (soap). P. G. Unna.
- 87 Meine Methode zur Aborrbehandlung der Gonorrhoe. C. Engelbreth.
- 88 Kerion bei Mikrosporie. Bargum.
- 89 (No. 3.) X-Zellen und hyaline Körperchen im Haut-Epithelium. A. Pasini.
- 90 Weitere Studien zur Aufklärung der chemischen Natur des Welzert'schen und Unna'schen Elastinfarbstoffes nebst Mitteilungen über Schnellfärbung des elastischen Gewebes und neue schnellfärbende Elastin-Farbstoffe (stains). A. Pappenheim.
- 91 (No. 4.) Ueber multiple neurotische Haut-Gangrän. D. Latte.
- 92 Exstirpations- und Operationsfehler (operating pen). Dreyer.
- 93 Zur feineren Anatomie der Oberhaut (epidermis). F. Berling.
- 94 (No. 5.) Multiple neurotische Haut-Gangrän (of skin). A. Brandweiner.
- 95 (No. 6.) Ueber bezüglich einiger pseudoparasitärer Krebsgeschwülste (cancer cell inclusions). P. G. Unna.
- 96 Die Epithelome und ihre Behandlung. V. Mihelli.

83. **Infectiousness of Gumma.**—Delbanc reports a case and reviews 4 similar ones previously published by others, in which an ulcerative tardy syphilitic on the genitals transmitted syphilis to the wife. He is inclined to think that the rarity of such occurrences is due to the fact that gummatous growths are usually located at points where direct transmission is scarcely possible, for instance, on the periosteum. As the gumma can transmit infection, it follows that it must necessarily still harbor the syphilitic virus. The gumma indicates the presence of living virus. The manifestations in

the late stage of syphilis are, therefore, not essentially different in regard to their etiology from the products of the secondary stage. The danger of direct or hereditary transmission of the infection during the gummatous stage is very remote, but, at the same time, a positive prognosis against such infection is impossible. In conclusion he reviews recent communications on the subject, citing von Zeissl, whose views agree with his own.

91. **Multiple Cutaneous Gangrene.**—Latte has had occasion to observe 3 typical cases of multiple gangrene of the skin, and from his experience and that of others he is inclined to regard them as self-inflicted injuries. The subjects were all women and all exhibited signs of hysteria. Another point was that the left side was the one affected, where the subjects could easily reach the parts with the right hand. He thinks that a number of cases recorded as tropho-neurotic processes belong in this category, although he does not deny the existence of the latter, and presents a few examples from the literature.

92. **Operating Pen.**—Dreyer has found very useful a small scoop the shape and size of an ordinary steel pen. It is fastened in an ordinary penholder, and persons who shrink from any operation requiring a knife never make the slightest objection to the use of this operating pen. A fold is taken up in the skin and after it is frozen under ethyl chlorid, the pen is passed flat through the fold, as deep as may be necessary. It is thus possible to remove warts, nevi, molluscum contagiosum, incipient cancriods, etc., with the minimum of annoyance to the patient. Scraps can also be obtained for histologic examination without objection on the part of the subject. Dreyer gives an illustration of his pen, but refrains from saying anything in this connection about the pen being mightier than the sword.

94. **Multiple Neurotic Gangrene of the Skin.**—Brandweiner's case was that of a neuro-psychopathic individual presenting multiple gangrene at points on the legs and later on the trunk. The affection had lasted about four years, finally involving the arms and face. The lesions at first resembled herpes zoster, but each terminated in actual superficial gangrene of the skin. The patient submitted to a number of tests with chemicals, but none induced a reaction differing in any respect from those observed in normal subjects. The remarkable phenomenon was noted, however, that serum from the blisters, injected at other points, caused other blisters and final gangrene, while the same serum, injected into other subjects, induced nothing of the kind. Blood serum from the patient behaved the same, but with a weaker action. He suggests that the neurotic influence caused the production of some chemical agent (toxin), which caused the efflorescence and final gangrene on a predisposed soil. Not the slightest effect on the lesions was obtained with any therapeutic measure. The lesions were treated locally, with antiseptics, but even cauterizing with carbolic acid was unable to prevent the development of the gangrene. He reviews other articles on the subject of true spontaneous gangrene. Singer has pointed out that the absence of any peripheral redness as an indication of inflammatory reaction, speaks against a self-inflicted injury.

95. **Pseudo-Parasitic Cell-Inclusions in Cancer.**—Unna describes certain phases of degeneration of the cells when invaded by cancer, especially the degeneration of the nuclei. Fragments of the nuclei break off and their aspect, as he describes in detail, is remarkably like that of Plimmer's corpuscles.

96. **Treatment of Epithelioma.**—Mibelli does not hesitate to proclaim that it is possible to cure epithelioma completely and permanently with local application of arsenious acid. He has been using it since 1897, and 15 out of 20 patients thus treated have been permanently cured. He describes his experimental and clinical research to determine the mechanism of its action, and relates his conclusions in regard to the indications for this treatment. Even in the cases in which it offers little prospect of a cure, it may be found an excellent palliative. It does not interfere with the application of other

measures later. He uses a stronger concentration than Truncheon, generally 1 per cent., occasionally .5 per cent., and sometimes 2.5 per cent. He has further combined it with ether, in the proportion of 1 part arsenious acid, 20 parts ether and 30 parts alcohol. A peculiarly convenient form of applying it to the face is in a gelatin, containing 1, 2 or 3 per cent. arsenious acid. Recent research has shown that the drug is "ionized" through the gelatin just as effectually as in an aqueous solution. A cotton wad is impregnated with the fluid and is pressed firmly on the surface of the epithelioma after the latter has been cleaned and freshened. A permanent bandage is then applied above, the dressing renewed every day for four or five days. The epithelioma heals in a month or so, leaving a smooth, small, scarcely apparent scar, unless it is peculiarly malignant, but even in this event more or less permanent improvement is realized. If recurrences develop later, further application of the arsenious acid will cure them permanently. In his experience the alcohol-ether mixture proved most effectual applied under a tight dressing. This communication was one of the addresses at the recent international congress of dermatology, and gives the particulars of each case treated.

Münchener medicinische Wochenschrift.

- 97 (Ll. No. 39.) *Neurologie und Orthopädie. O. Vulpius.
 98 *Diagnose und Behandlung der Gallensteinkrankungen (gallstones). J. Decker.
 99 Zur Lehre von der akuten Leukämie. F. Pfannkuch.
 100 Ueber vierantretenden Heftpflaster, im besonderen über Zoster erythematosus und Zoster vegetans. H. Vorner.
 101 Ganglion am Knie-Gelenks-Menisiskus. A. Ebner.
 102 *Plombierung des Canalis caroticus. Notiz über partielle Resektion des Ganglion Gasserel und über Einfallspforten der Osteomyelitis und Tuberkulose. S. v. Gürbelski.
 103 Ueber subjektive Kakosmie. J. A. Killian.
 104 Behandlung eines Thorax-Empyems mittels der Müllerschen Dauer-Kanüle bei einem 5 monatlichen Kinde. K. Barth.
 105 Zur Therapie der Leukoplakia urethralis. H. Ludwig.
 106 Hereditäre Transmission of a Six-fold Deformity. R. Hillbert.—Vererbung einer 6-fachen Missbildung an allen 4 Extremitäten durch 3 Generationen.
 107 Ueber Bronchoscopie. H. Neumayer. (Commenced in No. 38.)
 107½ Carl Welgert. Obituary.
 108 Prevention of Pregnancy. H. Kraft.—Indikationen und Mittel der Schwangerschaftsverhütung.

97. **Neurology and Orthopedics.**—Vulpius is anxious to draw the attention of neurologists and physicians in general to the borderland between neurology and orthopedics. The borderland affections are the most interesting and the most promising of all that come to the orthopedist. The results of tenotomy are really surprising in many instances. The prospects are better the more circumscribed the paralysis and the greater the functional capacity of the muscles supplying the power, but success is obtained even when an antagonist muscle is utilized. He believes that the antagonist muscle always acts during a co-ordinated muscular movement, and that when it is transplanted it assumes the rôle of the muscle it substitutes, although after-exercises are necessary to accomplish the desired result. He describes what he calls tenodesis, midway between tenotomy and arthrodesis, which cures a flail joint by shortening all the tendons surrounding it. The transplantation method of treating the results of injuries and affections of the nerves, with resulting dystrophy, is a particularly promising field. He never delays a moment to recommend it in presence of an irreparable, isolated radial paralysis, etc., as also for obstetric plexus paralysis. Intercostal neuralgia accompanying scoliosis is frequently due to compression of the nerves, and can be relieved by orthopedic treatment of the spine, with resection of the compressing rib in extreme cases. He adds that the Sauerbruch air chamber may possibly prove an aid in this line. He devotes much space to the orthopedic treatment of poliomyelitis and its consequences, asserting that there are very few cases in which it is not possible to essentially improve or cure the patient by carefully individualized orthopedic treatment. Orthopedic appliances or orthopedic surgery can also afford valuable results in transverse myelitis, and the former will be found useful in tabes, not only for the spine, but for the knee and ankle. Splints check the use of the limb somewhat, and relieve the weight while counteracting the destructive process in the cartilages of the joint. An actual curative action can be

ascribed to them in tabes and syringomyelia unattainable by any other means. In case of spondylitis, gradual forcible correction of the hump may prevent development of paralysis or cure it. If this fails or is not applicable, laminectomy should be considered. The prognosis is most favorable when the spondylitis is already healed and the compression of the spinal cord is due merely to a fragment of bone or thickened tissue. He has been very successful with tenotomy in a number of cases of paralysis subsequent to apoplexy.

98. **Gallstone Affections.**—Decker remarks that he has found gallstones in 10.6 per cent. of all his necropsies during the last two years. Riedel estimates that there are two million suffering from gallstones throughout the German empire, but the local frequency varies, the highest percentage to date having been found at Strasburg, where 25.2 per cent. of all the cadavers over 60 years old present gallstones. Decker emphasizes the importance of examination of the liver region in every person suffering from a stomach affection. The latter is frequently merely the first symptom of gallstones. Icterus is absent in fully half the cases of the latter. Carcinoma of the gall bladder developed on a basis of cholelithiasis in 14 per cent. of his cases. He goes over the various points for the diagnosis and states that acute, mild cholecystitis, the attacks which terminate with expulsion of stones, and acute occlusion of the bile duct, all these require internal treatment alone. Operation is frequently but not absolutely indicated in processes in the biliary passages threatening perforation, in hydrops of the gall bladder and in severe acute cholecystitis. He warns that the disposition to gallstone affections is frequently acquired during school life, but can be avoided by sports and hygiene. In treatment he advises six to eight glasses of Carlsbad water at the natural temperature (that of the Sprudel is nearly 160 F.), which can be taken at home, supplemented by application of heat to the abdomen or liver region in bed for two or three hours, followed by a hot bath and renewed heat to the liver region for an hour. This treatment is repeated morning and afternoon, with deep breathing exercises. If the subjects go a year without trouble he advises a repetition of the course for three or four weeks. When physicians learn to diagnose gallstone affections earlier, when they systematically examine the liver region in every case of stomach trouble, and when they treat the gallstone affection so soon as diagnosed on the energetic lines here suggested, the internists will win back a large part of the domain which has passed into the hands of the surgeons solely from the neglect of diagnosis and treatment by the internists.

102. **Metal Filling for Carotid Canal.**—The gasserian ganglion was resected in the case of the douloureux and psychosis described. The operation was accompanied by severe hemorrhage from the sinus cavernosus, which persisted only temporarily controlled by tamponing. As a last resource the services of a dentist were secured, and the gap in the temporal bone over the carotid canal was plugged with an amalgam filling, like a cavity in a tooth. The operative results were so satisfactory that they should encourage further trials of this application of dentists' fillings in general surgery. In conclusion, a mode of access to the gasserian ganglion is proposed which allows much ampler oversight than other technics, but has not yet been tried on man.

Therapeutische Monatshefte, Liebreich's, Berlin.

- 109 (XVIII, No. 2.) Die neuesten Arbeiten über Immunisierung gegen Tuberkulose. A. Gottstein.
 110 Die Verwendung von Formalin zur Konservierung von Nahrungsmitteln. O. Liebreich.
 111 Die Behandlung der akuten und chronischen Gonorrhoe des Mannes. F. Bering.
 112 *Use of Condiments with Food. O. Liebreich.—Ueber den Nutzen der Gewürze für die Ernährung.
 113 Influence of Alkaline Mineral Waters on Elimination of Nitrogen and Urea. A. Gilardoni.—Beitrag über den Einfluss des alkalischen Mineralwassers auf Stickstoff- und Harnsäureausscheidung.
 114 *Die epiduralen Injektionen und ihre Anwendung insbesondere bei den Krankheitsen der Harndwege. A. Strauss.
 115 Origin of Phthisis. E. Fink.—Ueber Lungenhwindstehentstehung und Tuberkulosebekämpfung.
 116 Diphtherie-serum und Suggestion. W. G. Esch.
 117 Chronic Diseases and Mountain Climate. Aut. Hoessli.—Chronische Krankheiten und Alpenklima. (Commenced in No. 1.)

112. Uses of Condiments with Food.—Liebreich presents scientific data to show that condiments are by no means mere luxuries, but are stimulants to the appetite or serve some other physiologic purpose. Mustard, for instance, aids the chemistry of digestion by destroying the putrefaction bacteria, and also by stimulating the gastric secretions, like wine or brandy. As with the latter, too large amounts induce injurious hypersecretion or habituation. It is possible that the active principle of the mustard, absorbed into the blood, may display disinfecting powers. His experimental research unmistakably demonstrated that an internal disinfection had been realized after administration of non-fatal doses. It has been found that prisoners remain in better health and appetite when condiments are allowed, than without. Baer states that stomach troubles have been much less frequent in the prisons since this has been recognized. The psychic factors which enter into appetite and digestion, and which are lacking in prisons, are partly substituted by the use of condiments.

114. Epidural Injections.—Strauss is an ardent advocate of Cathelin's method of epidural injections. He here relates his successful application of them in 7 cases of enuresis, 5 of pollutions, 2 of spermatorrhea, 1 of prostaticorrhea, 2 of impotence, 1 of sexual neurasthenia and 1 of pruritus pudendi. They frequently prove successful after failure of all other measures. They generally induce marked improvement, and frequently a complete cure, although relapses may follow. They will be found especially useful in enuresis infantilis, incontinence without mechanical cause, pollutiones nimie, impotence, spermatorrhea and neuropathic polyuria.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Land inländ. page 380.

- 118 (LII, No. 1.) Treatment of Closure of Female Genitalia. M. Hofmeier (Würzburg).—Ueber congenitale und erworbene Verschlüsse der weiblichen Genitalia und deren Behandlung.
- 119 Die Ätiologie der Kraurosis vulvæ. P. Jung.
- 120 *Ueber die Bedeutung des Fiebers in der Geburt (significance of fever in childbirth). E. Ihm (Königsberg).
- 121 Zur Ätiologie des Prolapses der weiblichen urethra (In woman). L. Kleinwächter.
- 122 Fall von Chorio-Epitheliom nach Tubar Gravidität. G. Hinz.
- 123 (No. 2.) Zur Lehre von Chorion-Epitheliom. Hammerschlag.
- 124 Ovum-Formation. W. Lippmann.—Ueber "Eibildung" in Carcinomen des Ovariums.
- 125 Zur Lehre von den Adenomyomen des weiblichen Genital-Tractes. F. Kleinhaus.
- 126 Zur secundären Bauchhohlenschwangerschaft (abdominal pregnancy). F. Früssmann.
- 127 *Ueber histologische Indicien des Chorloepithelioma benignum. D. v. Velts.

120. Significance of Fever in Childbirth.—The simpler, the more rapid, and the more natural the delivery, in case that fever is observed, the greater the chances that the puerperium will progress favorably and that the temperature will approximate normal. The height of the fever and chills intrapartum are no criterion of the seriousness of the case. The behavior of the pulse is the main point for prognosis. When the pulse rate is high the prognosis is less favorable, even although the temperature may decline. Fever with the bag of waters intact seems to have a more favorable prognosis. These conclusions were deduced by Ihm from study of 200 cases of fever intrapartum. The most important factor in its etiology is the premature or early rupture of the membranes. Long protracted delivery after the rupture does not seem to affect the prognosis unless it lasts more than three days, and the fever sets in soon after the membranes rupture. The prognosis for primiparæ is only a trifle less favorable than for multiparæ and the latter are much more liable to have a febrile puerperium than the former when the birth has proceeded normally.

127. Histologic Indications of Benign Chorioepithelioma.—Velts remarks that about 200 cases of chorioepitheliomas are on record, and the opinion seems to be gaining ground that the possibilities of a permanent cure are even better than in case of sarcoma or carcinoma. On the other hand, some cases seem to be even more rapidly fatal. The microscopic findings in the cases that proved to be benign, invariably indicated a diminished vitality of the Langhans cells, evidenced by the scanty or lacking mitosis. This absence of mitosis was ac-

companied by the appearance of migrating cells, which indicate the dissolution of the syncytium. These cells are the products of the degeneration of a chorio-epithelioma, as well as of a hydatidiform mole undergoing destruction.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from the volumes will be made for review, as dictated by their merits, or in the interests of our readers.

QUANTITATIVE ANALYSIS BRIEF. By Allard Memminger, M.D., Professor of Chemistry, Hygiene and Clinical Urinary Diagnosis in the Medical College of the State of South Carolina. Second Edition, Revised and Rewritten. Cloth. Pp. 124. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

NEW METHODS OF TREATMENT. By Dr. Lamouler. Translated and Edited from the Second Revised and Enlarged French Edition by H. W. Syers, M.A., M.D., Cantab., Physician to Out-patient Great Northern Central Hospital. Cloth. Pp. 320. Price, \$2.50 net. Chicago: W. T. Keener & Co. 1904.

CLINICAL DIAGNOSTIC BACTERIOLOGY, Including Serum Diagnosis and Crystals. By Alfred C. Coles, M.D., D.Sc., F.R.S. Edin. With Colored Plates. Cloth. Pp. 237. Price, \$2.75 net. London: J. and A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1904.

SULPHUROUS ACID AND SULPHITES AS FOOD PRESERVATIVES. By C. E. Gaim, Ph.D., Member American Chemical Society and Society of Chemical Industry. Paper. Pp. 34. Hygienic Chemical and Research Laboratory, Chicago.

THE DIVISION OF SURGERY OF THE MEDICAL SCHOOL OF HARVARD UNIVERSITY. Report of Research Work, 1903-1904. Bulletin No. 111. Paper. Pp. 53. Boston.

SAUNDERS' QUESTION COMPENDS.

ESSENTIALS OF BACTERIOLOGY. By M. V. Ball, M.D., Formerly Resident Physician at the German Hospital, Philadelphia. Fifth Edition, Thoroughly Revised. By Karl M. Vogel, M.D., Assistant Pathologist at the College of Physicians and Surgeons (Columbia University), New York City. Cloth. Pp. 343. With 96 illustrations, Some in Colors, and Six Plates. Price, \$1.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

ESSENTIALS OF NERVOUS DISEASES AND INSANITY: Their Symptoms and Treatment. By John C. Shaw, M.D., Late Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School, Fourth Edition, Thoroughly Revised. By Smith Ely Jelliffe, Ph.D., M.D., Clinical Assistant, Columbia University, Department of Neurology. Fully illustrated. Cloth. Pp. 196. Price, \$1.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

ESSENTIALS OF MATERIA MEDICA AND PRESCRIPTION WRITING. By Henry Morris, M.D., College of Physicians, Philadelphia. Sixth Edition, Thoroughly Revised. By W. A. Bastedo, Ph.D., M.D., Tutor of Materia Medica and Pharmacology at the Columbia University (College of Physicians and Surgeons), New York City. Cloth. Pp. 295. Price, 1.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

ESSENTIALS OF ANATOMY: Including the Anatomy of the Viscera. By Charles B. MacCord, M.D., Professor of Surgery and Clinical Surgery in the University of Michigan, Ann Arbor. Seventh Edition, Thoroughly Revised. Fully illustrated. Cloth. Pp. 419. Price, \$1.00 net. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

NEW PATENTS.

Recent patents of interest to physicians, etc.:

770152. Combined hospital wagon and operating table. Peter K. Bechtel, Pittsburg, Pa.
769741. Atomizer. Isaac Q. Gurnee, Butler, N. J.
769798. Vibrator. Benjamin L. W. and E. Hanfield, New York.
769952. Truss. Bernhard Lindman, Montreal, Canada.
770013. Inhaler. Samuel H. Linn, Rochester, N. Y.
770014. Electromedical appliance. Samuel H. Linn, Rochester, N. Y.
769755. Breathing apparatus. Charles W. Madsen, Chicago.
769829. Surgical instrument. Irvine K. Mott, Cincinnati.
770023. Crutch. Wm. A. Phillips, St. Louis.
770208. Ear. Edward C. Talbot, West Mansfield, Ohio.
770798. Massage apparatus. Charles Adams-Randall, New York.
770452. Vaginal syringe. Henry Carstens, Chicago.
770519. Massage device. Hiram A. Dow, Battle Creek, Mich.
770275. Antiseptic compound and making same. Herman Endemann, New York.
770368. Surgical instrument. Albert C. Heath, St. Paul, Minn.
770645. Pneumatic eye exerciser and tester. Gustav E. Lundgren, Elgin, Ill.
770739. Syringe nozzle. Robert F. Coleman, Philadelphia.
771086. X-ray tube. Carl H. F. Muller, Hamburg, Germany.
771600. Douche apparatus. Wm. J. Bauer, Syracuse, N. Y.
771268. Abdominal supporter and truss. Benjamin F. Lacy, Pekin, Ill.
772114. Syringe. Victor Pappenheim, Kassel, Germany.
771846. Invalid lifter and conveyer. Orrin B. Thompson, Jersey, Ohio.
771847. Curative couch. John Titus, Oyster Bay, and W. Titus, O'd Westbury, N. Y.
772197. Surgical appliance. Paul Weaver, Rochester, N. Y.
772318. Artificial limb. Henry Wennebor-Jr., Springfield, Ill.

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Original Articles.

A SERIES OF MISTAKEN GYNECOLOGIC DIAGNOSES.*

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BALTIMORE.

While it is advisable to chronicle our successes in diagnosis and treatment, I think it is equally necessary for us occasionally to look back and see where we have failed to make an accurate diagnosis before operation, or to critically review our judgment in a given case to ascertain if, in a subsequent and similar case, we could not do better.

From a perusal of the literature one is often led to believe that the exact nature of abdominal tumors is easily determined before operation. While this is undoubtedly true in the greater number of cases, yet it is well to remember that in a goodly number of instances, before operation, it is only possible to determine that the operation is necessary, the exact nature of the malady only being ascertainable when the abdomen is opened. From the accompanying group of cases, which I report in detail, the surgeon who does not always make a positive diagnosis before operation, or the one who may perchance render an erroneous opinion, will possibly derive a certain amount of comfort.

CASE 1.—**Diagnosis:** Very large ovarian cyst. **Actual condition:** A partially parasitic uterine myoma, associated with 51 liters of ascitic fluid. (Fig. 1.) **Recovery.**

Patient.—Woman, aged 54, unmarried, was admitted to the Church Home, Oct. 29, 1902, complaining of marked abdominal enlargement.

Examination.—Her face presented a drawn, pinched appearance, and she was very thin. The abdomen was tremendously and uniformly distended. From the pubes to the sternum in the mid line there was dullness, in both flanks tympany, and on percussion a very distinct wave of fluctuation was easily detected. A diagnosis of ovarian cyst was made, and after a delay of a few days, on account of a slight bronchitis, the abdomen was opened.

Operation.—We found the peritoneum much thickened. The great distension was due to ascitic fluid. Attached to the fundus by a very small pedicle was a myomatous nodule 16 cm. long (Fig. 1). Plunging into the upper or free surface of this nodule were a large number of blood vessels, each about 3 or 4 mm. in diameter, tortuous and closely resembling angle worms. On tracing them upward they proved to be the enlarged omental vessels. The omentum as such was recognized as a fringe not more than 5 mm. long, projecting from the lower edge of the transverse colon. The altered omental vessels were exceedingly friable and ruptured on the slightest manipulation. The parasitic myoma derived part of its blood

supply from the bladder, to which it had become intimately attached. After tying off the blood supply of the myoma, this growth was removed and the patient made a rapid recovery.

In this case I had to rely entirely on the physical signs, as the patient was of unsound mind, and up to the day of operation no history could be obtained. The facial expression and the abdominal signs tallied in every particular with those referable to an ovarian cyst, and without the clinical history a correct diagnosis was impossible. The tympany in the flanks is, on first thought, difficult of explanation, but when we remember that this myoma with the omental vessels attached stretched almost the entire length of the abdomen, it is readily seen that the small intestines were held back and at the same time forced out laterally. Under any circumstance there would have been dullness over the entire anterior abdomen, as the intestines, even if not held back by the tumor and omental vessels, could not have reached the surface, their mesentery not being long enough. I know of no instance in the literature where such a large quantity of ascitic fluid was associated with a myoma. The condition in this case was analogous to that found where a fibroma of the ovary exists. In the latter we have a solid tumor so moving that there is often partial torsion of the vessels bringing about the outflow of ascitic fluid. In our case the myoma rolled around so much that the omental vessels were partially twisted. This was undoubtedly the case, as is shown by the fact that there has been no further appearance of the ascitic fluid since removal of the myoma. Had this patient been in the possession of her mental faculties the diagnosis would have been fairly certain, as the family physician told me at the time of operation that he had first noticed a hard abdominal tumor attached to the uterus and that the ascites had developed subsequently.

Schwarzenbach¹ reports a most interesting case. The patient was 30 years old and the mother of six children. In 1896 she had a pelvic hemocele, with pronounced symptoms of internal hemorrhage. In 1897 a subperitoneal myoma the size of a child's head was detected. In 1899 she gave birth to a child, and in 1901 an exploratory abdominal section was made. Numerous arteries and veins springing in the vicinity of the stomach lay perfectly free in the abdomen, and passing downward spread out on the surface of the subperitoneal uterine tumor. Considerable ascitic fluid was present in the abdomen. The abdomen was closed, as the growth was thought to be malignant. The patient improved, and in 1902 the abdomen was again opened. The omentum, which at the first operation showed marked atrophy, had now entirely disappeared. The patient was two months

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

1. E. Schwarzenbach: *Eigenhämliche Entartung des an einem Uterusmyom adhärenten Netzes, Beiträge zur Geburtskunde und Gyn. Rudolf Chrobak. Aus Anlass seines sechzigsten Geburtstages. Gewidmet von seinen Schülern und Freunden, vol. 1, p. 220.*



FIG. 1.—A PARTIALLY PARASITIC UTERINE MYOMA ASSOCIATED WITH 51 LITERS OF ASCITIC FLUID.

Attached to the fundus by a narrow pedicle is a subperitoneal myoma. Plunging into the top of the myoma are the omental vessels. The omental fat has almost entirely disappeared. The myoma is intimately blended with the posterior surface of the bladder. The abdomen is markedly distended with ascitic fluid. The small intestines were effectually held back by the tumor and omental vessels.

pregnant. The large vessels were tied and the myoma was removed. The pregnancy was in no way disturbed. All trace of the pelvic hemocele had disappeared except for the presence of some pelvic adhesions.

It seems quite probable that the hemocele in this case was due to rupture of one of the omental vessels instead of to the rupture of a tubal pregnancy. This case has many points in common with ours.

CASE 2.—Diagnosis: Myomatous uterus. Actual condition: Adenocarcinoma of the body of the uterus, with secondary subperitoneal nodules. (Fig. 2.)

Patient.—Mrs. C., aged 59, was admitted to the Johns Hopkins Hospital, April 22, 1903. She had had three children. Menses stopped at 49. Four years ago uterine hemorrhages commenced and lasted several months. Since then they have been irregular. There is a continual leucorrhœal discharge with some odor.

Examination and Diagnosis.—On vaginal examination we found the uterus about twice the natural size. It was quite nodular. As the patient was in good condition and had a nodular uterus which in general contour corresponded closely with a myomatous uterus (Fig. 2), we made a diagnosis of myoma, especially as the hemorrhages could readily be accounted for by the presence of myomata and since the vaginal discharge was but slightly offensive.

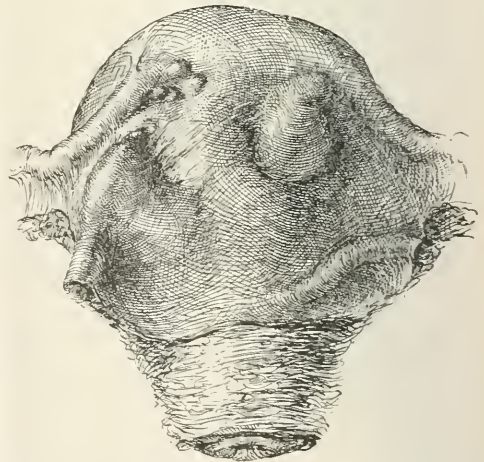


FIG. 2.—ADENOCARCINOMA OF THE BODY OF THE UTERUS WITH SUBPERITONEAL NODULES.

The specimen is viewed from the front. The right round ligament is drawn upward by a cancerous nodule situated at its junction with the uterus. Scattered over the surface of the uterus are cancerous nodules varying from a pea to a marble in size. The insertion of the left round ligament is at a much lower level than is that of the right round ligament. The general contour of the enlarged and nodular uterus closely resembles that of a myomatous organ.

Operation.—At operation we found the uterus as I have described, but the nodules that were supposedly myomata were at points at which the cancer of the body of the uterus had extended to the surface. Here they formed raised nodules beneath the surface and at several places had become attached to the intestines. Complete hysterectomy was performed. The patient made a temporary recovery, but it is doubtful if the entire growth was removed.

In this case mere curettage, even without a microscopic examination, would have been sufficient to establish the diagnosis. But in cases where myoma is diagnosed and hysterectomy advised, we hardly deem it necessary or wise to curette.

CASE 3.—*Diagnosis:* Subperitoneal and intraligamentary myomata. *Actual condition:* Hydrosalpinx, adenocarcinoma

of the right side, and very prominent, was what appeared to be a subperitoneal myoma about 5 cm. in diameter. The right side of the pelvis was filled by a growth which apparently sprang from the uterus and filled the broad ligament. This growth in contour and consistence resembled a myoma.

Operation.—On opening the abdomen (February 2) I found the uterus moderately enlarged. The supposed subperitoneal myoma proved to be a very tense hydrosalpinx which was kinked forward, thus accounting for its prominence. The growth on the right side was a carcinoma of the ovary. It filled the broad ligament and had infiltrated the bladder wall. Attached to the cancerous mass was the omentum and a loop of small gut. As the gut at this point was markedly constricted, I attempted by gentle dissection to release it, but the bowel was so infiltrated by cancer that it commenced to tear and resection of a portion was imperative. It was decided that



FIG. 3.—TUMOR OF THE SIGMOID FLEXURE DUE TO RUPTURE OF DIVERTICULA INTO THE SURROUNDING ADIPOSE TISSUE. SMALL PELVIC ABSCESS.

The lumen of the bowel below the promontory of the sacrum is considerably narrowed. At this point is a definite tumor made up of adipose tissue. Projecting into it are two diverticula, one seen in longitudinal, the other in cross section. At the point indicated by the three arrows the diverticulum has given way and its contents have percolated through fat. This fat on histological examination showed evidence of acute and chronic inflammation, thus accounting for the denseness of the tumor. Between the tumor and the pelvic floor is a small abscess.

of the right ovary, involvement of the small bowel and marked extension to the bladder.

Hysterectomy, partial removal of the cancerous growth, resection of a portion of the small bowel; temporary recovery.

History.—On Jan. 25, 1904, I saw the patient, who was 48 years of age. Her menstrual periods continued regularly until she was 44. Since then the flow has appeared every three or four months, and there has been a slight vaginal discharge. Two years ago she passed a calculus, apparently from the left kidney.

Examination.—On vaginal examination I found the uterus half as large again as normal. Projecting from the fundus on

the only hope of even temporary relief would be hysterectomy with as thorough removal of the growth as possible. This was done, but a raw, green, offensive, cancerous area, fully 6 cm. in diameter, remained attached to the surface of the bladder. Three inches of the bowel were then resected and the ends united by means of the Connell suture, supplemented by the Lembert suture. The anastomosed bowel was then placed among healthy loops of gut as far removed from the necrotic area as feasible. The pelvis was drained through the vagina and abdomen. The patient recovered promptly, but naturally still has a small abdominal sinus. We have employed a retention catheter continuously, as even its temporary removal was

promptly followed by the signs of ascending renal infection. The patient is now in fairly good condition and has been entirely relieved of abdominal distension and cramps, to which she was subjected for some time prior to the operation.

In this case the clearly outlined subperitoneal nodule associated with the growth on the right side gave us a clinical picture very characteristic of multiple myoma, and this diagnosis was further strengthened by the healthy appearance of the patient. Some may doubt the wisdom of attempting any operative procedure in these cases, but in the liberation of the constricted and friable intestinal loop the bowel was opened, and then the more radical procedure seemed to offer the best chance of temporarily relieving the patient. In this case an absolute diagnosis would have been impossible without opening the abdomen.

CASE 4.—Diagnosis: Pelvic abscess, with retroverted myomatous uterus. Actual condition: Rectal diverticula, with rupture into the surrounding rectal fat, producing a definite tumor. Small abscess between the tumor and the pelvic floor. (Fig. 3.)

History.—This patient was seen early in February, 1904. She was 60 years of age. For some time she had experienced slight difficulty in defecation, and for a few days had been running a temperature varying from 100 to 103° F.

Examination.—On vaginal examination, I found the uterus somewhat enlarged. Posterior to it, and apparently continuous with it, was a globular mass. This was very hard and resembled a myoma in contour. There was, however, a hard ridge over its lower portion, as is so often noted where pelvic abscess exists.

Operation.—On February 13 I made a small incision in the vaginal vault just posterior to the cervix, and after peeling back the mucosa entered Douglas' pouch with a pair of blunt artery forceps. A very small amount of pus and a few flakes of fibrin escaped, but the mass was in no way diminished in size. Realizing the presence of an unusual condition, I packed the opening in the vault and immediately entered the abdomen from above. Filling Douglas' sac almost completely was a tumor mass evidently springing from the sigmoid flexure, which had rotated 90° and had become firmly embedded in the pelvis. It closely resembled a rectal cancer. On careful manipulation it was brought out of the pelvis, and on inspection no lymph glands were demonstrable. The diseased segment of gut was removed and an end-to-end anastomosis done with Connell and Lembert sutures, the former being employed at the mesenteric junction and for about two-thirds the circumference of the gut. A portion of the descending colon was brought up into a small incision in the left inguinal region and made fast, so that if occasion demanded it could be opened with a thermocautery at a moment's notice. Drains were then introduced into the vagina and also through the lower angle of the abdominal incision. At the end of the fourth day there was considerable abdominal distension and the patient was very weak. We accordingly opened the descending colon at its point of attachment to the abdominal wall and at the same time forced the patient's nourishment. She promptly recovered. The small fistulous opening was a few weeks later readily closed under local anesthesia, and the patient is now perfectly well.

Examination of Tumor.—On laying the tumor open we found that there were two rectal diverticula passing out into the adipose tissues, and communicating with the lumen of the gut by openings not more than 1 mm. in diameter (Fig. 3). The larger diverticulum was 1 cm. in diameter and filled with a fecal mass. The floor of this diverticulum had given way, and the surrounding fat was everywhere infiltrated by inflammatory products. The excessive hardness of the tumor was due to the fat being in many places replaced by recent connective tissue. The small abscess between the tumor and the pelvic floor was due to the extension of the inflammatory process to the peritoneum of Douglas' pouch. The diverticula were lined by

atrophic mucosa. A rectal examination of this case would have yielded little beyond some narrowing of the lumen of the bowel, which is often present in cases of pelvic abscess. In this case cancer of the bowel might very readily have been diagnosed and a colostomy made.

It will be readily admitted that the preceding cases are unusual ones, and that a positive diagnosis before operation would have been extremely difficult. The possibility of such conditions should always be borne in mind when we are dealing with cases that at first sight seem so easy of diagnosis. While it is always very gratifying to be able to make an absolute diagnosis, yet in many cases it is only possible for us to give a tentative opinion before operation. In this group of cases, notwithstanding our inability to solve the riddle prior to operation, the outcome was as satisfactory as we could have anticipated under the existing circumstances.

ESOPHAGOSCOPY AND BRONCHOSCOPY.

E. FLETCHER INGALS, M.D.
CHICAGO.

Esophagoscopy has been practiced so long and is so familiar to some general surgeons as well as to laryngologists, that its history would not be of great interest. However, its great value in some cases calls for at least a word, and I wish to present the history of one very interesting case in which it enabled me to make a successful operation where other methods failed.

Bronchoscopy is of more recent origin and must become of great interest to laryngologists because of the aid that it affords in removing foreign bodies from the air passages, especially in cases that can not be relieved by tracheotomy alone, and also in many other cases where the resulting scar and the dangers of pneumonia render the latter operation objectionable.

The ease with which foreign bodies can usually be removed from the trachea and often from a main bronchus after tracheotomy, makes this latter operation preferable in most cases, but when the diagnosis is in doubt or when the foreign body has passed into one of the divisions of a bronchus, bronchoscopy affords a means not only of diagnosis, but of successful operation, infinitely superior to transthoracic bronchotomy.

We are greatly indebted to Prof. Gustav Killian of Freiburg, Germany, who first demonstrated the practicability of bronchoscopy, and whose paper, read to the British Medical Association August, 1902,¹ first brought us to a realization of the capabilities of esophagoscopy and bronchoscopy.

Bougies may pass foreign bodies in the esophagus without touching them, and sometimes the radiograph will not show objects because of their character or because they are hidden by the shadow of the vertebrae. On this account Killian says "direct esophagoscopy is the only absolutely reliable method."

In a recent article,² Eicken states that Desormeaux first perfected the principle in the urethroscopie, 1853. Killian states in his article that Kussmaul attempted esophagoscopy in 1868, but that the operation has been developed and perfected by von Mikulicz, von Hacker, Rosenheim and others, and that many foreign bodies have been removed by this method. However, "if the foreign body is large, has sharp edges, points or hooks, as, for instance, dental plates, all attempts at extraction

2. Aug. 22, 1904.

1. Journal of Laryngology, Rhinology and Otolaryngology, Sept., 1902.
2. Archives of Laryngology and Rhinology.

are dangerous; these may lead to fatal injuries of the gullet. In such cases esophagotomy is indicated. If the foreign body is situated no deeper than from 24 to 26 centimeters from the upper incisors (von Hacker); if deeper, gastrotomy or posterior mediastinotomy (Enderlin) is called for. An exception may be made in the case of vulcanite plates without large metallic parts." Killian also specially recommends direct laryngoscopy through a straight tube for detecting and removing foreign bodies from the larynx in children. He says: "In children insurmountable difficulties often arise (to ordinary laryngoscopy). In these cases direct laryngoscopy (Kirstein's autoscopia) can always be successfully employed, especially after administration of an anesthetic, the patient's head being in a dependent position. Of course, if there is much dyspnea a preliminary tracheotomy must be performed." He says that a similar procedure is even more valuable for foreign bodies in the trachea.

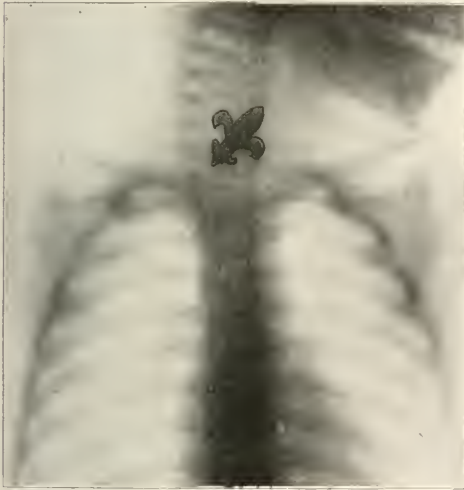


Fig. 1.—Case 1. Radiograph of fleur-de-lis chatelaine pin in esophagus, just above the level of the interclavicular notch. The pin has been outlined in black for the sake of clearness.

When foreign bodies have passed deeply beyond the main bronchi, bronchoscopy renders the greatest possible service, for the reason that we may thus locate and accurately grasp substances heretofore beyond our reach. Killian says: "We may, without fear, press the bronchi, which are highly elastic tubes embedded in soft tissue, into the median line, and bring trachea, larger bronchus and branch into one straight line."

I procured a set of Killian's instruments soon after reading his article, and have attempted their use for diagnosis in two esophageal cases for removal of foreign bodies in the esophagus in two cases, for removal of foreign bodies from the air passages in two cases. In the cases for diagnosis the first was satisfactory, but in the next, where a pin had been swallowed and had apparently passed into the stomach, the profuse secretions prevented a satisfactory examination. Of the next two cases, in one I made three or four efforts to introduce the esophagoscope, but had to quickly abandon it be-

cause the child could not tolerate chloroform; the other was successful, and in one of the last two I did not use the instrument at all because the electric light failed before the operation was begun, and I then removed the foreign body by tracheotomy; but in two most difficult cases, one of esophagoscopy and one of bronchoscopy, the operation proved entirely successful, where the ordinary surgical procedures completely failed. In the esophagoscopy I used Kirstein's lamp as a means of illumination as recommended by Killian, but in the bronchoscopy, although I tried this lamp, I obtained much more satisfactory illumination with a lamp placed on a longer carrier which I had made for the purpose.

In the article published by Killian, September, 1902, he states that bronchoscopy had up to that time been attempted in 20 cases, in 5 of which it proved a failure. Eleven of these cases were his own. He refers also to cases by Coolidge of Boston, von Schroetter, Wild of Zurich, J. A. Killian of Worms, Hajek, Eicken of Bruns, Neuneyer, Spiers, Thost and Spiess. Since the publication of Killian's article other cases have been reported, and the article just published by Eicken³ brings the record down to the present time with the

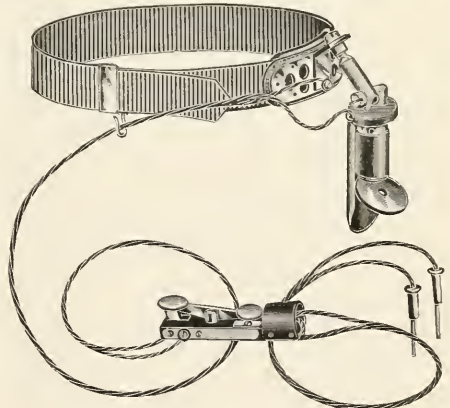


Fig. 2.—Kirstein's lamp.

exception of two cases of lower bronchoscopy, one by A. Schwyzer of St. Paul, and one by Bodmer, and my own case of upper bronchoscopy, a preliminary report of which was recently published.⁴ Eicken mentions the names of several others who have used bronchoscopy for diagnosis or more or less successful operations. Some of the cases were not published. In this list I find the names of Pienazek, Heryng, Schech, Schmidt of Odessa, Gust and Brunner, making all told 34 cases, of which 19 resulted in successful removal of the foreign body, 10 by upper and 9 by lower bronchoscopy. Eicken's article is very complete, and should be read by every one interested in the subject. In my search it is possible that some cases have been considered twice, but there appears all told to have been up to May of this year 14 successful cases of removal by lower bronchoscopy and 11 cases by upper bronchoscopy. Of the lower bronchoscopy, G. Killian has done 3, Coolidge 2 and Eicken, Neuneyer, Hajek, Spiess, Harrington, Wild and Lermoyez-Guisez. Bod-

3. Archives of Laryngology and Rhinology.
4. THE JOURNAL A. M. A.

mer and Schwyzer each one. Of the upper bronchoscopy Killian has done 5, H. von Schroetter 2, J. A. Killian 2, and Eicken and myself each one.

Killian and most of the other operators use the Kirstein lamp as the source of illumination. In my operation I had the Kirstein lamp; indeed, used it for a few minutes at the beginning of the operation, but in

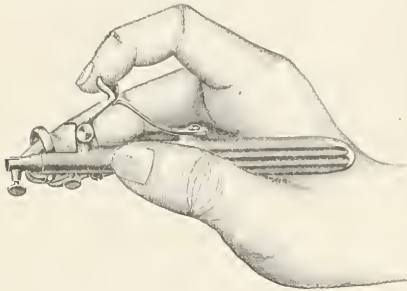


Fig. 3.—Handle for Killian's tube forceps.

this particular case I obtained better results with the small lamp (Fig. 7) introduced to near the distal end of the bronchoscope. This was not at all in the way in searching for the foreign body, and it gave me no inconvenience in swabbing out the secretions, for an assistant removed it instantly and reintroduced it when-

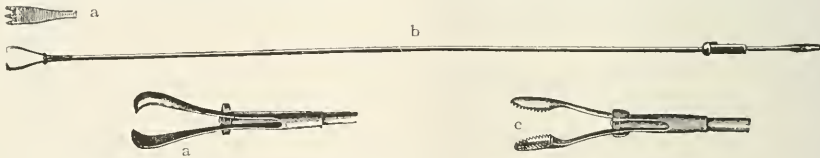


Fig. 3, continued—Killian's tube forceps. a. Sharp tooth, natural size. b. Stem 45 cm. in length. c. Safe forceps, natural size.

ever I wished. One great advantage of this source of illumination is that the operation can be done in a light room, whereas with the Kirstein lamp it must be in a darkened room.

It is a great advantage to the anesthetist to have the room light in order to watch the patient, and it is much more convenient for the operator in handling his various instruments. The small light in the bronchoscope enables the operator to move his head at will without interfering with the illumination, and it enabled me to show the branches of the bronchi and the pin in position to all the physicians in the room. I did not find the lamp carrier any obstruction to the introduction of instruments, for although it took a little room, this interference was more than compensated for by the better illumination. In examining branches of the bronchi too small for passage of the bronchoscope, one of these tiny lamps on a longer carrier might be passed directly into the bronchus. From my limited experience and from numerous experiments I have made with the bronchoscope, it appears to me that even with the Kirstein lamp which leaves the whole lumen of the bronchoscope available for instrumentation, it will rarely be possible to grasp the object while actually under inspection, for the head must be moved to allow introduction of instruments and the instruments themselves cut off a large part of the illuminating rays. These, I think, generally compel the operator to locate

the object, and then introduce his forceps in the right position and to the proper depth and close them in the dark. Fortunately, this can be done with almost as much accuracy as under actual inspection. In removing the fleur-de-lis chatelaine pin from the esophagus, I tried for a long time to catch it under direct inspection, but the necessity of moving my head to introduce the forceps and the cutting off of the rays of light by the forceps themselves, appeared to make this impossible, so that I at length removed the esophagoscope and attempted to reach the foreign body with various esophageal forceps, but owing to the edema of the esophagus its wall appeared to fold over the foreign body, and I could not even feel it with an instrument. I then reintroduced the esophagoscope, and having accurately located the body at the end of the tube passed in the forceps to the right depth with the blades in the proper position and without seeing the body at the time, caught it easily. In removing the pin from the bronchus with the small lamp down within a centimeter of the end of the bronchoscope, I was at once able to see the pin at the instant I caught it; but this certainly can not be necessary in most cases if the operator is thoroughly familiar with the location of the body and the relations of the forceps. In the case of esophagoscopy in which the secretions were so profuse, I used a local anesthetic only. I obtained a good view of the upper part of the esophagus, but not of the lower. I then resorted to a horse-hair extraction, which seemed to demonstrate that the pin was not in the esophagus.

In the bronchoscopy the parts were also anesthetized by cocaine, and bleeding and probably secretion were somewhat checked by suprarenalin. In the bronchoscopy



Fig. 4.—Case 2. Radiograph of pin in right bronchus with the head directed downward and outward. The pin has been outlined in black for the sake of clearness.

the operation was much facilitated by the vise-like grip with which Dr. Corwin held the patient's head in any position I desired; and I think also by the sixth of

a grain of atropin which I had given hypodermically before the anesthetic was begun for the purpose of checking secretion. In the latter operation the patient did not breathe well for a time, but after the bronchoscope had passed into the bronchus there was no difficulty, although two or three times she appeared not to be breathing at all when really she was respiring easily. At these times the advantage of a lighted room were great, for otherwise the operation would have been suspended. The employment of a chloroform inhaler that permitted us to introduce the vapor through a small tube was also a great convenience.

each 2x4 mm., made in my bronchoscope from 5 to 10 cm. above its distal end. I can see no objection to these, and I find that they overcome the difficulty fully without in any way interfering with the use of the instrument.

ESOPHAGOSCOPY.

CASE I.—April 11, 1903, I received notice from the Presbyterian Hospital that a child, H. C., had come in who had a foreign body in the esophagus.

History.—I had the child brought to my office and then I learned from the mother that a radiograph had been taken at the hospital which showed the foreign body located at the

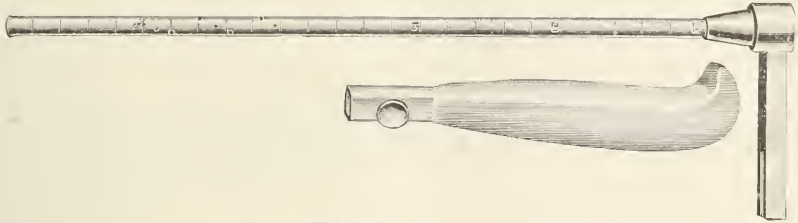


Fig. 5.—Killian's bronchoscope and handle.

During the search for the pin, although I had on glasses, I was much annoyed by the vapor of chloroform being blown into my eye and causing much smarting. This I have since avoided by having an assistant hold a pane of glass between the eye and the end of the bronchoscope; this has also been very serviceable in preventing the patient from coughing into the operator's eye. In both of these operations it was impossible to extract the foreign body through the tube, therefore,

narrow part of the esophagus just above the level of the inter-lavicular notch, but she did not have the picture. The little girl was 2½ years of age. Six days previously she had swallowed a fleur-de-lis chatelaine pin and had suffered severe nausea for several hours, and since that time had been unable to swallow solid foods.

Examination.—I found her pale and weak, but fairly well nourished. With the fluoroscope I searched some time before I could see the shadow of the foreign body, and but for the positive statement that the radiogram showed it I should have believed there was nothing there, but finally I made out the very faint but distinct outlines, as shown in the radiograph. (Fig. 1.)

Operation.—I gave the patient chloroform and then, darkening the room, introduced Killian's esophagoscope, illuminated by Kirstein's lamp. (Fig. 2.) The secretions in the esophagus were quite abundant, but I swabbed them out with absorbent cotton on Killian's cotton carriers and soon discovered a small part of the pin in the folds of the collapsed esophagus at the end of the tube. I made many efforts to seize it with Killian's tube forceps (Fig 3) under direct inspection, but this proved to be impossible, as I could not introduce the forceps without moving my head, and when they were in, on account of their length, I could not get my head near enough to the esophagoscope to throw in sufficient light to enable me to see the object. I tried to overcome this difficulty by springing the forceps, and finally by bending them, but did not succeed. After about half an hour spent in these futile efforts, I removed the esophagoscope and tried to catch the foreign body with the ordinary long bent, and also tube forceps, but I could not even feel it with either of these. I then re-introduced the esophagoscope, and, having exposed a part of the pin, introduced the forceps with the blades in the right position to grasp it. I pushed them down gently about a centimeter below the end of the tube, and on closing them found that I had the pin firmly in my grasp. It was much too large to be extracted through the tube, so I drew them both out together.

Result.—Whatever injury may have resulted to the esophagus from this procedure was speedily recovered from, and the patient was discharged cured in 4 or 5 days.

BRONCHOSCOPY—REMOVAL OF PIN FROM LUNG.

CASE 2.—Miss B. E., aged 17, came under my care March 23, 1904.

History.—She had drawn a large glass-headed pin into the air passages eleven months previously. She had attacks of cough for 3 days after the accident, but for the following month

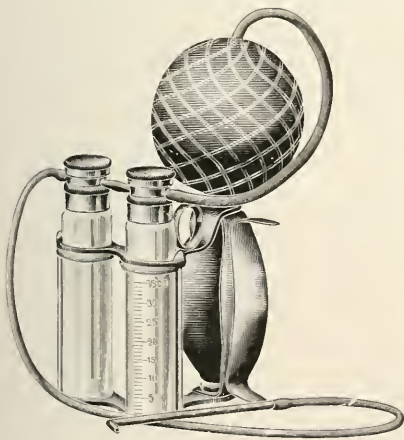


Fig. 6.—Eropby inhaler.

after it had been seized and drawn firmly against the end of the instrument, it was held there and both were removed together. In both of these cases the radiograph was of signal service in furnishing information as to the location and position of the foreign body. In view of the interference in respiration by the unaffected lung, when the bronchoscope is passed into one of the main bronchi, Killian had a large oval opening made in some of his bronchoscopes some distance above the end. To meet this indication I have had a number of holes,

the symptoms were so slight that her friends could not believe that she had inhaled the pin. Afterward the cough gradually grew worse, so that in six months she had to leave school and finally became so bad that, as she said, she was like a person in the "last stages of consumption." At times she could feel the pin move about in the air passages, and one time it was coughed up to the larynx and caused a spasm that nearly proved fatal. Her sensations had always been referred to the right side or to the center of the sternum. She was short of breath, particularly when lying down at night. She at times expectorated a great deal for 4 to 5 hours at a time, and frequently the sputum contained some blood. The x-ray was used three times, but nothing could be discovered. In the latter part of January she had been sick in bed with considerable fever and after about two weeks (February 6) Dr. Allison of her home town had opened the tra-hea and sought for the pin, but, being unable to find it, had closed the wound, which healed promptly. The patient stated that an abscess had been

vapor was administered through the bronchoscope. The patient was drawn up so that her head hung over the end of the table, where it was held by Dr. Corwin. I was seated directly back of her head. With a modified Kirstein spatula the tongue was pressed forward and the bronchoscope introduced; but first I got it into the esophagus. After passing the narrow portion of the esophagus where the wall of the gullet folds down closely over the end of the bronchoscope, the esophagus was more or less open, showing an open tube for several centimeters below the end of the instrument. This was at first confusing. The walls of the esophagus under these conditions expand and contract with respiration, but they do not entirely close. I withdrew the bronchoscope and with my finger directed it into the larynx as I would an intubation tube, a plan that is easier for me than under inspection. When the patient was nearly under the chloroform, I sprayed into the larynx a moderate quantity of the following solution, which was also used later several times to anesthetize the bronchi and

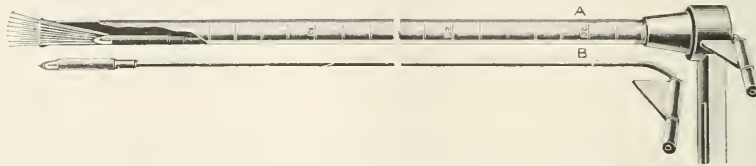


Fig. 7.—The lamp on the long carrier.

found at the time of the operation and that there was considerable expectoration of pus. Subsequently she had very little cough until she took a cold about two weeks later.

Examination.—At the time I first saw the patient the scar from the tracheotomy caused a raised welt which was very sensitive to the touch and she was having more or less pain, severe on coughing, the principal seat of which was beneath the third right costal cartilage; the pain extended from the second to the fourth ribs and from the middle of the sternum about 9 cm. to the right. The patient was large and tall for her age. I found her fairly well nourished. She usually weighed 120 pounds, although she had lost considerable flesh; the pulse was 90, temperature normal and appetite and digestion good. She was coughing a good deal and expectorating from three to six ounces of muco-pus daily. The nares and throat were negative, but at the site of the tracheotomy there was a granulation tumor in the trachea about 7 mm. in diameter.

thus permit of a smaller amount of chloroform. Three or four times during the operation the patient breathed poorly.

R. Suprarenalin	gr. 1/8	008
Atropin	gr. 1/10	006
Strophanthin	gr. 1/5	01
Ol. caryophili	m. iii	18
Acid. carbonic	gr. x	6
Cocain hydrochloratis	gr. xlviij	312
Aq. dest. q. s. ad.	ʒi	30

Turning the patient's head to the left I readily passed the bronchoscope into the right main bronchus and examined its various branches, removing the secretions from time to time with a pledget of cotton carried in by a long cotton carrier. At the beginning of the operation I used a Kirstein lamp, but later substituted the small lamp of which I have already spoken. (Fig. 7.) The light from the latter at first caused confusing reflections because of its brightness and I could not regulate it



Fig. 8.—Hooklets. a. For removal of foreign bodies, but not coming caught in some lateral branch. b. For searching safely in but the stems are 45 cm. in length. c. Removable handle, half

safe for introduction into small bronchi because of danger of be-
 bronchi for foreign bodies. The hooklets are nearly natural size.
 size.

I could not see the lower half of the trachea. There were a few feeble rales and slight feebleness of the respiratory murmur at the inner part of the lower lobe of the right lung. Otherwise physical signs were normal. A radiograph taken at the hospital showed the pin (Fig. 4) located on a line between the second and third ribs in front and the fifth and sixth interspace behind and from 3 to 4.5 cm. to the right of the median line, with the head directed downward and outward.

Operation.—At 5:30 p. m., March 24, assisted by Dr. George H. Kennett, who gave the chloroform, and by Drs. A. M. Corwin, O. T. Froer, X. P. Colwell and F. L. Kenyon, I operated with Killian's bronchoscope 35 cm. in length and 9 mm. in diameter. (Fig. 5.) I first gave the patient gr. 1-60 of atropin hypodermically to check secretion, then administered chloroform through a Beproy inhaler (Fig. 6) by which the vapor is blown through a small tube. During the operation the

accurately by the battery, as could have been done by a rheostat, but the lamp at length became partly dimmed by a thin coating of blood, which was a material benefit. Although I could easily see all the main bronchus and its branches running downward and outward I could not find the pin, though I searched for it a long time. At length I took a blunt hooklet furnished with the set (Fig. 8-a) and after sweeping it about the various bronchi for several minutes finally brought a part of the pin across the end of the instrument. I was unable to see either the head or the point of the pin, and I concluded that the head must have passed backward into a bronchus, the opening of which was not visible. Feeling confident that I would not lose the pin, I demonstrated it to Professor Senn and various other physicians who were present, and then seized it with Killian's tube forceps (Fig. 5) and by manipulating the forceps and bronchoscope tried to bring the

point of the pin into the tube. I let go of the pin and seized it again several times in this effort, but found it impossible; at length, concluding that the point was sticking into the wall of the bronchus, I finally determined that it would be better to scratch the air tubes all the way up than to take farther risks of losing the pin again, therefore I seized it firmly and drew the pin and bronchoscope out together. I found that the pin had been grasped near the head and it came out bent. In grasping the pin I did not actually see the blades close on it only once, for the forceps when opened shut off the field of vision. By measuring off the length of the bronchoscope on the forceps and marking this with a rubber strap about the forceps I could readily tell how far to introduce them before closing the blades and by a knowledge of the position of the pin the blades could be turned in the proper direction. The operation took, all told, an hour and a half.

Result.—At 9 p. m. the pulse was 90, at 3 next morning 78, and at 8 a. m. the pulse, temperature and respiration were normal. There was no temperature afterward. The tongue where it had been hurt by the tongue forceps, was sore and the bronchi were sore, but this had all disappeared in a couple of days. Four days after the operation the patient went home feeling well, excepting a little cough, which soon disappeared. I examined the trachea just before she went home and found that the granuloma had been rubbed off during the operation. On May 12 she wrote me that she was perfectly well, had gained several pounds, weighed 122 pounds and was in better health than before the accident.

A NEW MATERIAL FOR SUTURES AND LIGATURES.

TENDONS FROM THE LEG OF THE CRANE.

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FORT D. A. RUSSELL, WYO.

There is still room in the armamentarium of the surgeon for a reliable, slowly absorbable suture and ligature material. I have been recently investigating a material from a very curious source which I believe to be entirely new. Dr. George P. Johnson of Cheyenne called my attention to the long and strong tendons in the legs of the bird commonly known throughout the United States as the blue crane (Fig. 1). He had used this material with excellent results as a suture for the aponeurosis in a case of hernia, the suture giving no trouble and apparently being absorbed in time. I obtained from him a number of these tendons and immediately began a series of experiments to test their value as sutures and ligatures. These experiments comprised tests of the breaking strain of the tendons wet and dry, of the possibility of rendering them aseptic, of the effect of sterilizing processes and finally, tests to determine, if possible, the rate of their absorption in the body. As a result of these studies I have come to the conclusion that we have here not only a valuable suture and ligature material, but one easily obtained in all parts of the world and easily prepared for use. It is not only sufficiently strong for all practical purposes, but is absorbed very slowly indeed in the tissues and therefore seems peculiarly adapted for the cases in which a reliable and slowly absorbed suture is required. It certainly answers all of the requirements for which kangaroo tendon has hitherto been used and, in many ways, is superior to it.

As favorable results were obtained, these studies were not limited to the blue crane, but included two others, the sand hill crane and a rather more rare and larger species known as the whooping crane, one specimen of which I was fortunate enough to secure. The

tendons used are the extensor and flexor tendons which run from the thighs down to the toes. Usually from 6 to 8 useful tendons can be obtained from each leg or from 12 to 16 from each bird. It seems likely that the tendons from all of the larger grallatorial birds will be found equally useful. This would mean a wide source of supply, since these birds are distributed all over the world in two large families, the *Ardeidae* and the *Gruidae*, the herons and the cranes.

Probably the commonest bird of this type and the one most generally distributed in the United States is the blue crane, though improperly, known as the blue heron. As a matter of fact it is not a crane at all but a heron, and therefore should be called the blue heron (*Ardea herodias*). It attains an average height of 3 1-3 to 4 feet, with a spread of wing of about 6 feet. Nearly half of its height is in the slender legs. Like all the rest of the family it is aquatic in its habits, feeds on fish and builds its nest in trees near swamps and streams. The leg tendons from this bird



Fig. 1.—Blue Heron (*Ardea herodias*).

will average 11 inches in length and, in large specimens, there may be quite 14 inches of tendon up to the tendinous expansions in the muscles of the thigh. When dry they are flat, glistening bands resembling rough silk worm gut and are about 1-16 to 1/8 of an inch wide. There is a still larger species of this family of birds found in the southeastern United States and popularly known as the great white heron of Florida, *Ardea occidentalis* (Fig. 2). I have not been able to obtain a specimen of this bird but its leg tendons should be considerably longer than those of *Ardea herodias*. The family *Ardeidae* is abundantly represented in Europe, Asia and in Africa, in which continent the largest known species is found, *Ardea goliath*.

The chief representatives of the second group, the *Gruidae*, in the United States are the common crane generally known as the sand hill crane, *Grus canadensis*, and the stately whooping crane, *Grus americana*. The sand hill crane is fairly common, the whooping crane, more rare. There are about 17 species of this

family distributed over all the great zoo-geographical regions excepting, perhaps, the neo-tropical, in which they are not abundant. The common species of these two families are so well known in this country that a more extended description is unnecessary. The leg tendons of the sand hill crane will average 14 inches in length. The tendons from the one specimen of the whooping crane which I had varied from 14 to 16 inches in length.

A large number of the leg tendons were tested for their tensile strength in the following manner. The tendons selected first for trial were leg tendons of the blue heron, *Ardea herodias*, that had been roughly dried without any attempt at preservation—in other words, the tendons were used just as they came out of the legs of the birds after being dried in the sun (Fig. 3). A number were made pliable by immersion in water for a few minutes. The average breaking strain was found to be 25 pounds. Then the wet tendons were tied in hard knots; the breaking strain at the knot was found to vary from 24 to 27¹/₂ pounds.



Fig. 2.—Great White Heron of Florida (*Ardea occidentalis*).

Perfectly dry tendons without preservation or preparation of any kind were then tested. A hard square knot tied in the continuity of the material broke at 24 pounds. Another knot under the same conditions sustained a weight of 30 pounds without breaking. Tendons immersed in the iodine solution for the sterilization of cat-gut according to the Claudius method, were then tried. After being immersed in this solution for 21 days the breaking strain of a number of tendons averaged 29 pounds. It may be that these were peculiarly strong tendons, but they seemed to be of the same size and stoutness as the others employed and while it may not be true that the tendons are actually stronger after being immersed in the iodine solution, it seems certain at least, that this process of sterilization does not weaken them. These results with the tendons of *Ardea herodias* are shown graphically in the appended illustration (Fig. 4).

The tendons of the sand hill crane, *Grus canadensis* (Fig. 5), tested in the same manner, proved to be, on an average, ten pounds stronger than the tendons of the

blue heron. Separate tendons of this variety sustained a pull of 35 pounds without breaking when wet; with an average tensile strength of 33 pounds in ten specimens. The average strength of the unprepared and unprepared dry tendons was 31 pounds. When tied in square knots either wet or dry these tendons behaved as the others; that is to say, even a hard dry knot showed no appreciable weakness from cracking or splitting of the fibers and sustained a pull as strong as the untied tendon.

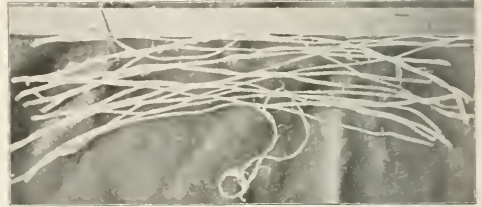


Fig. 3. Tendons of *Ardea herodias*, sun dried.

Immersion in iodine solution showed the same results as with the tendons of the heron, an average increase of strength of 21¹/₂ pounds. One knotted piece sustained a weight of 37 pounds without breaking. From the specimen of the whooping crane (*Grus americana*), I obtained a number of tendons quite 15 inches in length, of extraordinary strength. Much stronger than the tendons of the sand hill crane and as strong as the heaviest kangaroo tendon. One of these tendons sustained a weight of 50 pounds without breaking.

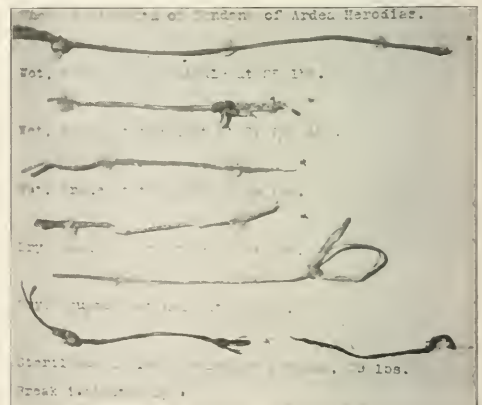


Fig. 4 Showing tensile strength of tendons of *Ardea herodias*.

Only one process of sterilization was tried; the Claudius method for sterilizing cat-gut. Heron and crane tendons immersed in this solution take a deep mahogany or blackish-brown color. The solution seemed to have no deleterious effect whatever. They were smooth, if anything more pliable than in the fresh state and in appearance very much resembled ordinary heavy cat-gut or kangaroo tendon submitted to the same process. As has already been shown the tests applied to determine the strength of the iodized tendons

showed not only no diminution but an apparent increase of strength. Inoculations were made from the tendons treated in this manner and it was found that the tubes remained sterile when the tendons had been in the solution three days or longer. The method of making the inoculations was to take a tendon, cut it into small bits with sterile scissors and wash it thoroughly in absolute alcohol in order to remove as much as possible of the free iodine remaining in the tissue. The free iodine being an excellent antiseptic might hold a growth in check, although active germs might be present in the mass. To ensure the removal of the iodine, the tendons were well teased apart during the alcohol washing. Following this they were thoroughly rinsed in a large quantity of sterile water and directly planted on gelatin, agar and broth tubes and scattered free on the top and bedded in the substance of agar plates. All the tubes and plates, whether at the room temperature or incubated in the thermostat, remained sterile.

The tendons can not be sterilized by heat, as the temperature of boiling water destroys them in a very few



Fig. 5.—Whooping Crane (*Grus americana*).

minutes, converting them into a jelly-like mass. Boiling in alcohol was not tried.

After assuring myself of the reliability of the sterilization I employed the tendons in a number of cases. I tied the brachial artery with a moderately large tendon in an amputation near the shoulder for a railroad crush of the left arm. The tissues were widely devitalized by the injury beyond the level of apparent gross destruction. As a result there was some amount of breaking down of the skin flaps. One deep suture of cat-gut became infected and was discharged. The heron tendon gave no trouble and was not heard from. In a second case, I used a heavy tendon in suturing the aponeurosis of the external oblique in a modified Halsted operation for hernia. Four weeks after the operation the suture could still be indistinctly felt through a rather thin abdominal wall. Two weeks later it could no longer be felt. In a third case, with old enlarged glands in the left groin, probably of venereal origin, a clean dissection of the groin was made and all the enlarged glands were removed. A heavy heron tendon was used in the deep layer of the

wound and a light one was used as a subcuticular stitch for the skin surface. The wound healed *per primam*. The subcuticular stitch was removed on the seventh day. It showed little if any alteration. The latest case in which I used this material was a cystic ovary with a heavy broad pedicle. After crushing the pedicle with an angiotribe, a heavy crane tendon was used to tie it off in the groove made by the instrument. Prompt healing was obtained and the ligature has not been heard from.

An effort was made to determine just how long these tendons would last in the tissues. Tendons of *Ardea herodias* were buried in incisions in the erector spinæ mass of two dogs at intervals of a week. At the end of six weeks when the dogs were killed, each dog had a series of six tendons, the oldest of which had been in



Fig. 6.—Showing diagonal course of fibers in kangaroo tendon. (a) Longitudinal course of fibers in Heron tendon (b).

the tissues six weeks and the most recent one week. The one-week tendons were practically unchanged. The two week tendons showed a slight decrease in size, which was progressive in the remaining ones. Of the six week tendons, two had almost entirely disappeared; these were thinner than the other two. The remains of the two heavier six week tendons showed a breaking strain of 4 and 5 pounds respectively.

It is apparent to me that we have here a valuable suture and ligature material; particularly where it is desirable to have a material slowly absorbable, as in operations for hernia and for ligations of large vessels and pedicles. The heavier tendons of the grallatorial birds answer these requirements admirably. The lighter

tendons make excellent superficial sutures. I do not know what effect chromization would have on them, but I do not believe that it is necessary or desirable. One of the chief disadvantages of chromicized cat-gut and kangaroo tendon is the uncertainty and unevenness of the results of the process. Kangaroo tendon is very hard to sterilize on account of its structure, cat-gut on account of its source. In this material all gross original contamination may be avoided. Indeed, I believe that with care, tendons practically sterile could be obtained in the first place. In any event they can be readily sterilized by the Claudius process. Kangaroo tendon is very irregular and difficult to handle. As purchased in the markets it is very uneven. Some of it is exceedingly good; others almost worthless. When kangaroo tendon is closely examined it is seen to be made up fibers, many of which run diagonally to the length of the tendon (Fig. 6a). In handling, these fibers split off, leaving a ligature which tapers from a stout cord to a filament. In the bird tendons the fibers are longitudinal (Fig. 6b). Kangaroo tendons are cylindrical while the bird tendons are flat, ribband like and therefore easier to tie.

CONCLUSIONS.

The following conclusions seem warranted: The leg tendons of the large grallatorial birds make an excellent suture material; strong enough for all practical purposes, readily made aseptic, slowly absorbable and easily prepared. The source of supply is practically world wide. I believe this new material warrants further investigation. Think of the comfort to the civil or military surgeon in isolated places of knowing that he can have a reliable suture material at the end of his shotgun.

RETARDED ERUPTION OF THE TEETH; THEIR LIBERATION OR EXTRACTION.*

M. H. CRYER, M.D., D.D.S.

PHILADELPHIA.

In order to fully understand this subject one should first be thoroughly familiar with the typical positions of the teeth when entirely erupted and in normal occlusion with those of the opposing jaw. It is also necessary to have a complete knowledge of the internal anatomy of the alveolar process. Therefore, a few illustrations showing the typically erupted teeth, with their occlusion, and the internal anatomy of the alveolar processes will be shown.

Figure 1 is a side view made from an almost perfect skull of a white woman. The teeth are fully erupted and are almost typical in their position and occlusion. It is evident there has been but little interference with the nutrition of either the jaws or the teeth of this subject. It will be noticed that the mental foramen is on a line drawn vertically downward from between the premolar teeth. This is quite typical and will be again referred to.

The mental foramen is located in the true non-movable cortical bone of the jaw on a line drawn vertically downward between the premolars. It is the external opening of a small tube communicating with the inferior dental canal. For this small tube, which I have described in previous papers, the name "mental tube" is suggested. Its internal opening into the inferior den-

tal canal is situated in the movable cancellated tissue near the apex of the root of the canine. If the skull of an infant be examined at birth it will be found that the mental tube, or short canal, passes directly outward nearly opposite the lower portion of the germ of the canine tooth. Then, again, if the skulls of children of various ages, up to adult life, be examined, it will be found that the inlet of this mental tube has been carried forward along with the cancellated tissue of the teeth, while the outlet has, apparently, moved backward, the distance varying according to the age of the child until adult life is reached.



Fig. 1.—Side view of a typical skull with typical occlusion of the teeth.

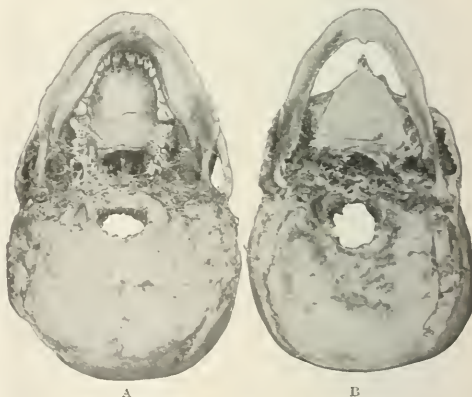


Fig. 2.—Under view of two skulls. A. From a subject about 20 years old. B. From one well advanced in years.

The position of the first molar during its early development was immediately below the upper or inner angle of the jaw. As it increases in size and the other molars are developed, the entire mass of cancellated tissue containing the teeth moved forward, the upper portion a little farther than the lower, as is indicated by the curvature of the trabecular and small cribriform tubes passing from the main tube or canal to the roots of the various teeth. To accommodate this growth the mandible proper—the cortical portion—enlarges interstitially as this process is carried on. Interference with

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

this forward movement of the teeth in the cancellated tissue would have a tendency to arrest the enlargement of the jaw, no matter whether the interference be caused by artificial means or by pathologic conditions.

The development of the alveolar process of the upper jaw is somewhat different. While the teeth are developing and erupting the process extends outward and forward without the extension of the maxillæ which is observed in the mandible. When the teeth are finally



Fig. 2.—Side view of the two skulls shown in Figure 1.

lost in extreme old age and the alveolar process of both jaws is resorbed, the extended rim of the mandible remains, while the upper jaw recedes until the roof of the mouth becomes very small, as is well illustrated in Figures 2 and 3.

Figure 4 is made from the skull of a child about six years old. The external plates of the alveolar process of the upper and lower jaws have been removed exposing the roots of the deciduous teeth and the crowns of the developing permanent

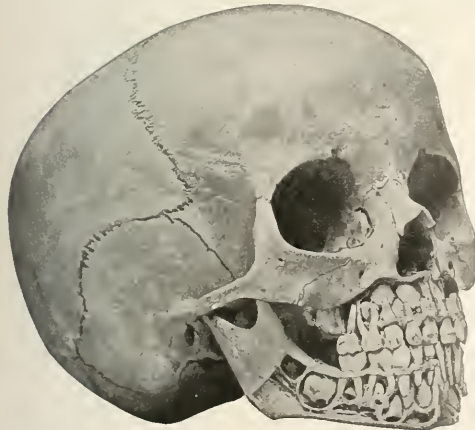


Fig. 4.—Skull of a child about 6 years of age, showing all the deciduous teeth with their roots and crowns of nearly all the permanent teeth.

teeth, except those of the lower third molar and the upper first, second and third molars.

In the majority of children's mouths, at about the age of 6, barring accident or decay, the upper and lower teeth (deciduous) are typical in their arrangement in the alveolar process; they are also typical in their occlusion. While pathologic and other disturbances seem to interfere but little in the arrangement of the deciduous

teeth, they greatly influence the placing of the permanent teeth.

The positions of the non-erupted teeth shown in Figure 4 vary in regard to their depth in the bone. Some are deeply set, for example, in this instance the upper canine, while others are quite superficially placed, as illustrated by the lower canine. Others still are found located between the roots of the deciduous teeth, as the crowns of the premolars in the figure. If we take the positions of the developing permanent teeth into consideration, it is comparatively easy to understand why they should often be retarded in their eruption or deflected out of their typical course. If the deciduous teeth are interfered with in such a manner that their physiologic functions are impaired, they, in turn, will interfere with the physiologic functions of the tissue surrounding the permanent teeth.

Local or general pathologic conditions often cause the alveolar arch to become narrowed or shortened, which, in turn, will have more or less influence on the eruption of the permanent teeth. Malocclusion of the teeth is often accompanied by impaction, as will be shown in some of the illustrations. Occasionally supernumerary teeth, odontoma or odontoceles may cause impaction of the teeth.



Fig. 5.—An inverted impacted lower third molar.

ORDER OF IMPACTION.

My experience has been that the frequency of impacted teeth is as follows: First, the lower third molar; second, the upper canine; third, the upper third molar; fourth, the upper central incisor; fifth, the lower second premolar; sixth, the upper second premolar; seventh, the lower canine. The first and second groups of this classification will, without doubt, be accepted by all familiar with the subject under discussion. In the museum of the dental department of the University of Pennsylvania the following specimens will be found: Twelve impacted lower third molars, nine impacted upper canines, two of which are in one jaw; two impacted upper third molars, both in the same jaw; two impacted lower second premolars.

Examination of Figure 4 makes apparent reasons for this order of impaction. It will be seen that the germ of the lower second molar is well back and partly within the ramus of the jaw. The germ of the lower third molar is still further upward and backward. As these

teeth are developed and the jaw grows, the teeth and the cancellated tissue pass forward between the U-shaped cortical bone. If this sliding forward and down-

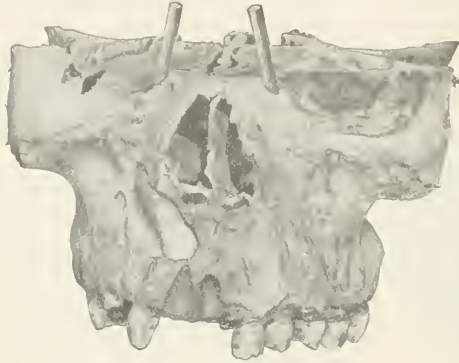


Fig. 6.—An impacted canine tooth.

ward of the tooth be interfered with by reason of inflammatory phenomena within the substance of the jaw, causing the cancellated and cortical portions to become adherent, the already erupted teeth will be prevented from yielding slightly to the eruptive force of the moving molar, and there will be no room for this tooth to slide into its proper position. The lower portion of the capsule is more liable to become retarded or fixed than the upper; consequently, in such a case the upper portion or crown of the tooth is carried forward and downward, causing it in many cases to take a horizontal position. In some instances it is turned directly upside down (see Fig. 5).

If the position of the germ of the upper canine be examined, it will be found on a higher level and deeper in the bone than the other teeth. The first premolar is erupted about three years before the canine and often closes in toward the lateral.

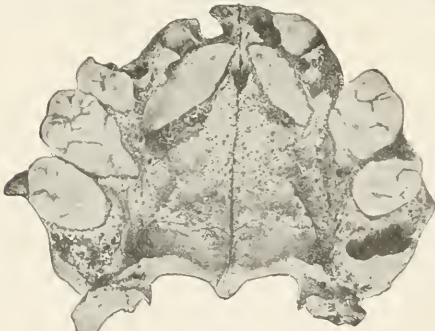


Fig. 7.—Two impacted canine teeth.

erupted five years previously, especially if the deciduous canine has been lost early. Under ordinary circumstances the canine will be forced into a fairly typical position, but if any inflammatory condition of the jaw has been manifested the bone may become firm and the

canine more or less impacted. Similar conditions can be predicated of nearly all impacted teeth.

Impacted permanent teeth should, as a rule, be either liberated or extracted. When the impacted tooth can be brought into a useful position through extraction of supernumerary teeth, or by the removal of other causes impeding its eruption, the necessary steps for its liberation should be taken. If left in their impacted state these teeth are liable to prevent the proper nourishment of other teeth and also to interfere with the healthy nutrition of the surrounding tissue. They may press on the branches of the trifacial nerve producing neuralgia, not only locally, but in remote parts, and through reflex action they may cause various disturbances in and about the head and face. They are liable to bring about inflammatory conditions of this region, produce cellulitis in the tissues of the mouth, neck, throat and temporomandibular articulation, interfere with deglutition, etc. They may cause other teeth to become impacted, or even cause malocclusion of other teeth. Then, again, parts of the roots may penetrate into the maxil-



Fig. 8.—A common form of impacted lower third molar.

lary sinus or the nasal chambers, under which conditions, if they become devitalized, they are liable to cause the infection of these cavities.

These four illustrations (Figs. 5, 6, 7, 8) are made from dried specimens. They will give some idea of the most common form of impacted upper canines and lower third molars.

Figure 5 is from a dried specimen belonging to Dr. T. M. Whitney of Honolulu. It shows an inverted impacted lower third molar, the crown of which is partly erupted in the submaxillary fossa. This tooth would be rather difficult to extract in the living subject. From the appearance of the illustration I would judge that it would have to be extracted through the submaxillary triangle.

Figure 6 shows the anterior surface of an impacted canine tooth resting near the anterior surface of the bone. This tooth could have been diagnosed by the use of an excavator, as the crown was quite superficially covered.

Whenever canine teeth are missing from the arch there is good ground to suspect that they are impacted somewhere within the jaw, unless there is satisfactory

evidence that they have been extracted. This is not to be assumed in the case of a missing upper lateral incisor or third molar of either jaw, and occasionally the premolars, all or any of which are often missing through non-development. As an example, I recall the case of a patient about 35 years of age, from whose arch the two upper second premolars are missing, and who claims that they have not been extracted. As he suffered from neuralgia in the anterior portion of the maxilla, I thought that these teeth might be impacted somewhere within the jaw, but a careful exploration with instruments and radiographs taken at different angles and by several experts, failed to show any evidence of the missing teeth. The failure of these methods of exploration leads me to believe that the teeth in question have never developed.

The extraction of a tooth, such as Figure 6, would not be difficult. A longitudinal incision could be made over the crown of the tooth, and then by passing a very small spiral osteotome around the crown one would be enabled to pass a universal elevator between tooth and bone. The tooth could then be forced outward: if room



Figure 9 is made from a plaster cast taken from the mouth of a young woman about 25 years old in the practice of Dr. S. Merrill Weeks of Philadelphia, showing an impacted lower third molar.

could be made so that a small pair of forceps could be used it might be better to use them instead of the elevator.

Occasionally I have found that the bone surrounding such teeth has become very dense and closely adherent to the tooth. Under these conditions the tooth is liable to break, if great care is not exercised, and sometimes it is necessary to use a small spiral osteotome to remove the surrounding bone nearly to the apex of the tooth before it can be extracted.

Figure 7 shows two impacted canines in the roof of the mouth. They were covered principally by bone which extended down nearly to the point of the crown. These teeth had caused the devitalization of the left first and second premolars and the right first premolar, also of the lateral incisor of the left side. The apex of one of the teeth penetrated the maxillary sinus.

It is more difficult to extract canine teeth when in this position than when situated as shown in Figure 6, as the danger of causing an opening between the mouth and nose, or mouth and antrum, is greater. It is a good plan to remove the bone from the lingual surface of the tooth, so the tooth can be carried slightly downward and inward without danger of fracture. Usually there is

not room to extract it in the line of its axis before it strikes the other teeth or alveolar process.

Figure 8 shows a common form of impacted lower third molar.

The anterior cusps of the tooth are often interlocked against the concave distal portion of the second molar. In order to extract such teeth it is often necessary to cut these cusps away with either a carborundum disc or an osteotome. When this has been done the instrument



Fig. 10.—An impacted second premolar and a third left molar.

can be passed under the tooth, between it and the bone, or both, until the elevator can be passed into the opening. By this means the tooth can usually be removed in a comparatively short time.

The following are from practical cases:

CASE 1.—A patient was suffering from neuralgia on the right side of the face. The molar teeth apparently had been extracted from that side of the mandible, but on a closer examination a slight elevation was found about in the position



Fig. 11.

of the right second molar, and by passing an excavator into the enlargement a tooth could be felt. An x-ray picture confirmed this diagnosis. The tooth was removed and the neuralgia ceased. In the x-ray picture the condyloid process is seen plainly resting against the under surface of the eminentia articularis.

In all the radiographs I have seen of this region, when the mouth was wide open, the condyloid process

has been found in this position, indicating that the external pterygoid muscles acting together when the angle is comparatively fixed by other muscles, among which are the masseter and internal pterygoid, serve to assist in separating the jaws, by drawing the upper part of the ramus forward, which compels the anterior portion of the mandible to drop, opening the mouth.

CASE 2.—Is a patient of Dr. Dray's of Philadelphia. This patient was suffering from neuralgia of the right side of the face. An x-ray picture showed an impacted third molar with the crown resting well forward against the distal root of the second molar. In such cases the resorption of this root often takes place, producing neuralgia and devitalization of



Fig. 12.

the tooth. There was a great probability that the second molar was diseased and causing the neuralgia. It was, therefore, thought advisable to extract it, which proved the diagnosis to be correct.

CASE 3.—Figure 9 is made from a plaster cast taken from the mouth of a young woman about 25 years old in the practice of Dr. S. Merrill Weeks of Philadelphia. The central incisors are erupted with their cutting edges pointing slightly inward instead of outward, probably due to some pathologic condition of the deciduous incisors. The alveolar process around the incisors is harder than normal, which condition prevented these teeth from being carried outward during the eruption of the others. They were thus locked against the incisors of the lower jaw, causing these and other lower



Fig. 13.

teeth to be held back to a greater or lesser degree, which in turn would cause the impaction of the lower third molars. The right central is directed more inward than the left and in proportion the right lower third molar was more deeply impacted than the left lower third molar. The left impacted tooth was extracted about a year before the casts were made. The right one was interlocked against the second molar. The occluding surface of this tooth was cut away by the use of a carbide disc, which allowed the crown to rise slightly, as is shown in the illustration, thus making the tooth more prominent and easier to extract.

Figure 10 is a radiograph taken from a cleaned specimen of the right side of the lower jaw, showing the teeth in position

in the cancellated tissue. One might well imagine that a modern orthodontist had moved the first molar "half its width backward" or held it in such a manner that it could not advance. Whether done by mechanical appliance or by pathologic changes, the tooth was held and impaction resulted. If the cancellated tissue be examined, as seen in the x-ray picture, it will be noticed that it is more dense around the first and second molars than anteriorly to these teeth. As the result of an inflammatory condition the cancellated tissue has become united with the cortical bone, thus making another factor in preventing its sliding forward. It will be noticed that the roots of the lower teeth are also thickened by the overaction of the cementoblasts caused by this inflammatory condition.

The inferior dental canal or cribriform tube is slightly deflected from its true course below the roots of the impacted third molar, and is also slightly deflected downward below the roots of the second molar.

It will be noticed that the second premolar stands below the occluding line of the other teeth. It has evidently been retarded in its eruption, perhaps through premature loss or de-

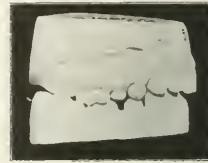


Fig. 14.—The second deciduous premolar is not in position.

vitalization of the second deciduous premolar. In such cases these roots are resorbed very slowly and often cause inflammatory conditions. It is possible that this was one of the primary causes of the non-eruption of the third molar.

CASE 4.—Figure 11 is from a photograph of a plaster cast of the jaw of a young man about 22 years old. Two impacted upper third molars were diagnosed by the use of an excavator. The teeth were afterwards extracted by first removing the overlying tissue and then using small forceps.

Figure 12 is from a photograph taken of the same cast (Fig. 11), with the extracted impacted teeth placed near the tuberosity of the jaw.

CASE 5.—A patient had some neuralgic trouble within the

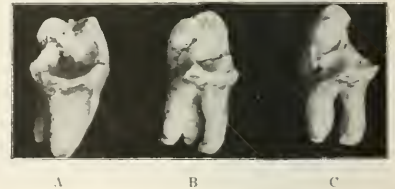


Fig. 15.

ear, and after having excluded several possible causes, the teeth were suspected, as the upper first and second molars appeared to be sensitive, and a radiograph was taken which indicated an impacted upper left third molar. At this time the patient was referred to me by Dr. George Darby. When one becomes accustomed to examining x-ray pictures it is not difficult to detect a shadow of the crown of a tooth in the region where the upper third molar might be impacted, but this picture gave but a slight indication as to the depth of its occluding surface. No idea was possible as to whether it was near the buccal surface of the alveolar ridge or on the lingual surface. The roots of the tooth, their number, shape and position were not shown in the radiograph. All of this practical surgical

diagnosis had to be learned by other means. In this case a careful exploration was made with an excavator, and the position of the crown of the tooth was practically located. After the tissue covering the crown of the tooth had been cut away the tooth was grasped with small forceps. The firmness of the tooth indicated that the roots were crooked and held by bone harder than normal. By carrying the handle of the forceps in the line of least resistance, which was outward, backward and upward, the roots were unlocked from under the over-calcified bone.

Figure 13 is made from four photographs of the tooth after extraction. *A* shows the occluding or grinding surface with the points of the roots extending outward. *B* shows the upper surface, or the root end, with the four roots spread outward, approaching a horizontal line. *C* shows the distal surface, with the hook-like form of the buccal roots, and *D* shows the anterior surface. It may be interesting to know that the ear has improved since the extraction, and that the other molars appear to have lost their sensitiveness, indicating that the tooth was interfering with the nerve supplying these teeth and through reflex action with the ear.

Figure 14 was made from a plaster cast of a patient of Dr. G. Marshall Smith of Baltimore, who has kindly permitted me to use it in this paper. The patient is a girl 13 years old. Figure 14 is a side view of a plaster cast of the teeth and alveolar processes. The teeth are undersized, the incisors and canines are too nearly vertical or do not flare enough, especially in the lower jaw. The upper teeth are all erupted, for this age, except the second molars, which are ready to erupt. In the lower jaw they are all through except the second premolar, which is impacted. The space for this tooth is very narrow, in fact, not sufficient to allow it to take its proper place in the jaw. The description of the teeth on one side of the jaw may also be applied to those of the other side.

If the cancelled tissue in the region of the premolar has become solidified and attached to the cortical bone, this impacted premolar will, to a certain extent, prevent the first and second molars from advancing; these in turn will have a strong tendency to cause the impaction and malocclusion of the third molar.

The primary cause of this pathologic condition of the lower jaw is that the upper anterior teeth have not moved forward in the usual manner, as they bite over the lower anterior teeth, consequently the teeth and alveolar process of the lower jaw are held back, as shown in the illustration, and in order to liberate the second premolar and prevent the third molar from becoming impacted, the upper anterior teeth should be forced forward, which will allow correction to be made in the lower jaw.

CASE 7.—A young man about 21 years old, who has suffered from neuralgia of the left side of the mandible. On examination with an excavator, impacted lower right and left third molars were diagnosed, the left one being somewhat broken. The history of the case is that part of the crown of the left third molar has been broken away in an endeavor to extract the tooth, leaving the pulp exposed. A radiograph showed that the crown was deformed, also that the anterior buccal cusp was apparently interlocked under the second molar. By careful examination with an excavator it was found that both of the anterior cusps were so far down in the tissue that a disc could not be used to remove them. The patient being etherized, a mouth-gag was placed in position and a portion of the soft tissue was removed with a small knife. The revolving spiral osteotome was placed within the broken crown, or into the pulp chamber, cutting almost through the remainder of the crown, and between it and the bone a space was made, partially in the bone, which allowed the point of a universal elevator to pass between the tooth and the jaw.

I seldom use the forceps to remove a tooth after loosening it with the elevator. In using the elevator on

the left side, as in this case, it is operated with the right hand, the surgeon standing on the left side of the patient. The left forefinger is placed in the mouth by the lingual side of the tooth, and the thumb is placed on the buccal side of the second molar. This gives steadiness to the jaw and reduces the risk of slipping. As the tooth is raised from its socket the forefinger is placed so as to bring the tooth out of the mouth. If the tooth to be removed is on the right side, the elevator should be used with the left hand, if possible (the surgeon standing on the right side). If the operator must use the elevator with his right hand, he should, however, manage to guard and steady the parts with his left hand.

Figure 15 is made from three photographs of the tooth after extraction. *A* shows the outer or buccal side of its roots, in about the same position as when in the jaw. The distal cusps were broken away in a former endeavor to extract it. The greater portion of the crown was cut away with the surgical engine. On the side of the tooth there is a groove extending backward, downward and inward, cut by the osteotome. It was along this groove that the elevator was forced under the tooth, causing the slight portion of the crown that remained to fracture. In *B* the tooth is turned slightly outward, in order to show three roots and the line of fracture which liberated the tooth. In *C* the tooth is turned on its buccal surface, showing the two anterior cusps which were locked under the distal surface of the second molar.

DISCUSSION.

DR. EDWARD A. BOGUE, New York City—What does Dr. Cryer mean by "pre-molar"?

DR. CRYER—A tooth that is in front of the molar tooth.

DR. BOGUE—Dr. Cryer, in his paper used the term "pre-molar" for a deciduous tooth. I am sorry to hear such misuse of terms. He also stated that Dr. Angle says that if the sixth year molars are correct in their occlusion all the rest will be right. If he will make further reference to Angle's book he will find that he states that the largest part of irregularities are to be found when the principal molar is in correct, or nearly correct occlusion. I want to acknowledge my indebtedness to Dr. Cryer; I never hear him without benefit; at the same time, if any defect in his teaching occurs I want to call attention to it, that it may be corrected. As I understand his remarks in regard to impacted third molars he favors extraction. I have a case on hand now in which by tying a small grass line between the impacted third molar and the second molar below I am bringing that third molar to a proper occlusion. I have done this a number of times.

DR. CRYER—I said "liberated or extracted."

DR. BOGUE—I am glad to see that Dr. Cryer's remarks tend in two directions. He advocated the forward development of both jaws. I agree with Dr. Cryer, whose experience is so much greater than mine, that one should be wary of the pressure backward.

DR. M. L. RHEIN, New York City—Dr. Cryer's idea about the correction of the irregularity early in life and the sacrifice of the third molar later in life is one with which I thoroughly agree. It is expected in these cases of degeneration which cause a lack of space in the mandible itself that there will not be sufficient room for the 16 teeth to come properly into position. His conclusions, so far as they can be put into practice, I think are the proper ones; that under these circumstances it will most likely be necessary to sacrifice this third molar, and it is the one that can best be sacrificed. I sympathize with all the work that has been done for the preservation of thirty-two teeth in the arch, and especially against the loss of any of the teeth forward of the third molar. There is such a thing as going to extremes on both sides of this question, and if there are any four of these thirty-two teeth to be lost the ones that can be spared with least detriment to the patient are the third molars without the occlusion suffering. In the case of the young Baltimore girl, there seemed to

be little question as to what to do. It comes in the category named of gaining sufficient space between the first molar and the first bicuspids. If separation is made there Nature will cause that bicuspids to erupt without any difficulty. The undue prominence of the chin and the lack of bone development above it shows to me that it will not make the chin any more prominent. There is plenty of room above the chin for the osseous development, if this forward movement is brought about. I have had a number of cases in which after space was provided Nature brought the teeth into position.

DR. MDIRAN K. KASSABIAN, Philadelphia—The dental and medical professions have derived equal benefits from the introduction and application of the x-rays. The diagnostic value of the rays in cases of unerupted teeth is shown by Dr. Cryer's cases. The ordinary methods of probing with an explorer did not locate the absent teeth, which in some cases were bicuspids and third molars. These had insinuated themselves deeply between other teeth and the alveolar process was so dense that nothing but the x-ray could locate them. I employ two methods for skiagraphing dental conditions, the intraoral method and the extraoral or buccal method. In the intraoral method a small piece of film (which is light and moisture proof) is placed over the gum tissue at a point where trouble is suspected, placing the tube in such a position that perpendicular rays will be cast on the teeth and film. This method covers a smaller area but produces a picture with very sharp details, and is especially recommended for anterior teeth. The extraoral or buccal method requires that a plate 5x7 be brought in contact with the jaw at the region of the suspected trouble. The patient inclines the neck and head to an angle of about 45 degrees. The tube is placed over the shoulder to the opposite side at a distance of 20 inches from the face to avoid superimposition of the jaws. This process produces a picture of greater area and is intended for bicuspids and molars. Two skiagraphs are taken from two angles or directions to determine whether we have a buccal, lingual, distal or mesial presentation, and I might mention here that Dr. Cryer suggested that I make stereoscopic skiagraphs which permit viewing by a reflecting stereoscope, and as a result instead of observing flat pictures, we obtain a relief or stereoscopic perspective effect, which shows the exact position of the teeth. I have received very good results with my stereoscopic skiagraphs at the Philadelphia Hospital, where I used a special table which I had built for the purpose. There is no danger of x-ray burns in skiagraphing these conditions; the time of exposure is short, being from one second to two minutes.

DR. T. C. STELLWAGEN, Philadelphia—The important illustrations made by Dr. Cryer explain how great damage has been done by meddlesome dentists. "Orthodontia" is an incorrect term, the correct one would be "taxodontia." By attempts to correct dental irregularities without a proper knowledge of the development of the jaws an amount of mischief has been done which the profession does not take into account. Early in my practice there occurred a number of instances of patients saying that they had had irregularities corrected, and that since then they had suffered more or less pain and soreness about the teeth; conditions resembling those following fracture or sprain when the weather seems to bring about a neuralgic state. Very often the violence used for such correction has been sufficient to cause permanent inconvenience. Many of the cases, credited to the efficiency of the appliances used, would have been better if left to Nature. Dr. Cryer shows us that the development and growth of the jaws are not confined to any particular locality, but are general throughout, and that under peculiar circumstances we find certain centers of growth arrested, just as we see in hip-joint disease, and then permanent deformity results. The interesting question in connection with the case of the Baltimore child is, can we awaken that trophic influence? Some years ago the permanent cuspid teeth of a patient had failed to erupt, still the deciduous cuspid teeth were *in situ* to work on. Irritation of the teeth until they evinced considerable pain and soreness failed. Ligatures tied around them, hoping thereby to revive or reawaken this

trophic force, failed. Extraction of one deciduous canine failed. So far there is but little, if any, hope of ever stimulating these trophic centers. The case mentioned is of interest, as the lad had spasms, caused seemingly by the canine pressure on filaments of nerve in the jaw. The spasms came only occasionally, it is true, but so growth has remissions of energy. I believed that we could do nothing better than to look forward to the time when the growth and alterations of the permanent canine teeth would cease, somewhere about his twelfth year. For about forty years, although still living, the patient has been free from spasms. That the reawakening of the trophic force could have been brought about in his case I very much doubt.

DR. BOGUE—In a case of a child 12 years of age, in whom the left central incisor had not developed, instead of tapping on that bicuspids tooth, as did Dr. Stellwagen, I put in wedges and spread the right central and left lateral widely apart, and inserted a large central on a rubber plate. The left central came down, even at that age, into correct position. I have done the same thing in the last six months. In other words, I got the room which Dr. Cryer has been telling us we ought to get. The plaster cast of impaction shown us by Dr. Cryer shows also a retracted condition of the incisors, and I think he is mistaken as to the cause. It seems presumptuous for me to question Dr. Cryer, but he must not draw conclusions from the facts he presents to us, unless he expects to be criticised. The irregularities of the incisors in that case seem to me to have nothing to do with the other irregularities which he showed us.

DR. STELLWAGEN—There was abundant room for the cuspid to come down, the teeth were separated and had enough space.

DR. EUGENE S. TALBOT, Chicago—Dr. Cryer's specimens are fine and show many pathologic conditions. The explanation of an individual case does not, however, give accurate information as to the etiology. To understand the etiology, the evolution of man, including heredity and neurasthenia in the parent as well as in the child, must be considered to show the production of these conditions. If there were time, I should like to go over these slides and from these basic principles show how these deformities are produced. Starting with the evolution of man, the face and jaws, like the vermiform appendix, small rib, little toe and other structures of the body are degenerating under the law of economy of growth for the benefit of the organism as a whole. At about four and one-half months of fetal life, the first period of stress occurs. At this period owing to the neurasthenia of the parents and improper nourishment, arrests take place. Owing to the transitory nature of the face and jaws, they are more easily affected than permanent structures of the body. Arrests of development of some parts and excess of development of others (due to an unstable nervous system) account for all malformations. The point brought out by Dr. Stellwagen in regard to pain in the alveolar process is not uncommon. It occurs after teeth have been regulated and the question naturally arises when and how far we are warranted in the correction of irregularities, owing to the interstitial gingivitis produced. This pain occurs in ordinary forms of interstitial gingivitis, as well as in interstitial gingivitis due to injury. This disease is associated with the alveolar process throughout life. Pain may be experienced at any period. The cribbing of the horse when returned to the stall after a summer's outing and disuse of the anterior teeth is a marked illustration of this pain. The eruption of the cuspid tooth seems to be a providential process by which the anterior and posterior teeth are, in a measure, moved forward or backward for the purpose of enlarging the dental arch.

DR. CRYER—In regard to the use of the term "pre-molar," I perhaps should not use this word before a dental society, as I believe they have arbitrarily adopted another term, which, however, I can not accept in my writing. A pre-molar is a tooth anterior—in time or position—to a molar tooth. Dr. Bogue says we have not a deciduous pre-molar. In one sense, all the deciduous teeth are premolars, but the term is more especially and more properly applied to what are commonly called, by the dental profession, the deciduous molars. If I understand the meaning of deciduous, it means not lasting but destined to be lost or shed in time. The deciduous (pre-molars) molars are shed and

their places taken by the permanent premolars, or as they are known in accepted dental nomenclature, the bicuspid. The lower jaw certainly grows forward. The upper jaw I claim does not grow forward, but its alveolar process does. It extends forward, and its base is the upper jaw. The upper jaw is one thing; the alveolar process and its teeth are distinctly another. When teeth are lost, and the alveolar processes are resorbed, the rim of the lower jaw, which has gone forward, remains there, while the upper jaw, not having gone forward, is found to be almost the same as in early life. I want to put it on record that four years ago the city authorities of the Philadelphia Hospital recognized the dental profession by adding four doctors of dental surgery to the medical staff of that great hospital, giving them the same standing as the medical men. Last year, at the suggestion of the dental staff, an extensive apparatus for *x*-ray work was added to the already well-supplied hospital, and the dental department was put in the highest possible condition for usefulness. Dr. Kassabian has spared neither time nor energy in working up the use of the *x*-ray for the benefit of the dental students who have attended the dental clinics given at the hospital.

MULTIPLE ABSCESES OF THE OMENTUM.

REPORT OF TWO CASES.*

HUGO O. PANTZER, M.D.

INDIANAPOLIS.

Under the title of "Das Netz als Schutzorgan," E. de Renzi and G. Boeri¹ of the first medical clinic of the University of Naples, publish the results of experimental researches. Like von Recklinghausen, Bizzozzero and others, they have demonstrated a striking similarity in contrasting the function of the omentum with the lymph system, in its activity in the absorption of substances from the peritoneal cavity.

The attraction of the omentum to the site of injury, foreign body or inflammation, in its endeavor to protect the abdominal cavity, is well known. Experimentally, by these men, it is shown that in young animals, after the removal of the omentum, there is retardation in general development, and in adults their susceptibility to abdominal infection is markedly increased after the removal of the omentum. After the circulation in certain viscera, notably the spleen, has been impaired by the ligation of the afferent or efferent vessels, the omentum is shown to envelope, partially at least, that organ, and by anastomosis of vessels, to successfully aid the circulation through the impaired viscus. Its tendency to form collateral circulation with the viscus or parietes to which it so attaches itself, has led surgeons to utilize this function for the establishing of compensatory circulation, as in the operation for the relief of cirrhosis of the liver.

These experiments have further shown that if both afferent and efferent vessels of the spleen be ligated, that organ becomes necrotic; but soon the omentum forms a dense network over it, a veritable capsule, and in time the splenic substance undergoes a complete absorption. Nor does the animal suffer from its lack of spleen, but enjoys its usual health, thus showing a substitutional function in lieu of the lost spleen in its hemolytic capacity.

If, however, the omentum is removed and the afferent and efferent vessels are ligated, the animal soon dies, the death being due to rapid autodigestion or fermentative

changes in the splenic tissues and the absorption of the same. The protective action on the part of the omentum, however, walls off promptly the spleen, and, supplying it with a circulation, prevents autodigestion; while affording a dense capsule, allows of such slow absorption that the body is able to form autolytic or zymostatic substances whereby to protect itself. A similar function of the omentum was observed when the vessels of one kidney were ligated; this was followed by absorption of the kidney by the omentum, which had formed a dense capsule about it.

Foreign bodies introduced into the peritoneal cavity were promptly walled off by the omentum. Clinically, this plastic power of the omentum is shown when that organ is applied to the resected surface of the liver, against a wound of the pancreas, or against any intra-abdominal injured surface.

The sparsity of literature of the omentum is remarkable, and on this account the above abstract is supplied here. The following cases are reported as showing a pathologic condition of the omentum nowhere encountered in literature. The cases, to me, seem to indicate a protective power of the omentum exceeding its ordinary well-established function. Commonly, septic matters and bacteria, brought in contact with the omentum, undergo their hemolytic destruction within the omentum without leaving any anatomic trace of their visitation on the tissues of the omentum. In the cases about to be reported this function is varied from. The *materia morbi* had passed the prohibitory portals of the omentum and had become implanted in the omentum at various points, and were there held in more or less inoffensive isolation or incarceration for a long period of time. Occasionally, incident probably to physical strain or debility, or the disturbance of an altered menstruation, the poisonous elements contained within these foci were liberated, and symptoms of grave systemic sepsis prevailed for the time.

Both cases occurred in individuals who had been celiotomized for simple, non-inflammatory conditions, and in each instance a general peritonitis had immediately followed the operation. Years had passed after this occurrence before the cases came to me. Meanwhile the patients had suffered more or less invalidism from abdominal tenderness and pain, and occasional outbreaks of constitutional sepsis, indicating gravity by the attendant fever and extreme systemic depression. Each individual, during the intermission between attacks, showed outwardly little or no evidence of disease.

The physical examination in neither instance had given characteristic evidence of unusual pathologic conditions before the operation. Characteristic of the condition found, were multiple abscesses strewn through the omentum. The abscesses were small, surrounded by a tissue which macroscopically resembled granulomatous or sarcomatous tissue. Around this there was the thickening of the part of the omentum in which the abscess was situated.

The great number of these abscesses in the first case precluded the removal of all of them. Portions of the greater omentum removed then, and others taken at the postmortem, two days later, were subjected to bacteriologic and microscopic examination. The former revealed the presence of streptococci in pure culture, and the tissue was granulomatous, such as would result from chronic irritation.

The second case was complicated with gallstones, and only these were removed at the operation. The appearance of the omental tumefactions, indicating numerous

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suppurative foci, surrounded with granulomatous tissue and increased thickness of the fat immediately adjacent, reminded me too vividly of the gravity of the affection in the former case to encourage further efforts at this time, owing to the enfeebled condition of the patient. After satisfying myself that it really had these characteristics, whereby but least handling possible of the tissues was incurred, I decided not to attempt any more at this sitting. This patient, like the former, died within less than three days from grave sepsis. In neither case was there evidence of infection about the wound nor general peritonitis.

The first of these cases I operated on at my sanitarium in April, 1897; the last at the Deaconess' Hospital in March, 1903. These cases stand out in my experience without further parallel.

CASE 1.—Miss P., nurse, aged 33, presented herself first in February, 1897. She was operated on two years previously at Chicago by a noted abdominal surgeon for retroflexion of uterus, the uterus being ventrofixed. The operation was followed by general peritonitis. The fixation sutures were removed on the second day. Patient recovered slowly, but never fully regained her general health. The menstrual period was afterward attended with more or less chilling, pain and fever. Between periods, notably after physical exertion, there was more or less abdominal pain and tenderness. Patient attempted light nursing, but every now and then, on account of her physical suffering and weakness, was incapacitated. An operation was undertaken one year later for her relief by another surgeon. The patient related that this was witnessed by her sister. This effort was abandoned, even before the incision had reached the abdominal cavity. Why this was abandoned, she never heard, but thought it pertained to difficulty in the narcosis.

Examination.—Patient was a well-formed, muscular individual of excellent constitution, naturally healthful and cheerful. It seemed difficult, seeing her, to believe that she was really suffering seriously. She complained of much abdominal pain, weakness and lack of endurance. I found indefinite tumefaction in various parts of the abdomen. These were difficult of examination on account of rigidity of the abdominal wall. Vaginal and rectal touch revealed uterus in retroflexion, prolapsed and enlarged ovaries, tissues massed together by adhesions.

Diagnosis.—Chronic peritonitis, with suppurating foci.

During a few weeks of local and general tonic treatment, the patient gained a little in strength, and pelvic swelling became smaller and less tender. The next menstrual period, however, was accompanied with chill and fever, yellow skin, depression and great weakness. This condition indicated to me that my treatment was little more than temporizing, and that more radical measures must be looked to for relief.

The patient, a very intelligent woman, expressed her conviction that she was gravely ill and must have something done, lest she die.

Operation.—The operation revealed the condition of the omentum already described, that part nearest the pelvis being most heavily involved with these suppurating foci. This part was removed. The uterus and ovaries were released from their adhesions, the latter removed and the uterus fixed by ventral suspension. These organs seemed not involved in the suppurative disease.

The patient early developed sepsis as before, but of a graver type. The temperature ran up to 103 and 104; the pulse was rapid and weak from the beginning, and grumous vomiting preceded death, which occurred after a little less than three days. The tissues were subjected to microscopic and bacteriological examination, with the results as stated.

CASE 2.—Referred by Dr. Crose. Mrs. M., aged 37.

History.—Was operated on for an ovarian cystoma by a local surgeon about eight years previously. Both ovaries were removed on this occasion. There had been no inflammatory dis-

ease of the pelvis before, but the operation was followed by general peritonitis, which very nearly took the patient's life. The recovery lasted three months, and ever afterward she suffered much abdominal pain and distension and inability to endure strain. Strain was followed with fever and great general debility. Gradually, however, she gained, and for a time promised full recovery. About four years ago she began to suffer attacks of acute pain, referred to the stomach. They were associated with indigestion, and, in turn, she had consulted numerous physicians and been treated for months at a time at various renowned sanatoria. She had obtained little and only temporary relief, if any, at these places. Latterly the attacks recurred at shorter intervals, were more severe and lasting, and were very weakening. Dr. Crose saw her a week before I was called, when he prescribed to relieve her pain, but made no thorough examination. He was recalled the day before he called me to see the case with him. This time he found the patient jaundiced, vomiting; the liver enlarged and very painful; a tumefaction in the right hypochondriac region. The stools were various, bilious and acholic. Temperature, 100 to 103.5; pulse, 120 to 140.

Examination.—I found a woman of fair nutrition, rather septic in appearance, yellowish skin, vomiting mucus or mucobiliary matter; of heavy mind; limbs drawn up; abdomen very tense, especially over right half; liver dullness increased upward and downward, and continuous down from it to very near Poupart's ligament, a heavy, doughy swelling completely filling that side of the abdomen in an anteroposterior direction, and of a hand's width or more.

Diagnosis.—A diagnosis of gallstones with cholelymphangitis was made. The swelling in the right side below was not determined, but it seemed to stand associated with the same process. An unusual location and degree of distension of the gall bladder was considered.

Treatment.—Ice bag over the liver, sodium salicylate and salt solution by rectum and other rectal feeding were resorted to for a few days, with some symptomatic relief, before operating. As in the other case, the patient herself was impressed by the serious nature of her disease, and anxiously desired relief.

Operation.—The operation revealed the swelling below to be composed of almost the entire omentum. This was drawn to the right and lay there rolled on itself, thickened greatly, adherent to the ascending colon and small intestines. At many points it was studded with suppurative foci, so much resembling those seen in the former case as to suggest the same condition. The gall bladder was found considerably distended with fluid and gallstones. From the history of the case it seemed probable that the patient's recent suffering was caused more directly by gallstones. I therefore decided to attempt no more at this time than to remove the gallstones and establish a bilinary fistula. Upward of 400 stones were removed from the gall bladder and common duct, the stones varying from the size of a millet seed to that of a filbert, there being only a few large stones in the lot. This was accomplished without opening the common duct, stripping it being found efficacious. The cholecytic contents were nonpurulent, the walls not more than hypertrophied and congested. No bile was spilt into the abdominal cavity. The omental tumefaction, beyond a slight effort to disentangle it, and to satisfactorily examine into the nature of the nodular swellings found through its substance, was not dealt with. The patient rallied from the narcosis and operation without shock. There was good drainage from the fistula, and there was bilinary discharge through the bowel within 24 hours. There was no abdominal distension and little vomiting, and the patient declared herself much relieved and was very hopeful. After the first 24 hours there developed evidence of a grave sepsis, involving temperature, rapid heart's action and breathing. Local conditions appeared entirely negative. The wound remained throughout without swelling or tenderness, the abdomen without distension, or even pain, excepting tenderness over the tumefaction in the lower right side. There was little vomiting until the last, death ending the scene about the third day.

Autopsy was not permitted.

From my consideration of the first case, I think that I can exclude sarcoma. The presence of pus in each nodule, the long existence of the disease without metastases, the recurrent attacks of septicemia, and the beginning with a febrile peritonitis, all speak for an inflammatory infection. Then there was the finding of streptococci in pure culture.

The second case was complicated with gallstones, and this may be assumed to cloud its diagnostic reading. Besides, none of the nodules were subjected to a bacteriologic or microscopic examination. The history and the gross appearance were strikingly similar to those of the first case. I think I may exclude an accidental infection at the time of the second operation to account for the fatal septicemia.

I have never seen the omentum display a similar appearance in cases where grave sepsis prevailed. In my experience, abscess of the omentum is confined to these cases. The morbus materie taken up by the lymph channels of the omentum are generally destroyed and disappear without evidence of implantation within its tissue. Thus, a part of omentum lying contiguous to an infected region will become adherent to it, but if stripped off will show no gross evidence of inflammatory activity within itself. The dissemination of purulent foci, as in the cases mentioned, surrounded by the products of inflammatory reaction, and persisting, as in these cases, for years. I have been unable to find reported anywhere.

THE PROPRIETY, INDICATIONS AND METHODS FOR THE TERMINATION OF PREGNANCY.*

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It is apparent that there is a strong tendency generally in the medical profession toward a broadening of the indications for the termination of pregnancy. It seems that the wisdom of this can scarcely be questioned. While it may be said that this may open the way for the not overconscientious physician, by distortion of the symptoms and indications, to perform abortion in many unnecessary cases, it is believed that this will not be true to any large extent, as the great majority of physicians are undoubtedly honest in this respect as in other things, and are no more likely to go astray than formerly. Temptation and opportunity are always present for those who may wish to take advantage of it. That errors of judgment or of unintentional misunderstanding may occasionally arise there is no doubt.

I believe I am right in stating that it has always formerly been considered that the termination of pregnancy was indicated only in the presence of some acute condition which immediately and seriously threatened the life of the mother, such as pernicious vomiting, hemorrhage, convulsions or the toxemia of pregnancy. On the other hand, in diseases not of an immediately threatening nature, but which usually become dangerous at or near the end of pregnancy, such as certain forms of heart disease, chronic nephritis, diabetes and phthisis, abortion was not to be thought of as a prophylactic measure early in pregnancy, as a preventive to the progress of the diseased condition. But, if late in pregnancy the disease

should come to threaten the mother's life, then induction of labor was entirely justified. That is, if the woman became pregnant, she was held in a way to be directly responsible for that pregnancy, and nothing could be done immediately to prevent a probable dangerous condition in the future, or to stay the advance of a serious disease which pregnancy was almost sure to aggravate.

That there is a change in belief and also in practice is seen by consulting the older and the newer text-books on obstetrics. The former, as a rule, hold that induction of abortion is justifiable only when the patient is suffering from such grave disease that her life is in imminent peril, while the more recent works grant that the termination of pregnancy is entirely justified to prevent the advance of what might later prove to be a fatal disease.

Accordingly, then, we have under these somewhat changed conditions what may be known as the medical indications for abortion in early pregnancy. These are seen chiefly in the presence of a certain few chronic diseases which usually become seriously aggravated by the occurrence of pregnancy.

TUBERCULOSIS.

Tuberculosis is, perhaps, the most common of these conditions. I believe it was formerly held that tuberculosis was kept in a quiescent state during pregnancy, or even that pregnancy exerted a favorable influence on tuberculosis. Contrary to this former belief we now know that pregnancy has a most unfavorable influence on the course of tuberculosis. In many patients even with incipient phthisis, the disease makes such rapid progress that by the end of pregnancy the patient is hopelessly overcome by it, and often scarcely able to outlast the labor. It is conceded that cases of early tuberculosis in which under proper surroundings and medical care a cure might easily be effected, when subjected to the extra strain of pregnancy, rapidly become in a condition beyond the reach of medical skill. If, in such a patient, the pregnancy is terminated early, the prognosis for complete recovery under suitable treatment is often good, and the patient may live to bear healthy children in later years. Otherwise the mother's life is kept in grave danger for the sake of the child, whose chances are not too favorable when born under these circumstances.

A case of this nature was seen by me in consultation recently. The patient was a young woman, married one year, apparently perfectly healthy at marriage. No trouble was noticed till about the time she became pregnant, when she was found to have early tuberculosis of the lungs. As pregnancy advanced, she ran down very fast. In the later weeks of pregnancy it was largely a question whether or not she would live till labor began. Her labor was easy, but after a short first stage she was delivered by forceps under light anesthesia. She survived the labor only about a week. Under an early induced abortion and suitable treatment, it seems that she might have recovered and lived to bear and nourish other children.

On the other hand, there is much less danger from pregnancy to the mother in the more chronic forms of tuberculosis. Many of these women bear several children before apparently any serious burden is added to their condition. A patient whom I have had under observation through four pregnancies is a notable example of this condition. Nine years ago she had an operation for tubercular empyema. She made a fair recovery, but has had a cough and expectation since. In this time she has had four children, the last after in-

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duced labor for serious symptoms at the seventh month. Her condition from year to year has not changed much until recently, as the first three pregnancies were endured without disturbance. There is little doubt that if she had not been subjected to the strain of these repeated pregnancies she would to-day be a comparatively well woman. She has repeatedly been advised not to become pregnant, but it is a case in which one would not feel justified in performing abortion to relieve her of the pregnancy because of absence of acute symptoms, and because the disease did not appear to be making notable progress. In fact, no serious symptoms were shown at any time until near the end of the last pregnancy, and labor was then promptly induced.

It has been considered that unless abortion was performed early in pregnancy in tuberculous subjects, that it was unwise to interfere, and often in the latter part of pregnancy it has seemed as if nothing were to be gained by the induction of premature labor. Yet in experimental work in pregnant animals inoculated with tuberculosis, when early abortion occurred, the mothers survived longer than when the pregnancy was advanced or went to full term.¹ Moreover, my experience with the patient mentioned above would seem to controvert the idea that in such a case nothing is to be gained by inducing premature labor, because of the feeling that the mother's condition anyway is hopeless. This premature infant, now nine months old, is in good condition, and the mother, who has gone from the city to live in Sharon, is gaining fast, and bids fair to obtain a new lease of life. At the seventh month, when labor was induced, it seemed that she would not survive till full term if pregnancy were allowed to continue.

Pregnancy in certain women with a bad family history may almost be regarded as a predisposing cause of tuberculosis, and some statistics seem to show that a number of cases of tuberculosis develop largely as a result of pregnancy. While we might consider it impossible to terminate pregnancy in a person with merely a marked predisposition to tuberculosis, yet undoubtedly it would be perfectly proper in such a case to strongly advise such a woman not to subject herself to the risks of pregnancy.

HEART DISEASE.

Heart disease is a condition which often may not require the interruption of pregnancy, although in its presence the patient should always have the most careful oversight. Many women with heart disease go through pregnancy without any discomfort whatsoever. The appearance of any signs of cardiac disturbance early in pregnancy, I believe, is an indication for early interference with the pregnancy, because with the increased size of the uterus there is certain to be increase of the cardiac disturbance, and the mistake of waiting too long is easily made. Because under rest in bed and tonics, the patient for a while seems to be doing well and gaining, it is no indication that she will be able to continue through the pregnancy, since rapid changes may occur later, and then interference is likely to end in the death of the patient.

NEPHRITIS.

Chronic nephritis is usually an indication for the early interruption of pregnancy; not that a consider-

able number of cases would not survive the pregnancy, as the danger of the onset of eclampsia is small, but the kidneys are left in a very bad state after delivery. It has been shown that about 33 per cent. of women with chronic nephritis who go through pregnancy and who survive labor die not long after, while the fetal mortality in patients delivered at term is high, and has been estimated to be about 60 per cent.²

Bové has recently called attention to the fact that pregnancy is dangerous to women after removal of one kidney, and even although the remaining kidney is sound, he advises prevention of conception, or, in case conception occurs, the induction of abortion.

In the acute nephritis of pregnancy, or in the so-called toxemia of pregnancy, emptying the uterus may not always be the first indication, even in the presence of convulsions. If, under thorough treatment, the symptoms do not relax, but the condition grows progressively worse, then there is usually no question as to the treatment. A discussion of this, however, would bring up the treatment of eclampsia, which I do not wish to do now.

OTHER CONDITIONS.

There are a number of other chronic maternal diseases, such as grave anemia, diabetes, chorea, etc., none of which are very common in connection with pregnancy, but all of which may become serious, and in the presence of the severer forms of which termination of pregnancy is usually indicated.

Another maternal condition which, although not recognized as a separate disease itself, presents all the difficulties in treatment of serious disease, is the pernicious vomiting of pregnancy. There is little new that can be said in regard to its cause or treatment, although I believe it should be classed among the toxemias of pregnancy. Many cases yield only when the uterus is emptied. When the vomiting is continuous, regardless of the ingestion of food or liquid, and when absolutely at rest in bed, the patient rapidly becomes weak and exhausted, rectal feeding suffices for only a short time, and the indications for terminating the pregnancy rapidly become prominent. All writers insist that the operation must not be postponed too long, and I would simply repeat the same. While most cases do well and recover quickly after delivery, yet not all do, and I have recently seen two fatal cases. The first was undoubtedly fatal from the start, as she was in very poor condition. She was under the care of a most careful practitioner, and the operation was quickly done under very light anesthesia. The second case proved fatal because of delay owing largely to the religious question.

Acute diseases arising early in pregnancy are not usually an indication for emptying the uterus, but in the presence of most of the acute infectious diseases when severe and accompanied by high temperature, fetal death and abortion are apt to occur. Late in pregnancy, it is usually conceded better not to bring on labor, especially by rapid dilatation and delivery, as labor often tends to aggravate the symptoms. If labor intervenes, however, it is usually well to hasten its termination in a moderate way.

In acute conditions when there is threatening the loss of any of the special senses, such as the eyesight in Bright's disease, or the mind in melancholia or other nervous affections, there should be no question of the propriety of terminating the pregnancy.

The foregoing comprise the chief medical conditions

1. British Med. Journal, Dec. 12, 1903, *epit.*, p. 92; Borsl, 11 *Collectn.*, Oct., p. 303.

2. Hofmeister: Monats. für Geburts- und Gynäkol., Oct., 1902.

for which the induction of abortion is apt to be indicated. In addition there are certain surgical conditions which it is only necessary to mention in this connection. Pregnancy with tumors in the pelvis, cicatrices and tumors in the vagina, and incarceration of the retroverted pregnant uterus, are now better treated by other methods than by the induction of abortion. Early pregnancy with cancer of the cervix is probably best treated by a prompt operation for removal of the whole uterus.

The method of procedure in pregnancy, complicated by contracted or deformed pelvis, is not nearly so difficult a problem as formerly. It would be an extremely rare instance in which one would now be justified in emptying the uterus early in pregnancy because of any degree of shortening of the pelvic diameters, and then only in the presence of some positive contraindication to the cesarean operation at term.

On the other hand, I believe that the mother does have a right to say for herself whether she prefers to have cesarean section performed at term, or to have labor induced at the seventh or eighth month, although we know that the mortality of the premature fetus, even at the thirty-sixth week, and when surrounded by the most favorable conditions, has been very high, probably in the vicinity of 50 per cent.

Induction of labor is usually indicated in placenta previa as soon as the diagnosis is made, although in a favorable case one may be justified in waiting for a short time, when the fetus is approaching the viable period, and the patient can be carefully watched and kept at rest.

I am aware that occasionally in connection with this subject the religious question seriously confronts the physician, and he must always be careful to respect the belief of the patient and her family. The physician, however, can not let this influence him in considering his patient's condition. If the termination of the pregnancy is, in his opinion, necessary, then it becomes his duty to advise it. When the circumstances are such that the spiritual adviser forbids an operation, it is sometimes very difficult for the patient and her husband to decide the question, but in the presence of the severer forms of disease, the condition of the patient is so distressing that they rarely hesitate long.

The position of the Roman Catholic Church in this matter I regard as perfectly just and logical. We could scarcely expect a religious body which stands for morality to do any other thing than to forbid the taking of life, even when intrauterine and before the viable period. I believe that the strenuous position of the church in this matter, in many instances, may prevent the operation for criminal abortion, and in the long run I imagine it may preserve many more lives than are sacrificed to religious scruples. I also believe that the penalties are not too severe, when abortion is done for serious conditions, by a physician and against the advice of the clergy.

METHOD OF OPERATION.

The operation of emptying the uterus in the early months of pregnancy is not usually a difficult one nor severe for the patient, under proper conditions. It can be done quickly with the curette and under very light anesthesia, so that except in extreme cases there need be very little anxiety for the patient as a result of the operation. In the later months, induction of abortion or premature labor, if performed under proper aseptic precautions, is of itself practically without mortality to

the mother, and is not difficult of performance in most cases.

The most common method in use for the induction of premature labor is to insert a bougie into the uterus and keep it in place by vaginal packing. Its chief objections are that it is frequently slow in action, and also it is said to be not always certain. I have adopted this method in a considerable number of cases in which there was no reason for haste, and the result has always been accomplished. The longest time before labor started after introduction of the bougie has been four days. It is good practice at the end of twenty-four hours, if nothing has been accomplished, to withdraw the vaginal packing, carefully clean the vagina and insert a second bougie, and to repeat this again on each succeeding day till labor pains begin. The bougies should not be removed after the pains begin till labor is well under way, otherwise the pains may quiet down. The first bougie may be difficult to insert and may require a little ether to dilate the cervix and to separate the membranes which may be attached just about the internal os, but after these membranes are separated a little from below, I have never found any difficulty in inserting the bougie. Lately two bougies have been inserted at the start, and I believe that the two have proved more efficient in stimulating pains than one. I have never ruptured the membranes to induce labor, as I believe their preservation may be of importance.

The employment of the colpeurynter or of Voorhees' inelastic bag as a means of inducing labor is highly recommended, especially where the membranes are ruptured or where time is not important. The cone shape of the bag causes it to act as a cervical dilator much like the unruptured amniotic membranes. The chief objections to its use are that it is often difficult to properly insert, and there is danger of displacement of the presenting part resulting in prolapse of the cord. The cone-shaped inelastic bag is undoubtedly the best substitute for nature in suitable cases and it almost always acts as an efficient stimulator of pains.

The injection of fluids into the uterus as a means of inducing labor is not to be recommended as serious results have ensued even from the introduction of sterile water.

Other forms of induction of labor worthy of serious consideration are those by which the results are accomplished by forcible dilatation of the cervix either by the hand or by instruments. Deep cervical incisions after the method of Dührssen of Berlin find only a few advocates, and most conservative men hesitate to adopt the practice because of its very obvious dangers.

There are commonly three methods of manual dilatation of the cervix: First, when one hand is approximately brought into the shape of a cone and pushed as a wedge into the cervical canal. Second, by which one hand is used and one finger after another gradually introduced into the cervix, and separated. Third, the bimanual method, by which two fingers of each hand are introduced and then separated. In manual dilatation of the rigid os, the greatest difficulty is often encountered in forcing the cervix open, and only after repeated attempts by first one hand and then the other, and by all the known methods is one successful in accomplishing dilatation. But even after the closed fist can be inserted and pulled out through the os there is often great difficulty in the delivery. Manual dilatation in many cases can not be considered at all satisfactory, but until recently it has been the only possible thing in most cases in *accouchement forcé*.

Complete instrumental dilatation of the cervix for rapid delivery is rather a new proceeding, and is still *sub judice*, owing to the fact that there has never been until recently any instrument devised which could efficiently and thoroughly dilate the cervix up to the full dilatation.

Many men object to instrumental dilatation as a dangerous procedure because of the danger of deep cervical lacerations, but in many cases it is impossible to dilate the cervix by hand and not cause tears. Williams, who is not in favor of the instrumental dilatation, although he speaks guardedly, in a recent article reports two fatal cases of rupture of the uterus after manual dilatation in *accouchement forcé*,³ also seven other cases in which deep tears of the cervix required immediate operation for control of the hemorrhage. I am myself cognizant of several cases of rupture of the uterus which have occurred after manual dilatation.

Any contention over the use of methods or of instruments can be settled, I believe, in only one way, and that is by the results of the individual operator. If one finds that by adopting certain methods he obtains better results than by others, then that method is by all means the one for him to pursue. Other observers may get different results and naturally make their deductions accordingly. To the average man the operation which accomplishes the result in the easiest manner and with the least damage is the most satisfactory, and that operation, whether it be by hand or by instrument, is the one for him to adopt.

That there is a certain legitimate demand for a mechanical dilator of the cervix in pregnancy and in labor is, I believe, plainly evident. This demand is attested by the various instruments which have already been devised for this purpose, although no one of these, except the recent one of Bossi, has ever met with much approval outside of the hands of its inventor. The danger of tearing the tissues is, I believe, in many cases not as great with the metal dilators, if they are used properly and carefully, as it is with the hand attempting to force itself into the closed cervix.

I have found that the use of the instrument gives one the greatest feeling of security because of the comparative ease with which the work is accomplished directly under the eye of the operator, where the speed may be increased or diminished according to the readiness with which the cervix stretches. The unopened os can be fully dilated from twenty to thirty minutes, but with the instrument it is not so much a question of how fast the os may be dilated, but, on the contrary, it is altogether a question of how fast the cervix will admit of being stretched, and only so fast should the dilating arms be expanded.

DISCUSSION.

DR. C. LESTER HALL, Kansas City, Mo., said that the objection to the induction of premature labor is held not only by the Roman Catholic church but by us all. It is dangerous to discuss this question before the general profession, and it is particularly dangerous for the public to have the impression that labor can be induced prematurely without danger. As operators, we know it can be done, and we are prepared to do it in certain cases, but those who deal with women and their weak husbands know that there is a constant outcry, even among good people, for the bringing about of this very thing. Speaking from a moral standpoint, when a woman, because of a contracted pelvis, heart disease, or some other condition that may jeopardize her life, can not bear children, we should suggest methods for preventing impregnation rather

than to suggest remedies for getting rid of the fetus. That, too, is a moral question that confronts us and each must decide for himself. There is a feeling of sympathy on the part of the husband, and a great regard for his own comfort, that makes him agree to the induction of labor when his wife begins to vomit and suffer otherwise. Vomiting of pregnancy, while it is one of the most distressing things in the world, can be endured the longest. The correction of a displacement, the treatment of an erosion of the cervix, not carried to the extent of producing an abortion, but simply local applications, with rest and moral suasion, often will correct the trouble. The induction of labor should be a last resort. Dr. Hall said that if he were compelled to produce an abortion he would use Dr. Higgins' instrument in preference to the finger. We can never have our hands clean, and if there is any time when they should be clean, it is in an operation of this kind. Any method of producing dilatation quickly would be preferable to the finger, sound or bougie. We are glad to have an instrument of this kind at our command, but Dr. Hall is fearful of the ultimate results of this paper.

DR. C. S. BACON, Chicago, said that in considering the induction of labor in cases of chronic heart disease, nephritis and tuberculosis, we must consider not only the disease, but also the social condition of the patient. The patient may be in a condition that makes it impossible for her, under ordinary conditions, to carry the pregnancy to term without a spontaneous abortion, or without suffering seriously in health. If the woman can have the very best care, and can remain in bed during the latter part of her pregnancy, have a good nurse, etc., she may go through her pregnancy very well. Hence the circumstances of the patient is a point we must take into consideration. Vomiting of pregnancy is an indication for the induction of labor that must be handled with great care. The proper treatment of this condition is not understood nor generally followed. It is customary to neglect the first symptoms, or to make light of them. The patient is allowed to be around until she is in a very serious condition. Put her to bed, starve her for a time, eliminate in every possible way and usually she will get along very well. There can be no doubt that a clean obstetric operation is the proper method. Rupture of the membranes is indicated in one or two conditions, in hydramnion, or when there is much distension of the abdomen. The combined use of the bougie and bag is of value; the bougie first for a few hours to soften the cervix, and then the bag; and this should always be placed inside of the egg sac. Dr. Bacon has never been convinced that five or six or eight blades are better than four; he is not sure that four are better than two. It is a complicated mechanical problem which is still an open question. The efficiency of the Bossi dilator is still unsettled. The results so far have been bad. There are so many serious results and tears following the use of this instrument and its modifications, that it is extremely doubtful whether it ever can gain a place as a means of inducing labor or hurrying the termination of labor. One thing is true, the rapid induction of labor is accomplished better by a vaginal cesarean section than by means of any such instrument.

DR. R. W. HOLMES, Chicago, said that the induction of abortion is largely an ethical and religious one, while the induction of premature labor is purely a matter to be decided on its scientific merits. The former is absolutely prohibited in the Catholic church, while the latter is permitted, as it is not done with the intention of directly injuring the child. Abortions are sometimes necessary for the preservation of maternal life; the conscientious physician must inform the family of the stand of their church, must inform them of the necessity of the procedure, must inform them of the true conditions and the serious consequences if the pregnancy should continue and let them decide the course to be pursued. If the decision is contrary to his opinion he may easily and gracefully retire in favor of another practitioner. Dr. Holmes said that the surgical treatment is, in general, the best; dilate the os with Hegar's or Goodell's instruments, clean out the uterine contents with the finger or possibly a dull curette;

the final act of the procedure must be a re-examination of the uterus so that we may be sure the uterus is thoroughly emptied. Do not curette and then stop. A friend of his had an abortion; the fetus was expelled, he curetted, packed the uterus, and the next day removed the tampon. A few hours thereafter something was expelled which proved to be a fetus—she had twins. This error never would have happened if he had re-examined the uterus. Such incompleteness in cleaning out an abortion is of frequent occurrence where re-examination is not made. One surgeon curetted many uteri previous to doing hysterectomies to ascertain how effectively it was possible to remove the endometrium. On opening the uteri he found that islands of varying size of uterine mucous membrane had been left, illustrating that the uterine lining can not be completely removed with the curette; in fact, if the uterus is scraped as we are instructed to do by books we never would have an endometrium again—these islands represent Thiersch grafts of endometrium. The Higgins dilator is more simple than the Bossi, but is equally as dangerous. The tips are too sharp, so that there is danger of injuring the uterus. The tips should be blunt, or better, have rubber tubing slipped over them. It does not make any difference whether labors are spontaneous or accelerated by the various methods of dilatation, there will invariably be cervical tears—the more rapidly dilatation is accomplished, the more certainly are these tears going to be serious.

Dr. F. A. HIGGINS said that he endeavored not to advocate any radical measures, but the subject has gradually been developing, and although no paper, so far as he is aware, has been written covering the whole subject, some of the more recent books have taken it up to a certain extent. The suggestion that it is better to instruct patients how to prevent conception, than to end a pregnancy, might be true in certain cases, but it would not always be possible to do this. Moreover, he feels that this would not be as safe a proceeding in the long run, and he knows of no way to absolutely prevent conception, except by operative measures, which we are rarely justified in resorting to. If the instrument is used with ordinary care bad results will be less frequent than with forced manual dilatation. Great damage is not infrequently done by so familiar an instrument as the obstetric forceps in unskillful or rough hands, but we can not discard the instrument itself. He said that the question is still *sub judice* but he believes that instrumental dilatation properly done under careful observation, is safer with a rigid primiparous cervix than is manual dilatation or incision. He advised against instrumental dilatation in placenta previa, because the cervix is usually too soft and friable and also because of the opportunity for free hemorrhage, which may be largely controlled by the hand in the vagina.

HYPNOTIC REMEDIES IN MENTAL DISEASE. THE INDICATIONS THEREFOR AND THE USE THEREOF.*

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The paramount importance of insomnia as a symptom of mental disease always places the discussion of the indications for and the use of hypnotic remedies foremost in the therapeutics of psychiatry.

In discussing the subject I shall consider two phases of insomnia: 1, The insomnia characteristic of the early stages of mental disturbances, and, 2, the insomnia encountered after the psychosis has become well established. The two differ from each other and demand radically different methods of treatment.

The insomnia of the prodromal period is an almost

invariable symptom, varying in intensity from the simple mild form of sleeplessness to the most aggravating and intractable, demanding drastic procedure. It may exist for many months before the outbreak of the more acute symptoms. It has no marked distinguishing features, but is usually accompanied by some more or less definite head symptoms which tend to reveal its true character. The great importance of the early recognition of this insomnia, with its underlying diseased condition, offers an excuse for presenting the accompanying somatic and psychic symptoms somewhat in detail.

These symptoms may exist in the form of peculiar sensations or feelings in the head, such as are so common in neurasthenia, a feeling of weight at the occiput or over the vertex, or a feeling of constriction; or it may be a vague and indefinite "deep in" feeling, involving the whole head. Some complain of a feeling of numbness, others of fullness. Not infrequently these various sensations give rise to the idea that they are becoming insane. During this prodromal period one encounters not only the malaise that naturally succeeds disturbed sleep, but also a tendency to present a certain reserve, and solitariness, but more especially an irritable mood. The patients appear as if worried. Indeed, close questioning often discloses the fact that they are brooding over what they fear to be impending "loss of mind," whence originate suicidal thoughts and attempts in one whom you may believe to be suffering only from a simple insomnia.

This period of insomnia is very often aggravated by dreams of the most distressing character, the memory of which remains and haunts the patient for many days.

Other symptoms of considerable importance accompanying this insomnia are a gradually progressive loss of weight, and anorexia. Furthermore, inquiry into the sexual life often reveals definite disturbances in this field that can not be disregarded—such as reduced sexual excitability, giving rise to fear of impending impotency, or, on the other hand, greatly increased sexual desire.

The presence of some of these various symptoms facilitates the recognition of the real character of the insomnia, and indicates the great necessity of at once establishing suitable treatment. Undoubtedly many cases of mental disease could be permanently arrested by appropriate treatment at this time.

In discussing the treatment, one must admit at the outset that there is no specific remedy. The first indication is to remove exciting causes, whether they be somatic or psychical in character. This matter assumes greater importance in this type of insomnia, because of the presence of a defective constitutional basis in the majority of these cases which strongly predisposes to an easily disturbed mental equilibrium. For this reason I may, perhaps, be pardoned for offering such common suggestions as that gastric and cardiac disturbances, nasal or pharyngeal irritation, etc., should be corrected, and that altered constitutional states, such as lithemia, gout, anemia, habitual constipation and genito-urinary disorders should be given careful attention. Again, the altered mental and physical state of the individual peculiar to the critical periods of life, namely, pubescence and involution, should be carefully considered. Although they present less definite indications for treatment, yet it is often possible to alleviate some of the physical symptoms, and particularly in the youth, to establish a more healthy mental attitude and dispel foolish apprehensions by giving some sound advice.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

A very important matter is the removal of irritating and exciting factors in the environment and daily life of the individual. These may exist in fatiguing employment, a noisy neighborhood, needless worry over business, anxiety about illness and many other conditions that may accompany the vicissitudes of life. The irritating influence of such conditions is undoubtedly magnified by increased susceptibility on the part of the patient, also the outcome of the disease, yet it is possible to materially ameliorate the conditions by careful attention to the environment, and inability to improve these conditions may make it necessary to remove the patient to different and more restful surroundings.

It is a trite saying that in attempting to control insomnia, hypnotic drugs should be the last resort, after having exhausted all accessory remedial agencies. This maxim is a particularly valuable guide in treating the insomnia of insanity because of its chronic character and the necessity of prolonged administration of the hypnotic drug. The accessory remedial agencies referred to are probably well known to most of you, and include the warm bath, the wet sheet, massage, hot liquid nourishment, suitable exercise, etc. In employing any of the more gentle agencies, it should be borne in mind that to be most effective they must be applied at a time when the organism is tending toward sleep. So, one finds in patients who awake after a couple of hours' sleep to lie restless the remainder of the night, that the hot liquid nourishment is best not given until the patient awakes.

A simple measure of considerable importance, especially in asthenic individuals, is the maintenance of the body temperature by the minimum of heat production. This demands consideration of the room temperature and the external application of heat.

The ideal hypnotic drug, such as will promptly induce quiet, natural sleep, the extended use of which does not require increasing dosage or lead to an accumulative effect, and which is agreeable to taste and easily administered, is as yet undiscovered. It is not the fault of the manufacturing chemists who vie with each other in attempting to supply this demand. Most of these products, however, after an extended trial, fail to maintain a place among the valuable hypnotics.

The hypnotic best adapted to the insomnia of the prodromal period is one of the bromid salts, preferably potassium bromid, given alone or in combination with the sodium and ammonium salts. Their sedative effect on the sensory portions of the nerves of the cord and cerebral cortex and in relieving this so-called "pent up" or "tense feeling" renders them peculiarly valuable in this period of the disease, where there is increased irritability and nervous sleeplessness.

A combination of the bromids, especially the potassium and sodium bromid, 3 1/3 grs. each with 3 1/3 grs. chloral at a dose in the syrup of the bitter orange peel, is usually efficacious where the bromids alone fail.

Bromopin, the organic compound, which usually does not give rise to cutaneous eruption or gastric disturbance, is an excellent substitute for the bromids, given in doses of from 4 to 8 teaspoonfuls.

Trional is also valuable in this type of insomnia, always being preferable to sulfonal because its action and elimination is more rapid, and it is generally without cumulative effect. Its action on the mind fulfills the demands of the best hypnotics, producing difficulty of comprehension and reducing the impulses for movement. It is administered in hot solution (milk or

broth), dosage 10 to 25 grains on alternate nights and continuously for not more than two weeks. It should be observed that large doses, to which one so often resorts, sometimes are followed by gastric and intestinal disturbances, ataxia, tremor, depression, irritability and hemolysis.

Veronal and somnos, two new proprietary drugs, are useful in controlling this insomnia. Fuller mention of them is made later.

The insomnia of a well-established mental disease is usually less urgent in its demands for treatment. It is not so universally present as in the early stage, sometimes being absent altogether and again appearing only during exacerbations.

Nevertheless, next to the conditions of nutrition and excretion, it is the most important indication for treatment. The insomnia encountered here differs in the various psychoses because of its intimate association with and dependence on other fundamental symptoms of the psychosis; particularly pressure of activity, the presence of disturbing hallucinations and delusions and abnormal emotional states, especially fear. It seems best, therefore, to take up in order the more important psychoses and discuss the various hypnotic remedies adapted to each.

In delirium tremens, and to a less degree in alcoholic delusional insanity, forms of mental disease frequently encountered by general practitioners, the employment of hypnotic measures is very essential to successful treatment. The procurement of sleep is equally important to the maintenance of nutrition and the establishment of free excretion. The second is readily accomplished, as the patient usually takes nourishment greedily. The other two indications are best met by the use of the warm wet pack, 95 degrees lasting one hour, which produces a profound diaphoresis followed by quiet and sleep.

The patients sometimes submit to the prolonged warm bath (95 degrees to 98 degrees several hours in duration) where this measure fails.

If one must resort to the use of hypnotic drugs, chloral in combination with potassium and sodium bromid 3 1/3 grains each at a dose, repeated until sleep is secured, is by far the best, unless contraindicated by cardiac complications. The dose should not be repeated oftener than every hour up to 60 grains of chloral, and then not repeated for several hours. Where such complications as fatty heart, valvular insufficiency, athroma or myocarditis exist, paraldehyd, though less efficient than chloral, is the best substitute. The first dose should not be higher than 45 minims. It may be increased to 2 drams, and is given in ice water or whisky.

Next in efficiency to paraldehyd is chloralamid, which can be given with safety where cardiac and vascular symptoms exist. Its pleasant taste and prompt action with freedom from depression of cardiac and respiratory centers make it a valuable substitute for the two preceding drugs. It is best given in from 30 to 35 grain doses in a weak alcoholic solution. It must not be administered in alkalin or hot media. If all of these hypnotics fail one will usually succeed with a combination of a large dose of ammonium bromid with a moderate dose each of chloral and morphia. Prolonged deep sleep is not to be sought for, as this comes only with the general improvement.

There are several forms of insanity in which the insomnia is accompanied by and in great part due to a

great pressure of activity. This sort of psychomotor activity and its attendant insomnia is especially characteristic of manic-depressive insanity, but also occurs in dementia precox, particularly the catatonic form, and sometimes in dementia paralytica.

The hypnotic chosen here must subserve the function of a psychomotor sedative as well.

The only satisfactory remedy suitable for prolonged application is the prolonged warm bath—95 to 98 F. The patient remains in this for several hours until the desired effect is obtained, when he is returned to bed. The patient regularly alternates from the bed into the bath as needed, and can remain continuously in the bath without deleterious effects for many days.

Considerable difficulty may arise in keeping the patient in his first bath, and for this purpose a preliminary dose of hyoscin hydrobromate may be administered. But the patient once accustomed to the bath usually likes it.

Where the bath is inaccessible or for any reason inadvisable, and a hypnotic drug must be employed, the best is hyoscin hydrobromate. The chronic character of these psychoses makes it necessary that drugs be employed only to control insomnia and the pressure of activity at the height of the psychosis or when most needed during exacerbations. Idiosyncrasies for hyoscin are by no means infrequent, so that the first dose should be 1/250 to 1/200 of a grain, and it should be employed only with care in asthenic cases and where there is circulatory disturbance. The dose may be cautiously increased to 1/50 grain.

Scopolamin stands next to hyoscin hydrobromate, and by some is even believed to be more satisfactory, especially the product manufactured by Merck, which appears to be more uniform in its action and to give equally good results in somewhat smaller dosage, and, furthermore, is never followed by depressing effects. It is given in similar dosage as hyoscin. Where it seems necessary to repeat the dose of hyoscin or scopolamin more than twice daily, it is well to combine it with paraldehyd, which always gives very prompt and satisfactory results.

Cannabis indica is an old and standard remedy for this type of insomnia, but less reliable than hyoscin and scopolamin. It may be administered either alone 1/3 grain of the extract or in combination with the potassium bromid, 30 grains of the latter to 5 c.c. of the tincture. The lack of uniformity in the preparations of this drug is a distinct drawback to its use.

Trional and veronal are two drugs that are often employed, but the results are not satisfactory and their influence tends to wear off. Yet trional combined with paraldehyd sometimes promptly brings sleep and quiet where other drugs fail.

The type of insomnia which is accompanied by and in part due to distressing hallucinations and delusions is encountered most often in melancholia, in some cases of dementia precox, and occasionally in dementia paralytica.

The picture of profound despondency, attended by great mental anguish, lamentation and agitated restlessness with marked insomnia is well known and demands alleviation. The best therapeutic agent at our disposal for this purpose is the deodorized tincture of opium given in the smallest dose that will produce the desired effect, and it may be increased to from 20 to 25 minims two and three times daily. Morphin in doses of 1/32 grain repeated five times daily is highly recommended

by some and gives better results than when given in 1/16 grain doses three times daily. If good results, it appears within two weeks, otherwise the drug must be gradually withdrawn. It is contraindicated where an asthenic condition of the patient exists and where there is gastric disturbance or albuminuria.

It can be asserted without reservation that opium or its derivatives are not indicated in any other form of insanity unless the condition is aggravated by pain; and in melancholia, unless it does good, it is distinctly harmful.

The rest treatment should be insisted on in all cases of melancholia, and with its application a moderate degree of insomnia existing independently of prolonged agitation and mental suffering does not demand energetic treatment.

Should the insomnia become troublesome, then the simple hypnotic measures ought to be first employed, as hot liquid nourishment or warm sponge bath at the hour of retiring. If hypnotic drugs seem necessary, either trional, paraldehyd, chloralamid or veronal usually suffice.

The insomnia of the depressive phases of dementia precox and of manic-depressive insanity are best ameliorated by the use of the cold or warm pack. Where there is no success by these means, one may employ the combinations of chloral 3 1/3 grains with potassium and sodium bromid 3 1/3 grains each; paraldehyd alone, trional, veronal or somnos. The insomnia of the depressive phase of dementia paralytica is most difficult to control, and often does not yield to any remedy. Chloral with the bromids given in larger doses, paraldehyd alone and in combination with trional and veronal alone should be tried.

For the extreme insomnia of the exhaustion and infection psychoses, where there is great clouding of consciousness, delirious excitement and a tendency to an asthenic physical condition, alcohol is most valuable, given in large doses in the form of whisky and brandy. It is readily added to the liquid nourishment, as forced feeding by nasal or stomach tube is usually necessary in these cases. In employing alcohol in these psychoses, special attention must be paid to the tongue, skin, pulse and respiration; if the skin and tongue become moist and the pulse and respiration slower, while the delirium subsides, one is justified in continuing the treatment, but absence of improvement demands its immediate cessation. The chief indication here is not to control the insomnia, but to fortify nutrition, guard the heart and prevent self-injury. This observation may seem unnecessary to many, but the irrational abuse of sedative and hypnotic drugs in these acute psychoses is so often encountered, and occasionally leading to fatal results, that too much stress can not be laid on it.

Prolonged warm baths are usually successful in controlling the insomnia. In conjunction with them hyoscin or scopolamin in doses of from 1/200 to 1/150 grain can be used with good results. Trional, combined with paraldehyd, is adapted to these cases, but no hypnotic drug should be long continued.

In all of these conditions the insomnia tends to persist a long time, consequently it is impracticable to attempt to do more than reduce the degree of insomnia at the height of the psychosis and at the periods of exacerbation.

One of the most obstinate forms of insomnia with which the psychiatrist has to contend is that occurring in senile dementia. The sleeplessness is accompanied by more or less intense motor restlessness, which reaches its height at night.

The occasional success accomplished by employing the more simple hypnotic measures before resorting to drugs justifies one in giving them a trial. Of the hypnotic drugs paraldehyd and chloralamid are most efficient and best adapted to these cases, because they do not interfere with cardiac function and are not contraindicated by vascular and cardiac disease.

In the limited time allotted to this paper, it has been possible to cover only the common forms of mental disease in which insomnia is a prominent symptom. Before closing, something should be said of the new hypnotics which have been so widely advertised. During the past decade many new hypnotic drugs have been discovered and placed on the market, but most have failed to prove themselves of much value in controlling the insomnia of mental diseases. These are urethran, hedonal, hypnon, ural, tetronal, somnal, isopral, chloralose.

Two recent hypnotics, still unproved, however, merit some consideration, namely, somnos and veronal.

Somnos, a definite synthetic chemical known as chloroethanal alcoholate, it is claimed, is a reliable and uniformly active drug, given in doses of one-half to one ounce, producing a quiet, restful and natural sleep, without depressive effect on the heart, circulation or respiration, and unaccompanied by unpleasant after-effects. The few reports which, unfortunately, are mostly generalized, thus far published tend to confirm the many experiments of Dr. Colin Steward, at the University of Pennsylvania, on animals, and to establish the drug as a valuable hypnotic, but more extended experience is needed before its relative position among hypnotics can be fixed.

Veronal, which was discovered by Fischer and Mering in 1903, has rapidly acquired many clients among the best neurologists and psychiatrists in Europe, including Mendel, Kron, Wiener, Berent, Poly, Jolly, Lillienfeld and Oppenheimer. The claims are that it is relatively harmless and within a wide range in dosage is free from disturbing after-effects, is prompt in action (one-half to one hour), producing a quiet, dreamless sleep several hours in duration. It is given in small doses, 3 to 15 grains, and can be employed in chronic nephritis, suburemic conditions and uncompensated heart trouble. After a trial extending over one year (Van Heusen), it appears to show a slight advantage over trional. Like trional it sometimes tends to show a cumulative effect, and so should be alternated with other hypnotics.

DISCUSSION.

DR. CLEMENT B. LOW, Philadelphia—An old minister, an inmate of a home for supernannated ministers, complained of persistent insomnia, and talked and thought about it all the time. I asked him what remedy he found most effectual. He replied: "I keep a little sulphonal by the side of my bed, and when I can't sleep I wet one of my fingers and take up a little sulphonal and put it in my mouth and I go right to sleep." I mention this case because I think it one of auto-hypnotism, for I know that sulphonal is so insoluble in the gastric juice that it would take several hours before it could dissolve and produce its effect. Even then the quantity he took was too small to have any effect. His going to sleep after taking it was simply the effect on his mind. Knowing of its insolubility, I think it strange that so many physicians prescribe sulphonal in dry form, when they should have it dissolved in hot water. Patients wonder why they do not sleep at night after taking sulphonal powders, and why they are sleepy all the next day.

DR. WILLIAM J. ROBINSON, New York City—With regard to hypnotics in general, in my opinion there is no such thing, and

probably never will be such a thing, as an absolutely safe hypnotic. There can not be in the nature of things; sleep is too complicated a process. It is improbable that any one will ever discover a hypnotic agent that will be entirely free from deleterious effects. Has Dr. Diefendorf had any experience with apomorphin in alcoholism and delirium tremens and other convulsive diseases? Has he given any trial to strontium bromid, which seems to be more acceptable than some of the other bromids? He mentioned several proprietary remedies. Does he think that there are any remedies in the Pharmacopoeia which will take the place of those which he used?

DR. J. W. FOSS, Phoenix, Ariz.—I wish to emphasize the harmfulness which may result from the use of hypnotics. When a distinguished alienist, such as Dr. Edward Cowles of Waverly, Mass., says that one of the great causes of insanity is the abuse of hypnotics, it should be a warning to every physician, and it has been a warning to me when prescribing various hypnotics. It has led me to be very careful in prescribing this class of drugs, for fear of establishing a habit.

DR. W. A. WESTCOTT, Atlantic City—In connection with the preceding speaker's remark, I wish to say that the copying of the prescription on the box is largely responsible for the habit of self-medication. Unless the patient is in the hands of a trained nurse he will take the box and have it refilled whenever he wishes to, and thus learns the name of the drug that he is taking.

DR. W. F. WAUGH, Chicago—The condition of sleep is so dependent on the cerebral circulation that the use of agents which modify vascular pressure will bring on the condition of sleep. Much better than the use of hypnotics, which simply smother the consciousness in producing their effect, is the use of digitalin, or aconitin, according to the state of the blood tension; and these, when properly used, will bring on sleep in a way that will simply surprise those who have not yet availed themselves of these drugs in their practice for the purpose indicated.

DR. HEINRICH STERN, New York City—I wish to add a few words concerning the eventual deleterious effect of sulphonal, trional and tetronal on the organism. Hematoporphyria following the administration of sulphonal has been noticed in more than one hundred specified instances. As a matter of fact, there are only very few instances of hematoporphyria on record which had not been the result of medicaments belonging to the sulphonal group. The hematoporphyrin is very likely due to the anomalous and excessive disintegration of the hemoglobin which is brought about by the hypnotics of the sulphonal group.

DR. WILLIAM W. TOMPKINS, Charleston, W. Va.—Is it not a fact that in most of these cases we let the patients make their diagnoses for themselves? They come to us with their minds made up as to what is the matter with them, and often they also try to dictate the treatment. We begin usually with the bromids and similar remedies, but usually end up with morphia or the synthetics mentioned by Dr. Diefendorf. I was struck by the smallness of the doses he mentioned, the 1/32 of a grain of morphia and 3/2 grains of the bromids. In my own experience patients have taken these in much larger doses before coming to the physician. And in the treatment we have as much to do with breaking up the habit of taking drugs as we have with the treatment of insomnia. What is Dr. Diefendorf's experience in the use of digitalis and other coal-tar preparations than those he has mentioned?

DR. JOSEPH CLEMENTS, Nutley, N. J.—These are abnormal cases to begin with, and in the use of drugs we add their abnormal effects to those which we already have. Dr. Diefendorf called attention to the various means and methods of putting the patient in a normal condition before resorting to the use of drugs. In this way we obtain by simple methods the desired effect, and with the least amount of medication. For instance, if we can largely accomplish the purpose with the aid of a hot bath, only a small amount of any drug may be needed to continue the effect.

DR. O. T. OSBORNE, New Haven, Conn.—Very often in these troublesome insomnias, the tension of the blood vessels has a

great deal to do with it. Digitalis will relieve it if too low, and, if too high, as in arteriosclerosis, anything that will dilate the blood vessels will relieve it. That is the reason why a little alcohol is sometimes so efficient in old people in overcoming insomnia. Nitroglycerin in small doses will often do as well.

Dr. A. R. DIEFENDORF—The trend of the discussion indicates that insomnia is being regarded in a more rational and serious light. It really is a diseased condition which demands as careful study as any obscure nervous disorder. The unquestionable value of hygienic measures is attested by the fact that in some large insane hospitals not a single dose of any hypnotic drug has been given for many months. Relative to the small doses of bromids, I intended to convey the impression that they are efficacious only in connection with small doses of chloral, and as regards small doses of morphin, this drug is better given in dosage of 1/32 gr. five times daily than 1/16 gr. three times daily. What has been said by Dr. Osborne about the value of nitroglycerin in selected senile cases is borne out by my experience.

SOME ASPECTS OF THE NEWER PHYSIOLOGY OF THE GASTROINTESTINAL CANAL.*

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The relationship which exists between the functions of the digestive tract and that ensemble of biologic processes termed nutrition is both manifold and far-reaching. It may perhaps be regarded as one of the shortcomings of the strictly "cellular" physiology of the century just closed that it failed to point out the conditions of interdependence and co-operation noticeable between different physiologic tissues. The modern organo-physiology is again beginning to emphasize a large number of such connections which have too frequently been overlooked, especially in a practical way. The physician should recognize in the study of alimentation something more than the mere consideration of the solvent action which the digestive secretions can exert. Thus Bidder and Schmidt wrote over fifty years ago in their classic work, *Die Verdauungssäfte und der Stoffwechsel*: "Wir finden einen zweiten und wesentlichen Theil der Bedeutung der Verdauungssäfte darin, dass sie Träger und Vermittler des innerhalb der Grenzen des Organismus, und in gewissem Sinne unabhängig von neuer Zufuhr und dem entsprechender Ausgabe, stattfindenden Umsatzes der lebenden Materie des intermediären Stoffwechsels sind, und koennen nicht umhin, auf dieses Verhältniss ein um so groeßeres Gewicht zu legen, als wir durch dasselbe in den Stand gesetzt werden, nicht auf die Abschätzung des äusseren Umfanges jenes wichtigen Lebensvorganges uns zu beschränken, sondern zugleich, wenigstens theilweise, die einzelnen Glieder jenes Totaleffectes kennen zu lernen." It is eminently fitting, therefore, that the discussion of the perversions of metabolism should include some consideration of the recent contributions to our knowledge of the physiology of the gastrointestinal canal. My purpose is to present a number of the more important advances which the past few years have witnessed, and to point out, if possible, the lines of progress which they inaugurate.

INNERVATION AND MOVEMENTS OF THE ALIMENTARY CANAL.

We may properly begin this review with a consideration of the innervation and movements of the alimentary canal, to the explanation of which valuable experimental data have lately been contributed. In the case of the stomach movements it has been customary almost to the present time to look on the classic experiments made by Dr. Beaumont on Alexis St. Martin as generally applicable. You will recall that these involved the observation of the movements of a thermometer, the end of which was inserted through a gastric fistula. It appeared as if the contractions of the stomach wall tend to produce a movement of the gastric contents from the cardia along the greater curvature to the pylorus, and then back again along the lesser curvature. In this way a thorough mixing of the food with the gastric secretion was assumed to occur. Such a view of the mechanical changes taking place in the stomach has, however, been radically changed by recent observations, notably those made by Cannon on living animals by means of the fluoroscope and x-rays. It now appears probable that there is a marked difference between the effects of the mechanical activities of the pyloric and the cardiac portions of the stomach. In the latter there is no marked peristalsis, and the food, held in the tonic grasp of the gastric musculature, shows no sign of movement; on the other hand, in the pyloric portion a vigorous peristalsis assures a thorough mixing of the food and secretion. At intervals the sphincter of the pylorus relaxes and allows the semi-fluid contents to escape. According to the newer data, then, the motor functions of the stomach are almost entirely confined to the pyloric area, the fundus acting as reservoir and only gradually impelling its contents onward.

Several features of practical importance arise from the facts just presented. In the first place, the acid reaction of the gastric contents develops only slowly in the fundus reservoir in the absence of marked triturating movements. The progress of gastric digestion may thus be delayed; but at the same time the continuance of salivary digestion in the stomach is provided for. It is well known that acids markedly inhibit the amolytic action of saliva, the effective enzyme being promptly destroyed by a mere trace of free hydrochloric acid. Likewise the interval intervening before a reaction for free hydrochloric acid can be obtained in the stomach contents is known to be not inconsiderable, in some cases as much as three-quarters of an hour elapsing. Trials made by Cannon and Day on cats and dogs from one to one and a half hours after feeding showed that "the contents of the pyloric end were invariably strongly acid, but the internal mass in the cardiac end remained unchanged in its reaction. Inasmuch as salivary digestion may continue so long as free acid is absent, the conclusion was drawn that salivary digestion might proceed in the fundus for an hour and a half or longer without interference by the acid gastric juice." These observations have been confirmed in various ways. Later, when the contents of the fundus become more thoroughly mixed, proteolysis begins more vigorously.

The movements of the intestine have likewise formed a recent subject for discussion to which Bayliss and Starling and Cannon have contributed much. In place of the older notion of a progressive peristaltic wave by which the intestinal contents are forced along the tube we may substitute a somewhat different picture. True peristaltic waves pushing along the whole mass un-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solls-Cohen and O. T. Osborne.

doubtedly occur. But these are usually combined, according to Cannon, with segmentation; that is, as the food is advancing constrictions separate it into portions which may subsequently unite or join with other fragments. The orderly progression of the bolus at any point is attended by an augmentation of contraction above and an inhibition of contraction below it. Bayliss and Starling find this two-fold response to be the characteristic response of the gut to local stimulation; indeed, such a "contrary" or "reciprocal" response is apparently involved in every motor function.

Physiologists have been slow to appreciate the importance of inhibition in biologic phenomena; the illustration which progressive movement in the intestine affords of this principle is sufficiently striking to deserve particular emphasis. Thus of two adjoining parts of the gut the lower is relaxed while the upper one contracts. Meltzer has taken occasion to point out some pathologic consequences of the failure of this co-ordinated functional arrangement. If, for example, vigorous peristalsis forces onward the alimentary contents while strong contractions at the lower portion of the canal prevent their progress, the phenomena designated as colic may arise. When similar pathologic disturbances arise in the stomach, namely, when the pyloric sphincter and the sphincter antrum pylori or antrum contract simultaneously, we have a type of gastric colic. Such effects may be induced by abnormal stimuli and heightened irritability of the stomach or nervous system. The inhibition factor is wanting in these cases, whereas it is over-emphasized when signs of emotion, such as fear, distress or rage, are accompanied by a total cessation of the movements of the alimentary canal.

With reference to the lower part of the gut Cannon has found that the usual movement of the transverse and ascending colon and cecum is an antiperistaltic. This, as he says, "gives new significance to the ileocecal valve: for the food, now in a closed sac, is thoroughly churned and mixed by the constrictions running toward the cecum, and again exposed to absorbing walls without any interference with the processes in the small intestine." As the material accumulates it is then carried forward by peristalsis. The ileocecal valve is thoroughly competent for food entering the colon from the ileum.

It remains for the future to afford a synthetic conception of the entire sequence of movements which propel the intestinal contents along their path. The epoch making researches of Pawlow have made a beginning in this direction in indicating that the reaction of the food masses is the determining stimulus for the reflexes which contract or inhibit the pyloric sphincter. The novelty in this view consists in the substitution of chemical for purely mechanical factors as the effective agents in these reflexes. Free acid in the stomach induces an opening of the pylorus. The contact of the acid contents with the duodenal surfaces in turn provokes a reflex by which the sphincter pylori is closed. Simultaneously a flow of bile and pancreatic juice gradually neutralizes the acid, and a fresh outflow of gastric contents is in turn allowed. The physiologic advantage in this complicated chemical reflex is manifest. The intestine is protected from an excess of food at any time, the intestinal ferments are allowed to continue their functions, and by means of this regulatory action the acid gastric digestion gradually gives way to the more alkaline intestinal processes. Cannon has lately shown that a remarkable difference exists between carbohydrate and proteid foods in the readiness with which their ingestion is followed by a passage of contents out of the

stomach. Both classes of food-stuffs provoke abundant secretion; with carbohydrates free acid develops immediately, hence the pylorus relaxes; the discharge of proteids is delayed so long as they combine with the acid and no free acid is present. Gastric proteolysis is thus facilitated by this automatic arrangement.

SECRETORY FUNCTIONS OF THE GLANDS.

Far greater progress than that already mentioned has attended the study of the secretory functions of the glands discharging into the alimentary canal. The results already gained have largely been due to the influence of the work of the St. Petersburg school and the new experimental methods introduced by Pawlow. They have pointed out with striking effect the complicated nature of the reflexes which call forth secretion. Purely mechanical or thermal stimuli can no longer be regarded as sufficient to provoke the flow of saliva or of gastric juice which attends the ingestion of food. It has been the merit of the newer physiology to emphasize the interaction of chemical and psychical factors to a degree never before appreciated. The trend of these studies is doubtless already familiar to most of you; less well known is the functional adaptation which has been found to exist between the character of the food and the resultant secretory product. A few examples will suffice to illustrate this. The flow of saliva or of gastric juice which follows the introduction of an insoluble substance like sand into the mouth or stomach of an animal is minimal and insignificant in comparison with the "psychical" secretion provoked by thought or sight or smell of food. Even more effective is the actual ingestion of true foodstuffs, and here in turn the quality of the secretion varies markedly with the composition of the food. Thus the activity of the enzymes of the pancreatic juice seems to be correlated in a marvelous way with the corresponding elements of the diet. A régime rich in fat calls forth a secretion containing a relative abundance of lipolytic (fat-splitting) enzyme; with a meat diet the proteolytic enzyme preponderates, and so forth. Furthermore, this regulative action can apparently be modified by the conditions of the diet. One is almost inclined to speak of a physiologic education of the digestive glands, and to conceive of them as being trained for fat, or proteid, or carbohydrate digestion powers by the presence of the corresponding compounds in the alimentary canal. Indeed, this conception has already been raised above the realm of mere fancy. I have repeatedly found the intestinal secretion of adult dogs free from lactase—the enzyme which splits up milk-sugar—whereas, it is uniformly present in the suckling puppy. Weinland has succeeded in inducing the formation of lactase in the pancreas of rabbits by feeding them on milk; and the very recent experiments of Bainbridge in Professor Starling's laboratory indicate, so far as they go, that extracts of the intestinal mucous membrane of milk-fed animals, injected into dogs not fed on milk, cause the pancreas to secrete lactase. We are only beginning to understand the rôle of such functional adaptations in the work of the digestive apparatus; but even now it is possible to foresee that research in this domain will yield a treasure of observations directly applicable to pathology and therapeutics as well as to physiology.

The effects of the disuse or misuse of a gland may become as clearly defined as are the analogous consequences in a muscle; the errors of one-sided diet, the possibility of the gradual functional development of digestive organs by appropriate dietetic measures, the importance of the psychologic element with its attending inhibitions

or stimulations—such are the problems which the modern experimental science hopes soon to present in a rational light. This occasion will not permit any detailed review of the facts already gained. One or two of the recent acquisitions deserve notice, however. The flow of gastric juice such as occurs in the so-called “psychical” secretion, independently of the contact of food with the stomach, has repeatedly been demonstrated; and it has likewise been shown in our laboratory that stimulation of the gastric glands may take place without any direct gastric irritation in consequence of the influence of alcohol absorbed from the intestine. These observations have been extended by Wallace and Jackson to indicate that the reaction in the latter case is a purely reflex one, and that it is not limited to alcohol, but is possessed by other irritant substances, such as oil of peppermint.

Starling has indicated the existence of a remarkable mechanism for the control of pancreatic secretion in vertebrates. It has long been known that the introduction of acids into the duodenum will provoke a flow of pancreatic juice, even after the exclusion of nervous impulses from without these organs and after inhibition of all local nervous elements (by atropin). According to Bayliss and Starling the chemical stimulation of the gland cells is due to the production (by the action of the acid) of a specific substance, secretin, from some precursor, prosecretin; the secretin enters the circulation and incites the gland to increased activity. That the active agent is not the hydrochloric acid itself is sufficiently shown by the fact that this alone does not provoke secretion when introduced directly into the blood current.

The pancreatic juice collected directly from a fistula in man or animals is practically without action on proteids. It has long been known that the proteolytic enzyme is stored up in the gland cells in the form of an inactive zymogen, trypsinogen, and is apparently secreted as such. To Schepowalnikow, a pupil of Pawlow, is due the distinction of having discovered a remarkable property of the intestinal juice in “activating” trypsinogen, i. e., converting into trypsin the zymogen of the pancreatic juice. This action is due to a peculiar enzyme, enterokinase; and the discovery of this “ferment of ferments” has led to the observation of the wide occurrence of enzymes capable of activating zymogens. Following the suggestion of Delezenne and others we may call them kinases. The presence of enterokinase in the intestinal juice of man has been demonstrated by Hamburger and Hekma, and this secretion is thereby given an importance which it has not heretofore been assumed to possess. To this may be added Cohnheim’s finding of erepsin, a peculiar proteolytic enzyme which splits the primary products of digestion (proteoses and peptones) into simpler nitrogenous compounds, although it fails to act directly on most of the proteids. If the activity of the sugar-splitting enzymes (sucrase, maltase, lactase) of the succus entericus is likewise considered, we need no longer continue to say that “in the work of digestion it plays at most a very subordinate part.”¹

We may appropriately pause for a moment to picture to ourselves a small part of the alimentary changes in the upper part of the canal in the light of the newer facts. The tightly closed pyloric valve retains the gastric contents until digestion in the stomach is well under

way, whereon the acid reaction developed is a sufficient stimulus to cause a reflex inhibition of the sphincter. Immediately on the discharge of the acid chyme into the upper duodenum a contrary closing reflex is inaugurated. Simultaneously the acid contents of the gut reacting on the mucous walls develop a chemical product, a secretory stimulant, secretin, which is absorbed into the blood and being carried to the gland is sufficient to incite the pancreatic flow. The resulting alkaline fluid in turn gradually neutralizes the intestinal contents; with the removal of the acid the secretory excitant is no longer produced, the flow subsides and the original conditions allowing a fresh portion of chyme to enter the duodenum again prevail. The acid chyme also exerts an influence on other glands involved in digestion. The flow of bile is increased and, according to Delezenne, the secretion of intestinal juice with its contained enterokinase is likewise facilitated by acid in the duodenum. Thus the proteolytically inert pancreatic juice is activated by the kinase so that it acts more energetically on the proteids of the food, apparently undergoing self-destruction at the same time, so that by the time the lower end of the gut is reached the intestinal contents contain very little trypsin.

Starling has suggested that “the excoriation and irritation of the lower part of the bowel and anus, which may occur in cases of diarrhea, may owe their production to the hurrying on of the active juice from the higher portions of the small intestine.” Incidentally the beneficial effects following the widely practiced administration of hydrochloric acid in a variety of digestive disturbances appear in a new light; and Enriques has already been encouraged to employ this simple therapeutic agent in diverse forms of intestinal dyspepsia in the belief that the contact of the acid with the duodenal cells is a potent stimulus for increased secretory activity. The pathologic erosions which have been observed in animals after inducing a flow of pancreatic juice into the empty gut by means of intravenous injections of secretin warn against any hasty therapeutic use of this substance, for it is possible that erosions produced by a reflux of the juice may lead to the production of gastric ulcer.

The secretory processes which accompany digestion are thus being analyzed into a series of nervous and chemical factors, many of them unique in physiology, interdependent, manifold, variable and correlated. The most important practical bearing of this recent work seems to me to lie in the appreciation of the co-operative working of many functions—in the conception of digestion as “an ordered march of events.” The mechanical theories of a few years ago have been replaced by a chemico-physiologic explanation of the secretory functions; and in dealing with a given pathologic condition in any part of the alimentary apparatus we must, as Starling has said, “not direct our attention to this part alone, but attempt to trace back the processes and to discover at what stage of the process, and how far back, the disturbing factor has entered.”

CHEMICAL PROCESSES IN THE ALIMENTARY CANAL.

We may now turn our attention to the more purely chemical processes which characterize the digestive changes within the alimentary canal. Cohnheim has recently remarked that the importance of the small intestine in digestion is at length receiving that recognition which its central and conspicuous anatomic position demands. From this it must not be inferred, however, that the chemical transformations occurring in the stomach are of minor significance; the newer contribu-

1. Attention may here be directed to the recent announcement by Kossel and Dakin of the occurrence in the intestine of an enzyme which they term arginase, and which has the remarkable property of converting arginin, a product of tryptic digestion, into urea and other simple compounds. (*Zeit. f. physiol. Chem.*, vol. xli, p. 321, 1904.)

tions have merely served to expand our knowledge of intestinal changes never before appreciated.

The possibility of a continuance of salivary digestion for some time in the less motile portions of the stomach—a feature pointed out by Cannon and Day—has already been referred to. It has long been claimed that a cleavage of fats with liberation of fatty acids may take place in the stomach. That this is the case has been made more likely by the observations of Volhard on the production of a lipolytic enzyme within that organ; the activity of the lipase seems to be inhibited readily by hydrochloric acid and pepsin. The problem of fat digestion and absorption has been the subject of no small literature, much of which is controversial in character. It seems safe to conclude from the data now available that the fats are in large part saponified in the intestine and that the resulting fatty acids are absorbed either as soaps or in solution in the bile which forms an excellent solvent for them at body temperature. The regeneration of these products into neutral fat before they enter the general circulation is equally certain. Fleig has very lately shown that soluble soaps in contact with the intestinal mucosa produce a compound, sapokrinin, which will excite secretory processes in the pancreas in much the same way as does secretin, thus giving one more illustration of the intimate connection between the digestion products and the act of secretion.

With reference to the important subject of proteolysis the possibility of a far more complete cleavage of the proteids than was formerly regarded as possible within the alimentary tract has been demonstrated. A number of simple nitrogenous compounds hitherto undiscovered in this connection have been isolated from the products of prolonged tryptic and peptic digestion in the laboratory. Trypsin and erepsin have been found to occasion a vigorous proteolysis under favorable conditions; and no little attention has been devoted to the action of the various autolytic tissue enzymes. But that such profound changes are actually taking place in the intestine during life is by no means certain. In other words, the experimental evidence at present available fails to convince one that the proteids of the food are as completely disintegrated before absorption as the beaker studies in the laboratory might indicate.

The researches of Zunz and of Reach on dogs have shown that proteoses arise in predominating quantities in the stomach and intestines after a meal rich in proteid. Peptones are found in the intestinal contents, if at all; and, like the simpler crystalline end-products, they are doubtless speedily removed by absorption as soon as formed. Unpublished experiments which Dr. Rockwood has carried out with me have made clear a marked difference in the readiness with which proteoses and peptones, in contrast with the proteid from which they arise, disappear from a thoroughly washed and ligated loop of small intestine in the living animal. The soluble "native" proteids are apparently by no means so speedily absorbed in the absence of suitable digestive enzymes as has been assumed by many clinicians in considering the utilization of nutrient enemata.

Despite these facts we have as yet no adequate conception of the actual process of proteid absorption from the alimentary tract. It has long been taught that the proteoses and peptones formed in digestion are regenerated to coagulable proteids during their passage through the intestinal wall. Glaessner has attempted to demonstrate such a possibility in the case of the stomach. His experiments are by no means convincing. Embden and Knoop have been unable to find any

actual synthesis of proteid in the intestinal mucosa, while Cohnheim, Kutscher and Seemann, and Loewi assume a complete cleavage of proteid substances within the intestines into non-proteid fragments. It remains, however, for the future to demonstrate the actual immediate fate of the digestion products, whether they leave the gut in the form of the relatively complex proteoses or simple compounds like leucin, tyrosin, etc. None of these proteid derivatives are normally and constantly found in the blood; and for the present we must necessarily continue to ascribe to the intestinal wall that prominent function in the assimilation of digested proteid which has so long been attributed to it. The mechanism involved still remains obscure. There is something attractive in the theory which assumes a complete breakdown of the food stuffs prior to their anabolism into living tissue or circulating blood constituents. It is not difficult to conceive how the organism can construct from these fragments the tissues peculiar to itself and accordingly maintain its chemical integrity although the ingesta may vary widely in composition—in other words, how foreign flesh and cereal and milk-proteids may all give rise to the same serum albumin or muscle globulin. To-day our actual knowledge of such changes has scarcely passed the limits of conjecture.

The question, "Why does not the stomach digest itself?" has long formed a theme for academic discussion. We are familiar with various answers, none of which is entirely satisfactory. A similar question arises with reference to the intestine and we are still face to face with an unsolved problem. For the pancreas the answer is perhaps to be found in the absence of any active trypsin in this organ, zymogen alone being assumed to be present. In the other cases it has been customary to cover our ignorance by attributing to the living cells, in distinction from dead protoplasm, an inexplicable power to resist digestion. We know that living intestinal parasites may remain intact and thrive in the alimentary canal of their host under conditions in which dead tissues of similar composition are speedily dissolved. Weinland has noted that the extracts of such parasites have the power of retarding peptic and tryptic digestions *in vitro* and has demonstrated the existence of antienzymes—antipepsin and antitrypsin—in them. Similar enzymes can be isolated from the gastric and intestinal mucosa. They are looked on as a product of the life of the mucosa cells and as the cause of the resistance of the alimentary tract to self digestion. The blood-serum likewise has a pronounced antitryptic power, and specific antienzymes are being claimed in rapid succession for numerous organs. The significance of such discoveries, as yet largely unverified and influenced by analogous phenomena in the study of immunity, remains to be seen. It may be that the antienzymes (or the lack of them) play an important rôle in such pathologic processes as the formation of gastric ulcer, etc.

There is a further peculiar and highly significant function of the gastric and intestinal mucosa which is little understood or recognized in any practical way. I refer to the property of eliminating substances from the circulation, i. e., of acting as a true excretory organ. Isolated observations on this function are widely scattered in the literature of physiology and medicine. Thus various organic poisons, including morphin and snake venoms, have long been known to be secreted into the stomach and other parts of the alimentary canal when they are introduced subcutaneously into the body; and the therapeutic possibilities involved in gastric lavage are already being applied with beneficial effects in such

cases as acute morphin intoxication. For the most part, however, we still adhere to the long-established custom of regarding the kidney as the only organ of importance involved in the elimination of either foreign or naturally occurring inorganic compounds from the body. In a paper recently published with Mr. Thacher I have tried to point out some of the errors into which this attitude has repeatedly led physiologists and have cited various older theories of the absorption of iron derivatives as a conspicuous illustration. The failure to recognize the intestinal epithelium as a factor concerned in the removal of iron from the system naturally allowed a false interpretation to be placed on the occurrence of this element in the feces. To the earlier observers, iron in the stools was a direct indication of lack of iron-absorption, particularly in view of the extremely scanty elimination of ferric salts usually noted in the urine during the same period. But the establishment of the fact that the gut may be directly concerned in the excretion as well as in the absorption of the iron compounds made possible a new interpretation of the earlier observations. Iron might now be present in the contents of the alimentary canal, either owing to the failure to be absorbed, or equally well because it had been discharged into this channel, through the epithelial walls. It became necessary to follow the paths of elimination when the introduction of this element directly into the alimentary canal was avoided. Since it has been found that iron may be introduced either subcutaneously or even directly into the blood-current, without producing any marked increase in the output in the urine, while the feces may contain noticeable quantities of it, the significance of the intestine with reference to the elimination of this element becomes apparent.

Observations like those reported from Professor Cushny's laboratory by Good, in which lithium was found to be excreted into the stomach and intestine in larger quantity than through the kidneys, indicate the desirability of more extensive investigation carried out with this point in mind. A long list of inorganic compounds which enter the intestine in noticeable quantity when they are introduced into the body in other ways than per os might be enumerated. Calcium and phosphorus compounds are conspicuous examples. For the most part we are uninstructed regarding the relative participation of the gut as an excretory organ under conditions like those which pertain in renal insufficiency; and the significance of such an excretory function in the local reactions and responses throughout the intestine is scarcely known. The production of serious gastroenteritis owing to the local excretion of substances is unquestioned; and this may be a potent factor in the action of toxins which produce intestinal symptoms.

Some interesting phenomena bearing on this topic have been described by J. B. MacCallum in the case of the saline purgatives. Investigations carried out in our laboratory along these lines have contributed to emphasize the importance of the gastrointestinal canal as a path of excretion for the salts of cesium and strontium—two elements selected for study mainly because they are foreign to the body and can readily be detected. Strontium salts, for example, were found to be eliminated to a relatively small extent only by the kidneys, even after direct introduction into the circulation. The excretion in the urine begins soon, and ceases usually within twenty-four hours. The larger portion of the strontium eliminated is found in the feces, whether the introduction of the element be per os, subcutaneously, intravenously or intraperitoneally. The place of excre-

tion is apparently restricted to the region of the alimentary tract beyond the stomach.

One further recent change of view deserves mention before concluding this résumé. It has been customary to regard the feces as composed primarily of indigestible and undigested food-residues. But increasing evidence is pointing to the fact that this is frequently, if not commonly, correct to a small extent only. It is true that coarser foods and substances rich in cellulose pass through the alimentary canal in considerable proportion without utilization. On an ordinary mixed diet, however, the foodstuffs are absorbed remarkably well, and the feces owe their origin in large measure to the waste and secretions of the alimentary tract itself. A diet may thus be feces-forming in proportion to the digestive work which it entails, as well because of its chemical and physical character; and feces thus resulting must be considered as real metabolic products in distinction from the food residues.

EDITOR'S NOTE: The paper of Dr. Mendel is one of a symposium, in which Drs. Sollmann, Futeher and Hutchinson also participated. Their papers and the discussion will follow later.

THE NEW OPHTHALMOLOGY AND ITS RELATION TO GENERAL MEDICINE, BIOLOGY AND SOCIOLOGY.*

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The distinction between what may be called the old ophthalmology and the new is one of almost unique clearness, as compared with other departments of medicine or science. Especially in medical practice the modern status has usually grown out of the older and oldest by infinitesimal increments and gradual modifications. In ophthalmology it is not so, and this fact explains why there are such profound differences of opinion as regards the claims of the new. Although both are usually practiced by the same men, they may be, and often are, as distinct in origin, theory and practice as, e. g., are otology and ophthalmology.

The "old ophthalmology" was, and is, concerned with inflammatory and surgical diseases alone, remaining ignorant of and indifferent to such relations as might exist between the eye and the general system, except as regards those minor and few diseases which arise in the body and then affect the eye. Ocular inflammations, ocular operations, and the ocular results of systemic disease—these were the limits of its interests. Even in recent text-books on medical ophthalmology, there is no thought of any other relations of general medicine and ophthalmology than those morbid ocular ones originating outside. That the eye is the starting point of systemic disease was unsuspected. In the latest, greatest, best and most official text-book on medical practice, that of Allbutt, there is not a word from the first page to the last which hints at the ocular origin of any systemic disease, not even of headache. In the text-books of general medicine by continental authors, there is the same official ignoring of the claims of the new ophthalmology. In America also most of the text-books either ignore entirely, or, what is worse, list the remote causes of one or two systemic symptoms as possibly due to the eye, but so mechanically and inattentively as to turn the student aside

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more effectively than the silence of the utter ignorers. The "praise" is very "faint," indeed, with which they condemn.

The new ophthalmology finds its objects of study and interest precisely in those systemic results of ocular conditions. I do not mean in such ways as the circulatory or metastatic transfer of inflammatory or infectious diseases from the eye to other organs, nor to the extension of localized inflammations to adjacent or even distant ones. That is another matter, and of it the old ophthalmology took sufficient cognizance. The field of study of the new ophthalmology is topographically well defined, its title clear, its methods, instruments of culture, the seed, and the crop itself, distinct, both genetically and evolutionally.

The abnormal conditions of the eye which set up morbid systemic results may, in strictness, scarcely be called abnormal, except by a strain put on the word. At least they are *per se* not morbid. They might better be called physiologically aberrant or variant. They do not originate in inflammatory or pathologic conditions, but simply in optical ones. But for us all physical optics leads to physiologic optics; primarily and fundamentally it pertains to the eye as an optical instrument, but as a living one, a physiologic camera obscura. If the photographer's camera had an elastic lens instead of a rigid one, and if its refractive power were spontaneously governed by the desire of the camera for an accurate focus of the picture, the analogy would be almost perfect. But the photographer's camera can neither direct itself nor renew its own sensitive plate, so that in spontaneous choice of scene, change of focus, and renewal of sensitive plate, the living camera is superior to the dead one. The natural difficulties of the choice of scene and of the resensitization of the plate have been beautifully overcome in the eye by the God of evolution, but other obstacles have not been overcome. The ocular camera, for instance, is double and stereoscopic, and accurately to superpose the images of both cameras is frequently impossible even after ages of workmanship. As all physiology leads to pathology, so, for physicians, all physiologic optics ends in pathologic optics. The twelve ocular muscles have a highly complex and skilled task; hence heterophoria and strabismus. Moreover, the spontaneously elastic lens grows inelastic in forty-five years, and presbyopia, at least before the days of spectacles, was a frightful tragedy. Lastly, the transparent lens could not, formerly, retain its transparency in old age, and the blindness from cataract at the end of life has not yet been entirely prevented.

The chief difficulties of the mechanic of the living camera were to secure to 1,500,000,000 human beings and to their successors in each generation, eyeballs which did not vary more than about 1/300 of an inch from a given diameter, and to make all corneas of the same radii of curvature in all meridians. These difficulties have been so great that there has probably never been such a mathematically perfect and optically exact pair of eyes in the world. Those chosen by natural selection, the elimination of the unfit and the mystery of heredity, to survive and to repeople the earth have been such as were not so widely variant as to disqualify their possessors for work and service; and the majority of their children, those now living in the world, have eyes so near accuracy in optical dimensions as to render their owners at least partly functional in the process of evolution.

This almost infinitesimal variant of 1/300 of an inch, the thickness of a sheet of paper, in eyeball measurements, may throw the unfortunate possessor out of the struggle for existence, so far as perpetuation of the race goes, at least in civilized life, and for some occupations, or it may render him a most pathetic sufferer. I say it may do so, not that it does do this invariably or generally. The simple law is that the greater the anisotropia the greater the certainty that it will do so, and the more limited the range and choice of occupations. The lower, not the positively lowest, errors of refraction, however, in civilization are they which in moral persons cause the greatest personal pain and suffering. The high errors brutalize, immorelize and exclude the owner from most occupations, the lower cause pain and illness.

Eyestrain is the unfortunate and inexpressive term that has come into use for the results that follow the attempt of the eyes, brain and correlated organs, to neutralize the defective function of the optically imperfect eyeballs and mechanisms. The optical defect is not morbid and has no relation to morbidity. It is at best pathogenic, secondarily or indirectly, not primarily. Its secondary effect—the straining of physiologic muscles and nerve centers—is not in itself pathologic, but it illustrates, and best illustrates, the great truth which text-books, teachers and medical science itself are sadly prone to forget, that abnormal physiology is the origin of most pathology. Unnatural action and overaction start the morbid function which finally leads the physiologic on the postmortem table. To ignore this truth is itself pathologic pathology; to scorn it is to add unscientific sin to the symptom-complex of the scientist's disease.

It should be noted that as eyestrain is itself simply functional, not organic, so its results are at least primarily the same. Headache, the paroxysmal neuroses, many nervous and psychic disorders, epilepsy, chorea, migraine, sickheadache, gastric, digestive, and pelvic disorders, influenza, anemia, denutrition, etc., when due to eyestrain, are at first and essentially purely functional. Even those more severe diseases, such as spinal curvature, appendicitis and pulmonary and renal diseases, which are sometimes directly and indirectly the results of eyestrain, are at first characterized by a peculiar stage of functional and remediable disorder, preceding the organic, inflammatory, and incurable one.

There are valuable lessons to be gleaned from the fact of the origin of eyestrain in optics, at once historic, physical and physiologic. There is the observation that medical science and pathology did not discover it. The science of physiologic and pathologic optics came to medicine almost entirely from without. It is the gift of students of physics. Even when physicians busied themselves with it they did so purely from their interest in vision and clear-seeing, not from that of pathology. Astronomers, physicists and opticians presented their gift to medicine. Even Donders had little or no thought of the extension of the practical science made by the practical American ophthalmologist. The earliest refractionist—we must use the word—more or less accidentally and incidentally discovered the facts of the relief of systemic diseases by their spectacles. The patients made the discovery that their headaches and nervous symptoms disappeared when they wore astigmatic lenses, and they came back and told the astonished and delighted oculist about it. Mitchell, not an

oculist, heard the story from Thomson, and he told the profession about a little of it. The profession would not listen and utterly ignored it. For several hundred years the official profession would not even have anything to do with the spectacles which the non-professional invented. It allowed Franklin to invent the bifocal lens, and failed to adopt it for a hundred years. There are to-day neurologists, diagnosticians and physicians of international renown who wholly deny that eyestrain causes reflex diseases of any kind. A special meeting of the New York Academy of Medicine was recently held in which great neurologists and ophthalmologists vied with each other in ridiculing the absurdity. It is no wonder, therefore, if the stone which the medical builders refused should become the cornerstone of the temple of the opticians. These gentlemen naturally think they have a right to practice the art and science of refraction. Those who scorn the new ophthalmology would, in fact, reduce the refractionist to an optician. It is a costly blunder which the profession will resent and must unlearn, because refraction is a medical art and science in the strictest sense of the term, one requiring the highest intellectual qualities. Hence their claim can never be allowed, and the profession must, therefore, now wage a hundred-year war, which it might have prevented, against an enemy which it might have made a friend and ally.

What are the relations of the new and the old ophthalmology? They are most intimate, sociologically and clinically. In a word, the scientific correction of ametropia prevents almost all inflammatory and surgical diseases of the eyes—I should say about nine-tenths of them. It will not, of course, prevent the few ocular results of systemic disease, such as albuminuric and diabetic retinitis, optic neuritis, toxic amblyopias, etc., but such things are uncommon, and not seldom the systemic trouble had its individual grounding in morbid ocular function. The far greater proportion of all ocular diseases are those of the extrinsic muscles; inflammations of the conjunctiva, cornea, and iris; glaucoma; high and increasing myopia, and cataract.

As to the external muscles, there is now an almost unanimous agreement that heterophoria is due to uncorrected or miscorrected refraction anomalies, and that the plunge made into tenotomies, graduate, undergraduate, or postgraduate, was into a blind alley of error and waste which has done irreparable harm to true ophthalmology by making the professional and lay world suspicious and even contemptuous. The heterophoric trouble is innervational in nature and refractive in origin.

As to strabismus, the same truth is at last becoming manifest and admitted. A recent English book, Browne and Stevenson, on the "Squint of Children," is a striking proof. Get glasses on the child early enough and there will be no squint. Even when the fatal delay has been negligently permitted, the operation does not do away with the necessity for the spectacles, and there are some of us "extremists" who contend that the operation is of little or no good even at the late date.

With the exception of relatively few cases, due to trauma, infections, malnutrition, etc., conjunctivitis and keratitis are of eyestrain origin. When one sees a few thousand cases of spontaneous recovery after the patients get proper glasses the truth needs no further mention.

As to iritis and glaucoma, did any skilled refractionist ever see the disease appear in eyes which for years

previously had been fitted with right correcting lenses? It may be that such cases occur, but observation shows that the eye which is morbidized by eyestrain has such low resisting power that only a slight inciting cause is needed to develop the otherwise powerless hint.

Concerning retinal and choroidal diseases, it is also a truism that they are usually caused by the ciliary strain of uncorrected ametropia. The "woolly," hyperemic and suffering retinas, the "pepper-and-salt," unhealthy macules, the abnormal pigmentations, noted ophthalmoscopically as the result of long-continued eyestrain, are suggestive and characteristic.

There is one refraction-anomaly, high or malignant myopia, which is the direct consequence of disease of the eyeball. Does anyone now doubt that this, the stretching or stretched eyeball, is the result of ametropia? If so, he should go to Germany to live. And why does the lens so often grow opaque in the old? Why, it would be better asked, does it grow opaque toward the end of presbyopic failure? The suggestion comes that it is at least partly because of the denutritive conditions set up by the severe strain of presbyopia added to that of pre-existing ametropia. This theory derives clinical support from the fact that cataract does not arise when the eye has been kept in an optically correct, healthy and physiologic condition for twenty years before the cataract-age.

And thus the good American motto, *e pluribus unum*, applies to ophthalmology as well as to statesmanship. In the many diseases of the eye, there is at last but one disease. There was plainly an overhasty recourse to surgery when the surgical disease could have been prevented. As has been well said, an ancient hunger for the miraculous has come down to our times and to our medical science, and operation is the modern medical miracle.

At last we have begun to see that prevention is better than cure, and the ophthalmic surgeon is becoming the refractionist. In the same way the ophthalmic therapist is disappearing to return immediately as the preventor of disease, the keeper of good eyes good. Therapeutics is fast merging itself into prophylaxis, and the practitioner of medicine is becoming the hygienist. It is a sort of benevolent suicide of the old ophthalmologist for the benefit of his heir, the well-insured new young man. It is fortunate that the new and the old science are in reality carried on in America by the same practitioners so that no rivalry nor ill will can take place. For a time, to be sure, the dual ophthalmologist may privately discuss with his conscience the question as to whether he will undertake to prevent the strabismus of the little one, and the cataract of the presbyope, or operate later, etc., but in this and many other similar instances I do not contend that the old ophthalmologist is Mr. Hyde, although I am sure that the new one is Dr. Jekyll.

The unity of the organism and the interdependence of all functions is the dominating and moulding truth of medicine, the monism of physiology, the evolution principle of medical science and practice. No organ lives to itself alone; there is no function that does not influence every other. This is the truth which disallows a narrow specialism, prevents the exaggerator from becoming an extremist, and forbids the extremist from becoming a hobby-rider. In obedience to it the specialist must always be on the sharp lookout for all the lines of cause and effect which may subtly run back and forth, either way, between the diseases of his chosen

field of study, and that of all the other specialists. We are, in truth, all of us, specialists nowadays, the general physician fully as much so as any other. While knowing profoundly one specialty, as willy-nilly we now must do, it is our common duty to maintain a keen outlook over the work of others and preserve a large sanity of mind, and a genuine sympathy of feeling with our collaborators in all other fields. The direction to speakers at this meeting is to choose out and emphasize the relations running between their specialties and those of others, between one science and the other sciences. We are to bind into unity, or preferably discover the number and nature of the existing bonds, which make the organism one and its parts interdependent, and which resolve all organisms into a universe.

The relations which exist between refraction anomalies and general medicine are almost solely of one kind—those, namely, in which the ocular condition is causal. There are few bodily conditions or diseases that influence the ametropia.¹ Large changes in general body weight, I have demonstrated, do so, a decided increase of fat tending to lessen the anteroposterior diameter of the globes; an extensive decrease of fat, conversely, lengthening the eyeballs. I have also noticed that after a severe illness refraction changes will probably be found. Other illustrations may be omitted.

When one turns to observe the number of organs and ways in which eyestrain results in extraocular disease, there is at once, of course, a recognition that, compared with direct ocular reflexes, they are few. The eye and ear have extremely few, if any, interdependencies, and they are relatively unimportant. And yet an expert might write an interesting monograph on the subject. One would say that the dentist and oculist had little in common, and yet I have had more than one patient who had violent toothache in sound teeth whenever he read or wrote five minutes.

The specialist in diseases of the upper air passages must never forget the oculist. It is a significant fact that eyestrain patients locate their headaches directly in or behind the frontal sinuses. We list them as frontal, but understand thereby that the forehead is the location of the pain. For many years I had noticed that there was a suspicious relation between eyestrain and frontal-sinus disease, and in several patients I had definitely traced it. Dr. Phillips of Buffalo has made a close study of ten such cases in which the sinus disease was clearly due to eyestrain.² Reflex congestion of the upper air passages, pharyngitis, laryngitis, aphonia, common colds and influenza, may be due, and more frequently than is supposed, to eyestrain.

In general surgery nothing, a short time ago, would have seemed more absurd than to say that eyestrain could at least prevent appendicitis, surgical diseases and operations. Yet Dr. Robert T. Morris of New York,³ whose character and professional standing need no setting forth, writes as follows:

A very large group of cases of intestinal fermentation is dependent on eyestrain. These cases are perhaps quite as often overlooked as any others, but as soon as we have all become familiar with the external signs of eyestrain fewer cases will get to the surgeon with the diagnosis of abdominal disorder. Those that I see are sent to the office most often with the request to have the appendix examined, because the

distension of the cecum is apt to cause more pain than distension of other parts of the bowel and attention is attracted to this region. If there are external evidences of eyestrain these cases are referred to the ophthalmologist, along with my cases of "nervous dyspepsia" and "gastric neuralgia," and some of the most brilliant results that I have observed in any kind of medical practice have come out of the treatment that was instituted.

If an oculist had first made such a statement the grin of derision would have extended across the face of the continent. Because the general surgeon thus annually turns away from his office thousands of dollars' worth of operations, it derives at least the merit of unselfishness.

There is no truth in medicine more certain and demonstrable, although the gastrologist has not heard of it, than that eyestrain produces anorexia, denutrition, intestinal fermentation, constipation, and many disorders of the digestive organs, including, especially, the liver. If so, it is, of course, admitted that the surgical diseases secondary to such disorders may be ocular in remote origin, and the warning may not in future be safely unobserved by the appendicitis specialist, the gastrologist, the gynecologist, etc. Within a year a famous medical journal has editorially stated that all obscure gastric symptoms demand the excision of the gastric ulcer. That is, surely, surgery gone mad.

In orthopedic surgery a new causal relation has most recently been discovered between eyestrain and spinal curvature. Scoliosis begins in childhood and adolescence as spinal curvature, and in thousands of patients the spinal disease is unsuspected by child, parent, and doctor. Within a few months I have discovered 30 or 40 cases of tilted heads, most of which caused or might cause secondary or compensatory scoliosis, and all due to an axis of astigmatism (about 15 degrees unsymmetrical, and to one side of 90 degrees or 180 degrees in the dominant, that is, the dextral eye in the dextromanual), which compelled a habitual lateral inclination of the head in order to see plainly. And the compensatory curvature of the spine induces a score of other systemic diseases. We formerly allowed our patients to tilt the head while making refraction tests, and so missed locating the astigmatic axis correctly.⁴ By keeping the head vertical during the testing we now apply glasses that keep it straight afterward, and when the spinal curve is still functional we likewise straighten it by glasses alone.

No pediatricist henceforth may forget the eyes in all of his patients over 18 months old. The chances are high that, without other definite and easily ascertained cause exists, eye-train is the source of the mischief in the child which suffers from night-terrors, breakfast anorexia, tics, chorea, nervousness, disorders of digestion and nutrition, irritability, headaches, etc. I have cured nocturnal enuresis in children by spectacles alone. Alert-minded pedagogists are fast becoming aware of the tremendous rôle of eyestrain in the health and success of their pupils. As every year of school life passes the proportion of diseased pupils increases, until in the upper grades it may rise to 60 per cent.; it is 40 per cent. on the average in Columbus, Ohio. The diseases are precisely those which every capable oculist knows are often due to eyestrain. The rule is so certain that discerning teachers know that

1. Although one well-known neurologist and one orthopedist have said that the eyestrain is a result of the systemic disease, rather than the reverse—an amusing betrayal of a lack of knowledge of what ametropia is!

2. American Medicine, 1904.

3. Medical Record, Dec. 26, 1903.

4. An excellent rule of ophthalmic office practice is that when we fail to cure eyestrain results by our glasses, it is perhaps because we have allowed the head tilters to hold their heads as they pleased during the tests.

those pupils who are one, two, or three years behind their classes, have severe eyestrain, and without further inquiry they are sent to the oculist. There is hardly a page of that magnificent book on "Adolescence," by Dr. G. Stanley Hall, that does not need rewriting with this new knowledge—unfortunately and strangely ignored—in the mind of the writer. Its splendid power and truthfulness could have been doubled had its gifted author looked into the vast existing literature, written by capable and scientific minds, confirmatory of the rôle of eyestrain in school life.

In neurology there is almost no limit to what the refractionist may justly claim. And posterity will allow it, although the neurologist of to-day is unconscious and contemptuous of the truth. Neurasthenia and hysteria he claims as his exclusive possession.

Private sanitariums or rest-cure establishments may be of limited and infrequent service for chronic patients whose vitality and resisting powers have been worn to a thread by a half-life of torture for which no therapeutics availed. But even the ordered rest-cure could often be avoided by correction of eyestrain, and in perhaps 75 per cent. of cases the neurasthenic breakdowns and chronic hysterias could have been prevented by attention to the matter in adolescence. Not infrequently it is plain that the resting is curative because the eyes are rested. With reading and writing interdicted there are often astonishing cures; with resumption of reading and writing, relapses and returns to the sanitarium are required.

Every sensation and its every correlated motion is an example of reflex action, and yet there are those who airily scoff at the very possibility of reflex neuroses, and other diseases due to reflex action. There are those who speak scornfully of mysticism and mystery in medicine, while satisfied with a practice which reduces itself to diagnosis and naming unknown mysteries as migraine, neurasthenia, hysteria, psychosis, etc.

Psychiatry seems to have reached the goal of its ambition. Diagnosing and naming a morbid mental condition as "a katatonic state," "major psychosis," "melancholia of involution," "psychical tonus or contracture," "dementia precox," "*forme fruste*," "manic depressive insanity," "confusional psychosis," "pseudoneurasthenia," "mysophobia," "topoalgia," "neurasthenical syndrome," etc., all of which terms are culled from one short article, seems to end in the air so far as bettering conditions. Logomachy does not help. Who has examined the refraction of the insane? What patient with extreme eyestrain or migraine has not feared insanity? The sanest of men, Parkman, was pronounced insane, and so was Wagner and others, by great authorities, at the climax of their sufferings. Was not Nietzsche's "atypical paralysis" intimately connected with his most evident eyestrain? A competent oculist finds the majority of the young criminals of the Elmira Reformatory afflicted with so high a degree of ametropia as to make study, reading and writing and ordinary handicrafts impossible. What else could many of the poor boys do but play truant and steal? The statistics showing the relation of crime to truancy indicate that some of both may be due to bad eyes.

In 252 cases of suicide, 187 were due to ill health. About 50 per cent. of chronic epileptics have unsymmetrical astigmatism and anisometropia—a surprising ratio of a defect especially prone to upset the cerebral health and balance. The peculiarity of the diseases of eyestrain is their tendency to produce psychic and emotional disorder, despair, melancholy, etc.

There is scarcely any disease which the general physician or internist is called on to treat that may not be and that frequently is not due to or influenced by eyestrain. The commonest is designated by that silly and meaningless word, migraine. The term has little or no significance nowadays. It is, in fact, the vulgarization of a misnaming and meaningless designation of a mal-observed and trivial symptom, which in the majority of cases is not present, of a widely prevalent and ingravescent disease, with indescribable symptoms, which may, in extreme cases, wreck life and morbidize the mind, the etiology and pathology of which are unknown, the location or organs affected being also unknown, and of which no treatment avails. It is made to cover the conditions indiscriminately called scotoma scintillans, headache, sickheadache, gastric and intestinal disorders, insomnia, melancholy, etc.; in a few severe cases such patients have all of the symptoms. It is almost always due to eyestrain, and, except in the rarest worn-out chronic cases, it is almost immediately curable by relieving the eyestrain. It is the commonest of all affections, the great manure of the ground for other and terminal diseases, the supporter of quacks and patent-medicine syndicates. From 10 to 20 per cent. of Americans suffer from it, under one alias or another, recognized or unrecognized. The larger number of these, taught by sad experience, have given up the hope of cure, and they are neighbors of the person who says migraine has no relation to eyestrain, and who does not know that thousands are now being cured by two little pieces of glass. Eyestrain effects have a peculiar tendency to periodicities and waves of better or worse. The nervous centers can endure for a time the burdens and irritations laid on them, but at last give away. This is so of mental states and diseases, and the eye as psychologists know is the chief creator of intellect. Hence those diseases or symptoms when not dependent on organic disease, like headache, sickheadache, fickle appetite, the paroxysmal neuroses, cardiac palpitation or irregularity, chorea, epilepsy, neuralgias, insomnias, and colds, which exhibit such waves of exacerbations and depression, may be due to ocular irritation.

A key to many mysteries of disease might be found in a careful classification of such as have increased with civilization as compared with those conditions outside which have been changed during the progress of civilization. Among these changed conditions none can be more noteworthy than the new kind of labor, and the tremendous addition of the amount of it thrown on the eye by the printing press, schools, sewing, clerical, and urban life. No other organ has been subjected to such a change of work and stimulus, and in all other functions the same kind of work is now demanded as before. The eye, however, was brought into function to use in distant vision, and if for near, for but an instant. Osler says that dyspepsia is the besetting malady of this country, due to improper diet, etc., although modern food is many times more certain in amount and good in quality than ever before. It is certain that stomachic and nutritional diseases seem to have increased inordinately. What is the cause of this contradiction? One, surely, is eyestrain, which is extremely prone to upset the digestive function. See several thousand cases of nausea, "dyspepsia," loss of appetite, constipation, etc., relieved at once by glasses, see the disease return at once when the glasses are broken, a lens reversed in a frame, or when the refraction changes, and one recognizes the fact of the

interrelation. Allied to this class of cases are those in which the keen ophthalmologist detects more than hints that renal affections, hepatic ones surely, including gall-bladder diseases, may possibly be set up or aggravated by severe reflexes from the eyes to the secretory and eliminative organs. Some day it will be established that eyestrain is a large factor in the production of diseases of the kidney.

One of the more subtle but still easily recognizable methods in which eyestrain works perniciously is by a slow and general denutrition and reduction of mental and physical vitality whereby the resisting powers of the system are reduced to such a degree that it becomes the easy prey of infections, and of general and terminal diseases. This makes eyestrain a factor in the tuberculosis and pneumonia crusade. The life study of patients and their diseases—the biographic clinic—will make such a connection more often manifest. The sad story of the life of John Addington Symonds is in this way suggestive.

The age-long superstition whereby almost all the diseases of women were traced to the sexual organs and functions,⁵ is fast giving way to a new view more in correspondence with facts. That puberty and menstruation should inaugurate a host of terrible evils, and the menopause another legion, is at the least contradictory. The proper name for the cause of many supposed disorders of menophania and puberty is study with astigmatic eyes; that for supposed menopausal woes is presbyopia. In a large number of instances *δφθαλμός* may replace *ὄστρα* as the organ primarily at fault. The oculist and gynecologist should be good friends. The connection between the eye and sexualism is known of old, and is a deep and profound one. Love of any and all kinds dilates the pupil, the designation of the grand sympathetic system itself arising from the fact. A certain profound relation of vision and sexualism will sometime be established which as yet is unsuspected.

Justly motived, therefore, is the question: Why has this great truth been so long ignored, and why now do so many reject it? Some of the answers are these:

1. The progress of science has not yet reached the stage that will enable certain minds to see its truth.

2. The conditions of life and professional evolution have made surgery of supreme importance.

3. Organic diseases had first to be studied.

4. The laws and status of infectious diseases had first to be made definite.

5. A mere habit of neglecting the eye and its all-important function and diseases has with some grown into a blind dogmatism.

6. The theory of optics, and the elaboration of mathematical formulas, satisfied too many minds, and there was no proceeding to the practical application in clinical work.

7. Specialists in medicine, other than ophthalmologists, have overstated the effects of the diseases of special organs.

8. The ophthalmic tenotomist has made unwarranted claims and so made the profession blind and deaf to the warranted claims of the refractionist.

9. The commercial medical journal plays to the galleries, and flatters the prejudices of its readers.

10. Patent medicine venders, drug-sellers, and quackery within the profession carry on the irrational tendency.

5. A sad error that much mars the large sanity and lessens the benefits of Dr. G. Stanley Hall's great book.

11. Suffering and pain are positive, relief and cure negative. The patient, therefore, is prone to forget the primary misery, nor does the physician recognize the cause of the cure by glasses, which is ascribed to fate, *gale répercutée*, the doctor and his drugs, etc.

12. The method of eliciting symptoms and of clinical note-taking is so faulty that the very existence of the chief symptoms of eyestrain is not recognized. The patient thinks the vomiting, abdominal symptoms, migraine, headache, dyspepsia, insomnia, loss of energy, etc., have no possible connection with the eyes, does not allude to them, and they are thus wholly ignored. Thousands of such have been cured by glasses, and the fact unsuspected by either physician or patient. In another, less large, number of cures the method of cure is known or suspected by the oculist, who is silent concerning it because of the desire to "stand well with the profession," or to secure reference cases from those physicians and neurologists who disbelieve in the "extremist" and all his work.

13. The desire for consultation practice, referred cases, professorships, hospital positions, and "success" make the cunning silent or conservative. "Faddism" and "hobby-riding" charged to a budding reputation are ruinous.

14. Poor refraction work on the part of oculists is the greatest cause of scepticism. Those who do accurate refraction know perfectly well that, broadly speaking, the ophthalmologists of the world have done their refraction work badly. The logical and pathologic conclusions of the labors of Donders, Helmholtz and others have been practically made only by some American, and one or two European, refractionists. "I sent my patient to the oculist and glasses had no effect on the disease," means utterly nothing. "Is not my oculist a man of the highest renown and ability?"—may mean as little. Does this man of renown and ability teach, and in the persons of his patients demonstrate that so-called "migraine," headache, sick-headache, dyspepsia, spinal curvature, insomnia, neurasthenia, anemia, the blues, and the rest of the list, are often, very often, due to eyestrain? Belief in the truth is a prerequisite of ability to cure; and is absolutely essential to a rigid attention to at least "78 reasons why glasses failed to give relief." From 50 to 75 per cent. of glasses prescribed in the world are inaccurate and can not relieve eyestrain. Then it is also true that fully 90 per cent. of the adjusting of opticians is so bad that any possible therapeutic result is not obtained.

To be entirely frank one should add an argument which is, indeed, a two-edged sword, but which needs occasional use to keep it from rusting. It is this: Those who deny that migraine and the many other diseases mentioned may be due to eyestrain have not of course cured such patients in their own private practice. That is a self-judgment which is most severe. Those on the other hand who claim that such diseases are curable by ametropic correction, unless utterly unprofessional, must have cured such patients. If they do not cure they would surely be soon found out and their reputations and practices ruined. They seem to prosper! I heard one astute oculist say that if this absurd skepticism continued a few years longer his fortune would be made. He is very "successful" and is conducting his work in an honorable manner. The enthusiasm and gratitude of a patient permanently relieved of the tragedy of "migraine" or "neurasthenia" is irrepressible.

A corollary is that refraction is not taught, there is not a single adequate and thorough-going school wherein it may be taught, or wherein there is any outfitting, or attempt to teach, this most skilled, most infinitely subtle and difficult art and science. Two years at least of study, daily, exclusive study and practice, after the general course in medicine, under expert teachers, and on the part of the best type of student minds, is a too short period to introduce a man to the work, and to legally justify him in entering on such specialist practice. An endower and maker of such a school would do the world a greater service than either Carnegie or Rockefeller have so far dreamed of doing.

(To be continued.)

DIFFERENTIAL DIAGNOSIS BETWEEN PSEUDOMEMBRANOUS ANGINA OF SYPHILIS AND DIPHThERIC ANGINA.

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A positive or correct diagnosis of these two conditions should be made at the earliest possible moment, lest a serious, not to say a fatal, mistake be made, and every means to surmount the difficulties which lie in our way should be conscientiously employed and thoroughly exhausted. That the clinical picture may lead us to error is sufficiently proven when we see such authorities as the elder Fournier, the world's most prominent syphilographer, an acknowledged authority of pre-eminence, err in his diagnosis by relying too implicitly on, as he supposed, a well-established clinical picture.

Bacteriology has made possible the study and classification of the pseudomembranous angina; has demonstrated their different varieties, and placed at our command an almost, if not quite, certain means of establishing a diagnosis. The physician meets with many conditions which present an almost identical picture, both macroscopically and microscopically, but which are due to vastly different causes. Most of the infectious diseases of the buccopharyngeal cavity may manifest themselves by pseudomembranes. Buccopharyngeal syphilis and diphtheria, particularly, may cause the formation of false membranes, the appearance of which are identical. The lack of knowledge on this point, and the failure to consider the same, is responsible for the errors of diagnosis recorded in our medical literature. In our textbooks very little stress is laid on the importance of a correct differential diagnosis between these two conditions, and on what may be the result of our error in not exhausting every possible means to clarify our diagnosis. On the one hand, we may expose many to the known contagion of diphtheria, and, on the other, we lay the attendants and perhaps other patients open to the possible infection of syphilis.

Due perhaps to secondary infection, the syphilitic localization on the buccopharyngeal cavity is not always abrupt. A change of the tonsil may assume a pseudomembranous appearance and be accompanied by well-pronounced general phenomena. In some cases its onset is presumably sudden, but, as a rule, it is slow in making its presence felt. It is frequently accompanied, however, by a rise of temperature to 100 F. or 102 F.; rapid pulse, anorexia, dysphagia, foul breath, anemia and marked depression or fatigue. And just here it might

be well to remark that too much importance must not be placed on unilaterality (or the lesion involving but one side), for the reason that in the secondary period or stage of syphilis, when pseudomembranes form, they often involve or cover both tonsils, the pharynx and uvula. When such a pseudomembrane is removed, a bleeding and ulcerating mucosa is disclosed. In these cases we always have glandular enlargement present.

Our diagnosis should always be based on the results obtained from culture tests, and some little consideration be accorded the personal history, as we do have cases in which we have both the diphtheritic and syphilitic infection manifest at the same time in one individual. When this double infection does occur, our first duty is to destroy the Loeffler bacillus infection, and subsequently direct our attention to the syphilitic. A third element which may enter into the differential diagnosis is the angina produced by Vincent's fusiform bacillus, which also at the beginning presents symptoms similar to those of diphtheria.

This infection, however, can be readily recognized by the aid of the microscope. Just here, before citing some cases in point, allow me to insist on the use of the microscope, and the necessity of making cultures in all cases of pseudomembranous affections of the mouth and throat.

Fournier's case—that of diphtheria mistaken for syphilis:

CASE 1.—Child (whose father was known to be syphilitic), was admitted to the Hospital Saint Louis, suffering with a membranous affection of the throat, and presenting an undoubted syphilitic eruption on the body. The patient grew rapidly worse, and twenty-four hours after the diagnosis of syphilis had been made diphtheria was suspected and positively diagnosed. The patient died promptly of diphtheria. This, however, was before the introduction of antitoxin, the use of which, had it been known, might possibly have brought about a different termination.

Petges¹ reports the following cases:

CASE 2.—Diphtheria mistaken for syphilis.

History.—Male patient, a hussar in the Tenth Regiment, Bordeaux, presented himself for medical examination. An indurated chancre which had been present between two and three weeks was found in the balanopreputial folds. This appeared sixteen days after an intercourse.

Examination.—Secondary manifestations promptly appeared, and on Jan. 6, 1901, mucous patches appeared on the tonsils. Notwithstanding energetic anti-syphilitic treatment the patient became anemic and rapidly emaciated, the pharyngeal lesions increased and membranes formed. Diphtheria having appeared in a few members of the regiment, the possibility of this being a case was considered. January 16 dysphagia was noted to have increased, and the temperature had gone up to 100.5 degrees F. January 18 the patient's general condition had grown more alarming, and on January 19 he was placed in the diphtheria ward and a culture made, which showed a pure growth of the Loeffler bacillus.

Treatment.—Injections of antitoxin, 30 c.c. in all, resulted in the patient's recovery, after which anti-syphilitic treatment was energetically employed, with gratifying results.

In this case, as you will note, we have the two conditions or infections existing at one and the same time.

Rouflay² reports another case of diphtheria likewise mistaken for syphilis:

CASE 3.—Patient, male, artilleryman, aged 22 years. March 4, 1896, was admitted to the Hospital Fontainebleau.

Examination.—Examination revealed a marked secondary syphilitic eruption, with pseudomembranous patches on the

1. Arch. de Med. et Pharmacie, 1902, vol. xxxix, p. 313.
2. Arch. de Med. et Pharmacie, 1896, p. 175.

fauces and pharynx, which also involved the larynx, producing difficulty of breathing. Roullay suspected and suggested diphtheria as the probable diagnosis, but was overruled by consultants, and no culture was made.

Treatment and Results.—On the day following, however, the patient's condition became alarming and tracheotomy had to be performed.

The patient promptly died, and on postmortem examination the false membrane was found to have extended down into the bronchi, and cultures made from the larynx demonstrated the pure Loeffler bacillus.

Petges³ reports the following case, in which a chancre of the tonsil, with syphilitic angina, was mistaken for diphtheria:

CASE 4.—Patient, male, was admitted to the Hospital St. Nicholas July 17, 1900. Denied all history of syphilis.

Examination.—Culture made the following day was negative in results as to Loeffler's bacillus, but showed abundant streptococci and staphylococci. The tonsils, uvula and the pillars of the fauces were covered with false membranes.

Treatment.—The treatment, consisting of antiseptic gargles, had no effect on the condition. July 30 marked atypical adenopathy was noted at the angle of the jaw on the left side. On account of the size of the ulceration, the atypical adenopathy, and the general condition of the patient, the physician was thrown off his guard as to syphilis, and thought the case one of tuberculosis of the tonsil. A general tonic course of treatment was instituted, and followed for about six weeks, without appreciable results. Finally, when the secondary eruption appeared, the correct diagnosis was made, and anti-syphilitic treatment was instituted, with gratifying results.

In December, 1903, I saw, in consultation with the family physician, a patient whom I had under treatment for syphilis.

CASE 5.—Male, 27 years of age; bookkeeper by occupation.

Examination.—When seen by me in December, 1903, he presented a pseudomembranous affection involving both tonsils, the pillars of the fauces and the uvula. Temperature, 101 degrees F.; rapid pulse and marked mental depression.

Treatment and Result.—The family physician diagnosed diphtheria, without making a culture, and injected antitoxin. No improvement having followed after ten days had elapsed, I was asked to see the patient, and made a diagnosis of syphilis, which the negative results of a culture made at this time and the results obtained from anti-syphilitic treatment proved to be correct. (Syphilis, four months.)

Guillemands⁴ reports the following interesting case:

CASE 6.—Female patient was treated with anti-streptococcal serum for what had been diagnosed as chronic tonsillitis. After five or six weeks she was admitted to the hospital.

Examination.—Examination showed yellowish membranous patches on both tonsils, with well marked adenopathy.

Treatment.—Diphtheria was at once suspected and an injection of antitoxin given. A culture taken at this time revealed streptococci and staphylococci. No improvement followed the injection after a week's time and a second culture was made, and this time Loeffler's bacillus was found.

During this time the patient gave birth to a child, with unmistakable signs of congenital syphilis. The child lived but a few hours. The mother then acknowledged having had syphilis, and under anti-syphilitic treatment the membranes promptly disappeared and her recovery was rapid.

Numerous other cases in point might be cited, but my object in presenting this paper was not to enter into a résumé of the literature, or to advance any new theories, but simply to direct attention to the difficulties of differentiating these conditions, and the serious consequences which may follow as a result of an error in diagnosis.

CONCLUSIONS.

In conclusion, I wish to emphasize the following points:

1. Pseudomembranous syphilitic anginae are not rare.
2. The differential diagnosis of pseudomembranous syphilitic anginae and diphtheria can not always be made from the clinical picture.

3. Culture tests and the microscope should be employed in all suspected cases.

4. In all cases in which we are highly suspicious of diphtheria, antitoxin should be used promptly while awaiting the maturity of our culture tests.

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Clinical Reports.

COMPLETE INVERSION OF THE UTERUS WITH SUBSEQUENT REDUCTION AND RECOVERY.

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Patient.—Mrs. W. F. M., age 29 years, a farmer's wife, who had been delivered of a female child Feb. 10, 1902, was admitted to the Southwestern Hospital, Elk City, Okla., March 12, 1902.

History.—Patient's own statement: "I have always been stout and well, have given birth to three children, one aged 4, one aged two years, and the one just recently born. When my labor came on I sent for a midwife, Mrs. Hughes, my neighbor who lives near by, and when my child was born I was so nearly dead we sent for a physician, who came and said I had a large tumor, gave me some medicine and left the house."

The social and family history of this patient gives no information other than that she was without constitutional taint and had always followed a plain and simple mode of living.

Examination.—An examination, made at the hospital by Dr. T. E. Standifer and myself, March 12, 1902, thirty days after confinement, revealed a completely inverted uterus, filling up the vagina, from which exuded a bloody discharge of offensive odor. Patient complained of throbbing pains and there were marked distention and tenderness over the lower half of the abdomen with characteristic facies. Edema of the lower limbs; lymphadenitis, with inability to void the urine, accentuated the serious character of the illness. Temperature on date of admission 103, pulse 130, respirations 30.

Treatment.—From date of admission until discharged the treatment consisted mainly of supporting measures, such as highly nutritious food, baths and douches of hot creolin solution in the vagina. No attempt was made to reduce the temperature.

March 15, three days after entering the hospital, the gravity of the patient's condition, coupled with the unusual character of her illness, prompted Dr. Standifer to invite a number of his colleagues to examine the patient and to decide, if possible, the best course of treatment to pursue. Included in this number was Dr. J. C. Baker, Port, Okla., who saw the patient at her home February 12, two days after confinement, and who, recognizing her true condition, administered an anesthetic and attempted reduction of the inverted uterus, after Emmett's method, without success. At this consultation it was decided that, when the patient's condition would permit, another attempt to replace the inverted uterus should be made, and failing to effect a reduction, a vaginal hysterectomy should be proceeded with at once, while the patient was still anesthetized.

During the intervening period, from March 15 to March 25, when reduction was effected, the patient's condition remained practically the same, except as to the improved character of the vaginal discharges and the physical evidences of improve-

3. Arch. de Med. et Pharmacie, 1902, vol. xxxix, p. 313.

4. Theses, Paris, 1897, No. 257.

ment due to the more acceptable regimen supplied at the hospital.

Operation.—March 25, forty-three days after confinement, having decided we could not gain more by waiting, and the patient having already been prepared by baths and douches for as nearly an aseptic operation as possible, Dr. T. E. Standifer, with his unaided hands, one molded into a cone shape, the other pressing the cervix through the abdominal wall, succeeded, after an exhausting effort of fifty minutes, in reducing and replacing the inverted organ.

After-treatment and Result.—The patient recovered fairly from the anesthetic, but suffered from severe shock and complained of cutting pains in the lower abdomen. Both pain and shock were believed to have resulted from the breaking of possible adhesions between the peritoneal surfaces. As some degree of infection would seem almost inevitable, we were not surprised, a few hours later, to find the patient with an accelerated pulse, 140, and a temperature of 105.6. This high temperature remained nearly stationary for twenty-one days, during which time the most constant and careful attention was required to sustain the patient.

Practically the same treatment was followed after replacement as before, with the addition of intrauterine irrigations of a 2 per cent. creolin solution for a few days only.

After passing the long period of high temperature, iron was cautiously administered for the toxemia without noticeable good effect.

A slow and not very satisfactory convalescence of some weeks found the patient without funds, but, as she thought, sufficiently improved to leave the hospital, which she did May 10, 1902.

Nov. 5, 1903, eighteen months after leaving the hospital, I visited the patient at her home, found her physical health good and ascertained that her pelvic organs were performing their perfect functions.

COLD-AIR TREATMENT IN TETANUS.

W. J. MCCRANN, M.D.

SOUTH OMAHA,

AND

CHAS. C. ALLISON, M.D.,

Professor of Surgery, Creighton Medical College.

OMAHA.

Patient.—F. McK., aged 10, was first seen Sept. 5, 1904.

Examination.—His symptoms were those of tetanus and on examination we found a splinter in the bottom of the left foot. The history was that the splinter had been in the foot eight days. This was removed and tincture of iodine applied to the wound, which was suppurating slightly.

Course of the Disease.—At this time and during the two following days the muscles of the neck, back and abdomen were rigid, respiration was difficult, moderate opisthotonos was present and he complained of pain in the head and stomach; convulsive movements appeared when he made an effort to move or talk. Two doses of anti-tetanic serum were given hypodermically and he was placed on full doses of chloral and bromids. The symptoms grew progressively worse during the first three days of our observation, when it was decided to employ the cold-air treatment, which had been suggested by Dr. McCrann, whereon he was taken to the cold-storage room of a local brewery, his symptoms being so severe as to make the outlook most discouraging.

Cold-air Treatment.—He went into the cold-air room at about 8 o'clock p. m.; within two hours the symptoms had improved in a marked degree and he rested well until about 2 o'clock in the morning, when he awoke, and on account of his being frightened at the unusual surroundings his parents took him home. During the following day, when at home his symptoms grew much worse, opisthotonos was very pronounced, respiration difficult, convulsions more frequent, during which his tongue was severely bitten. He was unable to take any nourishment and his temperature reached 103 degrees. The

prospects seemed altogether bad, and it was doubtful in our minds whether he would again be able to reach the brewery, which was twenty blocks away.

Results.—On readmission the symptoms again improved, and his complete recovery was uninterrupted. He remained in the cold-storage room for seven days, and in an adjacent building for the remainder of a week, after which he went home.

Remarks.—While in the cold-storage room his body was at all times well protected with blankets and rubber cover. The most noteworthy features of the case, in our judgment, are the following: This was an undoubted case of tetanus of severe type, which seemed not to respond to the usual treatment, but which showed good improvement after a few hours of inspiring cold air, with a recurrence of all the bad symptoms when he returned home. The symptoms became alarming during the fifteen hours he remained at home, and prompt progressive improvement followed readmission to the cold air. So pronounced was the change that it would seem altogether reasonable to look on this plan of the application of cold as very useful, and we would advise its further trial.

New Instrument.

A NEW NEEDLE FOR USE WITH THE MCGRAW ELASTIC LIGATURE.

S. EDWARD SANDERSON, M.D.

DETROIT, MICH.

This needle has the following advantages: It is simple in construction, being all in one piece (Fig. 1); the diameter is small, the size, 3 mm., will hold a ligature of 5 mm. diameter;

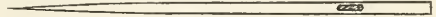


Fig. 1.—Three-quarter size.

it is of convenient length, $4\frac{1}{2}$ inches; as it is to be threaded by the operator or his assistant, it can be used any number of times; although the needle is designed in different sizes for different sized ligatures, yet, by tapering and trimming the ligature and then threading single or double, one sized needle may answer for all sizes of ligature.

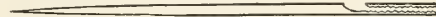


Fig. 2.—Sectional view, three-quarter size.

The end of a large ligature can be tapered so as to pass far enough through to be grasped and then drawn through beyond the tapering point, which is cut off. The compressed end is held by the grasp of the needle (Fig. 2). A smaller ligature can be threaded by the use of a loop of braided silk or other strong cord, pulling the ligature through double. The loop of



Fig. 3.

silk should be passed in through the hole on the side, made to emerge far enough to loop the ligature through it, when sufficient traction is made to lessen the diameter of the ligature and draw it into the end of the needle far enough to hold when the thread should be cut off (Fig. 3). See illustrations.

315 Stevens Bldg.

Morphin in Shock.—*The International Journal of Surgery* states that morphin should never be administered to a patient who is unconscious or in whom pain is abolished through shock, as it will deepen these conditions and will distinctly increase the danger.

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THE ABUSE OF CLIMATIC TREATMENT OF TUBERCULOSIS.

We are gradually abandoning the idea that the care of tuberculosis is dependent on certain climatic conditions. Experience is proving that abundant food, fresh air and rest are the essentials of such a cure, and that they can be applied in practically all climates. Yet in the minds of many, both medical men and laymen, the idea still survives that certain places have an almost magic effect on this disease, and that if the tuberculous patient can only reach one of the famous resorts of the West and Southwest, he will get well without anything else being needed. It is certainly true that a sojourn in a dry, fairly equable, sunny climate, in the open air, with abundance of food and freedom from mental worry or hard work, constitutes the ideal treatment for a consumptive, but if all the other elements are left out and the climate alone remains, the chances are enormously against any benefit being derived from a sojourn in any health resort, while the same amount of money expended in home treatment might result in cure.

The Carolinas, California, Colorado, Arizona and New Mexico, as any physician in these states will testify, are filled with pitiful wrecks of humanity, who should never have been allowed, much less encouraged, by their physicians to leave home in the late stages of tuberculosis, with no prospect of being able to obtain proper treatment after their arrival at their destination. Too often their slender resources are exhausted by the long and expensive journey, and they are forced to look for some light work to support themselves. But for every opening of that sort there are numerous applicants, the wages paid are low, as is always the case under such circumstances, and the patients, beside, are often in a condition when work of any sort is contraindicated. Unable to pay much for their living expenses, they take rooms in cheap lodging-houses, where precautions against infection are not enforced, and get their meals in cheap bakeries and restaurants. Add to this, homesickness, forlorn surroundings, loneliness, worry over money matters, lack of proper medical care, and no one will claim that the climate, admirable as it is, can do much for them. These cases literally through the health resorts throughout the West. Tent life and sanitarium life are expensive, all the necessities of life are high, and the person of moderate means, even if he is assured of a steady income, will be obliged

to makeshift to reduce his expenses, and often will be obliged to manage without the comforts he is accustomed to at home, and with an amount of "roughing it" which, to many people, is absolute misery. Nor is the loneliness of the life a negligible factor. A patient who can go accompanied by his friends is fortunate, but a woman who has had to leave a family of small children behind her will pine in spite of all treatment. The lack of home restraint and of healthful amusements works the ruin of many a young consumptive sent out alone to the far West and finding his only acquaintances and amusements in saloons.

This horde of hopeless cases, dumped on those of our states which have become famed as health resorts, constitutes the greatest problem with which the philanthropic associations in those states have to deal. Mr. Frank D. Witherbee,¹ who has had experience as a charity worker in Philadelphia and New York, has recently investigated conditions in Phoenix, Arizona, a typical health-seeker's town, and as a result, calls on the medical profession throughout the country to do all it can to prevent the "inexcusable stupidity which sends these people hither to die friendless and alone." Phoenix has a population of 15,000 to 16,000, almost one-fifth of whom are health seekers, and of these, 3,000 or 4,000, fully two-thirds, if not four-fifths, should never have been allowed to leave home, according to the opinion of the physicians in Phoenix interviewed by Mr. Witherbee. The hospitals, sanatoria, and almshouse are filled with indigent, dying consumptives. Public and private charity is taxed to the uttermost, but the demand is so much greater than the supply that many a wretched patient dies alone and unattended in a lodging-house. The supervisors of the poor say that three-fourths of the money expended on the inmates of the almshouse goes to alien consumptives.

Our knowledge of the proper treatment of tuberculosis has increased so enormously of late years that there is no longer any excuse for this blind, indiscriminating method of shipping out West consumptives of all classes in all stages of the disease. Rather let us reserve that treatment for the favored few who have ample means, and for the others let us direct our energies, in the first place, to the providing of sanatoria in our own states; sanatoria for those of small means and for those of no means at all. In the second place, and this is even more important, let us endeavor to devise methods of home treatment for tuberculosis, for this is the only way in which the modern treatment for that disease can ever be applied to the great majority of its victims.

THE CHEMICAL THEORY OF CERTAIN INFECTIOUS DISEASES.

We are so thoroughly imbued with the idea that all infectious diseases are caused and carried on by living germs that we are hardly in a fit mood to receive kindly

¹ *Charities*, Nov. 6, 1904.

and weigh carefully any other theory of infection. In view, however, of the fact that modern microbiologic methods have not yet unraveled the etiologic problems of many easily communicable and highly infectious diseases, such as the acute eruptive fevers, syphilis, typhus fever, yellow fever, rabies and foot-and-mouth disease, we may do well to seriously consider the question whether a too strict adherence to the microbial theory of infectious diseases is closing our eyes to other methods of research. Have we really the right to irrevocably conclude that living, multiplying microbes are absolutely essential for the development and spread of diseases like those just mentioned?

Benjamin Moore, professor of biochemistry in the University of Liverpool, points out in a suggestive paper¹ that there is no proof in the observed facts regarding infection "that the infective agent is necessarily a living cell." He argues in favor of the alternative view that infection may be carried also by non-living chemical substances, such as enzymes. But how can enzymes fulfill requirements in this relation that we heretofore have believed could be fulfilled only by living things? We believe to-day that the unknown "virus" of yellow fever is living because it reproduces itself in so evident a manner. Moore acknowledges that we have no evidence of the reproduction of enzymes, so far as their fate may be studied in the test-tube, but are we, on this account, permitted to conclude that in the living cell, with its varied chemical processes, there may not be energy enough to lead to a regeneration of an infecting enzyme or chemical substance? Hardly. Moore turns to the phenomena of autocatalysis for analogy. In autocatalysis action proceeds very slowly until the products of the reaction accumulate and give the reaction increasing speed, so that, in some cases, it may finish with explosive vehemence. When copper or mercury are placed in contact with pure nitric acid, there is at first no action; but as nitrous acid develops it acts as a catalyzer, increasing the velocity of reaction and its own production at the same time. If nitrous acid is added in the early stages, the action is at once hastened. Similar autocatalytic reactions lead to the explosion of gun-cotton; and so there may be abnormal cellular reactions, autocatalytic in character, producing bodies identical with those that start the reaction. In this way, hypothetical chemical "virus" may increase in amount and spread not only throughout the body first "infected," producing in this passage the clinical picture of the disease, but pass also to other individuals in whom the process would repeat itself.

It may be pointed out that many chemical substances, especially enzymes, are radically changed by treatment with the heat, and the disinfectant agents employed to destroy "virus" of various kinds, so that we are not able by these means to distinguish between living and non-

living substances. Moore, on the other hand, urges the great resistance of vaccine virus to various disinfecting agents—glycerin, sodium bichlorate, boracic acid, carbolic acid, chloroform—as evidence of the chemical nature of this particular virus, because it remains potent after exposures of weeks and months to these agents in such proportions that they kill all germs demonstrable by present methods within a few days. Finally, he also points to the fact that among the diseases of unknown etiology here considered are the most highly infectious diseases known, and he suggests that this great infectivity may be dependent on the minute subdivision and the stability of the infecting material if of chemical nature.

Professor Moore's chemical theory of certain infectious diseases contains much that is plausible. Particularly interesting is the use he makes in its elaboration of autocatalysis, which may be regarded as its cornerstone. As yet the theory is without experimental proof. The fact that vaccine virus remains potent after long treatment with disinfectants does not positively exclude its being living material, because we know that bacterial spores, for instance, have a powerful vitality. And microbiologists if pressed would not be slow to point out that Professor Moore has not brought forward any new facts that do not harmonize with the microbial theories of infectious diseases. Fortunately, there are in this class of diseases those that affect animals and with which it is possible to make experiments freely, and it may be hoped that the chemical theory, as advanced, will lead to experimental studies from the chemical point of view. In this way the theory may prove itself of great service.

THE TRAINING OF THE SURGEON.

The occasional medical address is apt to be rather perfunctorily prepared and delivered, but the speaker who made the annual oration in medicine at Yale University last June, dealt with topics of unusual interest, and gave expression to thoughts and ideas which are worthy of attention in a circle larger than that of his immediate audience.

The title of the address, which was recently published,¹ is scarcely commensurate with the matters debated, for not only was the training of surgeons discussed, but, in addition, the gradual rise of surgery was depicted, the condition of surgery in Germany was contrasted with that in America, the organization of an ideal surgical clinic was described, and the relations of hospital workers and surgical practitioners to university teaching and research were examined.

The speaker, drawing on the history of surgery, warned his hearers against satisfaction with present achievement and blindness to the possibilities of future development. Boyer, over a hundred years ago, declared that surgery had then reached almost, if not

1. The Journal of State Medicine, April, 1904.

1. Halsted, W. S.: The Training of the Surgeon. Bull. Johns Hopkins Hospital, Baltimore, vol. xv, 1904, pp. 267-275.

actually, the highest degree of perfection of which it was capable, and yet, only fifty years later, a quarter of a century was to begin in which pain, hemorrhage and infection, the three great evils which had always embittered the practice of surgery and checked its progress were to be, almost in a moment, robbed of their terrors.

The intimate interdependence of physiology, pathology and surgery was strongly emphasized. It was shown that without progress in physiology and pathology, surgery could advance but little, though surgery pays the debt by contributing much to the knowledge of the pathologist and physiologist. The studies of a Harvey, a John Hunter, a Pasteur or a Lister revolutionize the work of the surgeon. In Germany, a professor of pathologic anatomy was, in 1865, at the instigation of Helmholtz, called to the chair of surgery in Heidelberg, and the choice, though a surprise to many, proved to be most happy. Dr. Halsted believes that the stress formerly laid on postgraduate anatomy as a preparation for surgery would be disproportionate to-day; the necessary anatomy, now that knowledge of that subject is so definite, may be easily and quickly acquired, so that time will be available for very thorough training in pathology and physiology.

The fact that Germany was the first country to adopt antiseptic surgery, and that almost all surgeons in the German universities eagerly embraced Lister's system practically simultaneously was used by the lecturer as a text on which to make some comments regarding German surgery and German surgeons. Professor Halsted is evidently a great admirer of the scientific and practical training of surgeons in Germany. The ideal facilities for the learning of surgery and for prosecuting researches offered by great university clinics in Germany, the great amount of clinical material, the opportunities for operative work, the special surgical laboratories for working up pathologic material derived from operations or autopsies, the encouragement of research and the possibilities of finally becoming invited to fill a professorial chair, a position of such prestige there that we in the United States who have not lived abroad can not truly comprehend it—these, Halsted says, are among the inducements which make young men in Germany willing to devote eight or twelve years of hospital service as an assistant in some large university clinic as preparation for the practice of surgery.

Contrasted with the German conditions, the defects in the existing methods of medical education in America, and especially in the opportunities for the advanced training of surgeons, Dr. Halsted thinks, are obvious. The period of hospital internship is too short. The hospital interne suffers from inexperience, but also from overexperience. He is given responsibilities which are too great for him; he acquires a confidence in himself and a self-complacency, useful, perhaps, in emergencies, but tending to blind him in his inadequacy and

to warp his career. Hospitals and surgical departments directly under the control of the university professor and his staff are rare. Staff organization is imperfect; the establishment of close and mutually stimulating relations between chief and assistants is difficult. Professorial chairs in some of the principal medical schools actually go begging of men who would adorn the positions.

With regard to the relation of university professors of surgery to private practice, the speaker seems to hold views regarding restriction which are in sympathy with those which have been expressed by Welch, by Keen and by Barker. He urges, however, and many will think with propriety, that there are forcible objections to prohibiting the acceptance of fees by professors of surgery in universities. He favors a compromise between the extremes of prohibition on the one hand and of a large private practice on the other. He would let the surgeon accept fees from certain patients in the university hospital; he would restrict him to consultations and operations at the hospital; possibly in very exceptional cases he would permit him to visit a patient in his town or state or in another state if it were impossible for the patient to come to him. Private patients in a hospital need consume little or no more of the chief surgeon's time than the patients in the public wards.

Though critical of the defects in American conditions, Professor Halsted closed his address with a strong eulogy of American surgery. Courage, ingenuity, dexterity, resourcefulness—prominent characteristics of our countrymen—have led to surgical contributions which have carried the fame of American surgery throughout the civilized world. He believes that there are "few operations in surgery which can not be performed as well in this country as anywhere in the world, and not a few operations are best performed by the surgeons of America."

CIRCULATORY CONDITIONS DURING PREGNANCY AND THE PUERPERIUM.

The statement has been made that the heart undergoes hypertrophy during pregnancy, and this result has been attributed, among other things, to increase in the number and size of the vascular channels, in the quantity of blood, and in the intra-abdominal pressure, with insufficient expansion of the chest and compression of the lungs. The evidence to date on these points, as determined both by postmortem and by clinical observation, is, however, not conclusive. Also a systolic murmur or souffle has been referred to by numerous writers, and the pulse rate has been found diminished. With the view of forming an independent judgment in the matter, Drs. Alfred Stengel and W. B. Stanton¹ undertook a clinical study of the heart and circulation in seventy pregnant women, including physical examina-

1. Univ. of Penn. Med. Bull., September, 1904, p. 202.

tion before and after parturition, together with determinations of the blood pressure and sphygmographic tracings.

Thirty-nine of the patients were primiparæ and twenty-one multiparæ, while in ten cardiac or renal disease antedated the pregnancy. As a result of these observations, the conclusion was reached that pregnancy is not attended with any hypertrophy of the left ventricle, nor with any increase in its work. The increase in the area of cardiac dullness toward the left was found to be due to the upward displacement of the diaphragm, and the consequent displacement of the heart in an upward and outward direction. Comparative outlines made before and after labor demonstrated a rapid return to the normal position. A striking feature frequently observed was an increase in the extension of the dullness toward the left in the second and third interspaces and distinct pulsation in the same area. In the absence of evidence of retraction of the lung, and in view of the fact that the pulsation was marked, the phenomena are ascribed to distension of the conus arteriosus and root of the pulmonary artery. The frequent presence of a systolic murmur, most clearly audible in the same area, is considered as further substantiation of this view.

The position of the right border of the heart seemed on the average too far to the right, and this fact, in conjunction with the conditions present at the root of the pulmonary artery, appeared to indicate that during the later months of pregnancy there is probably some continuous dilatation of the right ventricle, though this is apparently of slight degree. Such a state of affairs is readily explained by the increased difficulty in the pulmonary circulation due to the upward displacement of the diaphragm and pressure on the lungs.

The separation of the abdominal recti muscles observed in multiparæ materially lessens the tendency to displacement of the diaphragm, and diminishes in corresponding degree the displacement of the heart during pregnancy. After delivery the diastasis may occasion downward displacement of the apex of the heart, and the contrast before and after labor may be quite as pronounced as in primiparæ, though the first position occupied may not have been far from normal. Later, if the separation of the muscles is not considerable and the normal tone of the abdominal wall is regained, a restoration to the normal occurs on the part of the heart and its apex.

As a rule, no material increase in the blood pressure was found before or after labor, although during labor a notable increase in the blood pressure was sometimes present.

EDDYISM AND PUBLIC HEALTH.

It is sometimes said, by those charitably inclined people who are ready to find excuses for others, that Eddyites scarcely deserve to be condemned so unsparingly

as they often are, since at most they harm only themselves. This, of course, does not take into account that the most faithful members of the sect insist on exposing their families to whatever danger they themselves may incur because of their disbelief in disease and in modern medical methods. A case recently occurred in Connecticut, in which once more it has been made very clear how much risk to the community believers in the Mrs. Eddy cult may invite by their refusal to recognize the necessity for hygienic precautions and to obey sanitary regulations.

The occurrence was at Stamford, and it involved the death of one child and the exposure of many persons to diphtheria. In one of the public schools, a little boy, scarcely more than ten years of age, was noticed by his teacher to be suffering from headache, and his flushed face indicated that he had fever. He was sent home at once, with the thought, of course, that he would be properly cared for. No physician, however, was summoned to see the boy. The mother was a fervent believer in the principles of Eddyism, and a "healer" was sent for. The child evidently was very ill, but no report of his condition was made to the authorities. By the end of the week, rumors had reached the neighbors that the child was suffering from a contagious disease and, as no precautions were being taken to prevent its spread, the health authorities of the town were informed of the suspicions. In spite of protest on the part of the mother, a health officer forced his way into the house. He found the little boy almost in the last stages of diphtheria, while a brother and a sister were suffering from the same disease in a rather virulent form. After these discoveries, the board of health insisted on a physician being called, but the first little patient died scarcely twenty-four hours later. The other children, we believe, are well on the way to recovery. It was found that a child of the healer was also suffering from the disease.

Here, then, is a flagrant example of how much danger to the community may result from even one person insisting on not obeying the legal regulations that are enacted for the sake of public health. Of course, Eddyism is an unfortunate delusion, and one finds it hard to blame the poor misguided victims for actions for which they are not quite responsible. This is an attitude of mind, however, that the followers of the cult would be the first to resent. Under the circumstances, therefore, the only thing that can be done is to insist on punishment, to the fullest extent, for violation of sanitary laws. Unfortunately, as the death of the little patient in this case did not take place until some twenty-four hours after a physician had been called, and as the physician was, therefore, in a position legally to sign the death certificate, no prosecution of the parties involved will be instituted by the Connecticut authorities. This is a sad state of affairs.

It is evident that further and more stringent legisla-

tion is required in many of our states with regard to such conditions as this. Such legislation can only be obtained after proper education of the public mind. It is the plain duty of physicians to bring the details of cases like this to the attention of those who can be influential in procuring such legislation, and by this means help to stamp out an evil that threatens to endanger many others besides the unfortunate victims of the Eddyite delusion.

WHISKY PREFERENCES.

Julia Marlowe, the actress, announces to the public that she likes her whisky with a little bitter in it. At least, the newspapers are publishing her photograph with the following testimonial: "I am glad to write my endorsement of the great remedy, Peruna, as a nerve tonic. I do so most heartily.—Julia Marlowe." Perhaps it will not be deemed wholly flippant if it is noted that those who take their whisky straight, as a "nerve tonic," do not usually write testimonials thereof.

IS IT HERESY FOR AN EDDYITE TO HAVE SUPERFLUOUS HAIR REMOVED?

In our medicolegal items is mentioned a curious case recently decided by the Supreme Court of Michigan. It appears that the plaintiff, a believer in Eddyism, sought and obtained instruction in the art of mental healing. The defendant stood high in the cult, but the pupil found himself unbenefited by the teaching, and present and absent healing in his hands a failure. In other words, he found the instruction of the professed profitless. Hence the suit to recover the money paid to the instructor. It appeared from the testimony that the defendant had suffered from hypertrichosis, and had employed a physician to remove the superfluous hair from her face. This, it was claimed, showed belief in disease, and, therefore, lack of faith in Eddyism, which rendered the defendant practically an impostor and vitiated her instruction as a teacher of Eddyite healing. The decision, however, was for the defendant, since two years had elapsed between the material treatment and the instruction of the immaterial to the plaintiff—a sufficient time, the court held, to allow her to qualify as an Eddyite instructor—and, moreover, the superfluous hair on the female face might be considered as a facial blemish rather than as a disease, and did not necessarily imply such a lack of faith as would make the individual incompetent to impart to others the secrets of the mysteries of practical Eddyism. Since both parties to the suit acted on the theory of the truth of Mrs. Eddy's teachings, the decision was made on that assumption. Eddyism is evidently a pretty slippery proposition.

GINGERISM.

According to a London cable dispatch, the use of essence or strong tincture of ginger as a stimulant is becoming dangerously popular among society people in Great Britain. In some cases very large quantities

are said to be used, even as much as a pint daily. The fact that ginger is a well-known domestic remedy is very likely the starting point of its usage in cases of mental and social strain accompanied with gastric disturbances, but the habit becomes a cumulative one and fully as dangerous as the cocaine, morphin and other drug habits which it is often desired to avoid. This constitutes a special danger; the subjects at first consider that they are taking a harmless remedy, which they have known as such from childhood days. The fact that essence of ginger is often nearly of full alcoholic strength renders the drug excessively dangerous, and the further fact that it may be obtained from druggists or grocers by anyone at any time is an additional special peril. The consequences of the ginger habit, beside those from the alcoholic contents, are generally aggravated gastric disturbance and general systemic disorder. The habit is said to be more common among women than men, but accurate statistics are hard to obtain. We have not yet heard of the vice as a common one in this country, but it probably exists, and the reported cases of wood-alcohol poison from the use of essence of ginger indicate a still more insidious peril of the habitual use of the drug. It is well to be warned on these points, and to be on the lookout for possible concealed habits that may be both individual and social dangers.

THE PSYCHOLOGY OF RAILROAD ACCIDENTS.

An eastern railroad president claims that certain railroad accidents are due to temporary psychologic aberrations that may occur even in the coolest and most experienced under special circumstances, without any specially obvious inciting cause. There is, beyond question, truth in this view, but it should not be taken as exonerating railroad companies and high railroad officials from responsibility. It is not very long since an accident, costing a number of lives, occurred from an apparent disobedience or neglect of certain orders. It was shown that some of the train hands, at least, had been on continuous duty for a considerable length of time beyond the usual term of duty, and lack of necessary rest and sleep was very naturally suggested. Railroad work is often very exacting, and there is too frequently caused a degree of mental and physical strain that is inconsistent with competency adequately to meet emergencies. The human machine overtaxed is as dangerous as any other worn-out or weakened part of the railroad machinery. An engineer or dispatcher, whose nervous system has been strained almost to the breaking point, may be as much a source of danger as a weakened or broken bridge. Modern requirements of speed and close connections of fast trains render such a possibility more than ever a matter to be guarded against. There is, moreover, in the human machine the added difficulty that defects involving nervous accuracy can not always be so easily detected as can defects in mechanical appliances. The greater is therefore the danger in requiring special stress and strain in railroad employes, and the more serious the responsibility of those who permit it.

INDOOR HUMIDITY.

We have examined with unusual interest a copy of an article which Dr. Henry Mitchell Smith read before the Brooklyn Medical Society. Dr. Smith calls attention anew to the radical error in the arrangements for heating in common use to-day, namely, the absence of provision for supplying moisture needed in the air. He declares that in heating buildings we have failed to appreciate the full importance of the fact that our sensations of temperature depend not on the heat that is received from outside sources, but on the rapidity with which the body heat is lost. Radiation from the body is much more rapid when the air is lacking in moisture. To supply this moisture is a measure both hygienic and economic. On the latter point of view he quotes an authority as saying that "25 per cent. of the cost of heating is expended in raising the temperature from 60 to 70. So if we can keep comfortable at a temperature of 65, we shall have saved at least 12.5 per cent. of the total cost of heating." Relative to the above temperatures, Dr. Smith cites the results of an elaborate series of experiments, in which he found that a temperature of 65 degrees, when the air contained a proper amount of moisture, was warmer and more comfortable than a temperature of 72 or 74 degrees, with only half enough humidity. Dr. Smith has so repeatedly demonstrated this fact that he declares that it should be a cardinal rule that if a room at 68 is not warm enough for any healthy person it is because the relative humidity is too low, and in such case the procedure is to raise the relative humidity, not the temperature. Dr. Smith recommends that every household should have a hygrometer, and that water should be evaporated in rooms in sufficient amount to secure a relative humidity of about 60 per cent. In the absence of the hygrometer, a simple test will be to evaporate a sufficient amount of moisture to make the room comfortable at a temperature of 65 or 68 degrees. Dr. Smith suggests that the increase of catarrhal and other diseases in the winter time, including pneumonia, may be ascribed in some measure to the difference in the humidity between indoor and outdoor air. Not only is the dryness of the air conducive to hyperactivity of the glandular structures, but the passing from dry indoor air to moist outdoor air, and vice versa, is a severe strain on the mucous membranes. These facts are of great importance to the physician. For him to regulate the ventilating and heating apparatus of his patients' homes will be a tremendous task, and yet many affections can not be controlled until this important aid to health is properly looked after.

THE INFLUENCE OF INTESTINAL BACTERIA ON THE PROPERTIES OF THE BLOOD SERUM.

The study of the absorption of bacteria or bacterial products from the intestinal canal has both an academic and a practical interest. Although it is known from the work of Nuttall and Thierfelder that the presence of bacteria in the intestinal canal is not necessary to life, the practical fact remains that bacteria in enormous numbers are always present in this situation. Whether these bacteria are of any use in the economy—and it is

conceivable that their products might aid in the digestive process—is still unknown. On the other hand, there seems good reason to believe that bacteria which are normal inhabitants of the gastrointestinal tract, and which, under normal circumstances, do no harm, may, under certain conditions, become pathogenic. This certainly seems to be the case so far as the colon bacillus is concerned, and, as is well known, this organism inhabits the intestines in enormous numbers. It seems strange from what we know of the process of immunity that a resistance on the part of the body to an organism which is so constantly present in large numbers is not developed. Can it be that the colon bacillus (taking this as a standard type of intestinal bacterium) does not get into the circulation under normal circumstances? Even if this be the case, is it possible that its products even are not absorbed? It seems likely from the work of Adami and his pupils that colon bacilli do get into the portal if not into the general circulation, and this suggests that the colon bacillus and its products may undergo certain changes in the liver which prevent the formation of immunizing substances. The subject is one which may be attacked experimentally, and recently Telitshkin¹ has endeavored, by feeding young and also adult rabbits with cultures or toxins of the typhoid bacillus, to clear up some of the problems connected with it. This author finds that adult rabbits which are fed on large doses of typhoid bacilli develop in their blood agglutinins, fixatives and sometimes precipitins. The sera of such rabbits do not, however, possess any preventive properties. Similar but much feebler results were obtained by substituting filtrates of typhoid cultures or dead typhoid bacilli for the live cultures. In very young rabbits no results were obtained, perhaps because no absorption of the bacteria took place, or perhaps because the organism of very young animals is not capable of forming agglutinins and similar substances. If these experiments are applicable to the human being they explain why we are susceptible to colon infections, notwithstanding the fact that we constantly harbor the colon bacillus. There still remain many points along this line of investigation to be cleared up.

Medical News.

ARKANSAS.

Illegal Practitioner Fined.—Dr. Clement L. Katz, Morrison Bluff, has been fined \$25 at Paris, for practicing medicine without a license.

Smallpox.—Ward, Lonoke County, reports about 20 cases of smallpox three miles north of the town.—Many cases are reported around Butlerville.—In these two neighborhoods there are said to have been 8 or 10 deaths from the disease.

Building for Doctors.—Work will be commenced in a few days on the new three-story office building which is to be put up by the Medical Building Company of Little Rock, at a cost of \$50,000, and is designed for the use of physicians and dentists.

Hot Springs "Drummers" Must Go.—The following commissioners have been designated by the secretary of the interior to take up and regulate the practice of medicine at Hot Springs: Drs. William H. Barry and Samuel E. Steele and Hon. Charles D. Greaves.

1. Annales de l'Institut Pasteur, vol. xviii, No. 9.

Asylum Annexes Ready.—The two annexes to the Arkansas State Lunatic Asylum, Little Rock, which have been erected at a cost of about \$140,000, will be ready for occupancy this month. These additions will increase the capacity of the institution from 672 to 1,022 patients.

CALIFORNIA.

Golden Wedding.—Dr. and Mrs. Charles L. Anderson, Santa Cruz, celebrated their fiftieth wedding anniversary, October 31.

Personal.—Dr. and Mrs. Charles E. Hablutzol, San Jose, have returned after a six months' tour of Europe.—Dr. Robert C. Howe, Orland, was seriously burned about the face and neck by the explosion of a bottle containing nitric acid and alcohol.

—Dr. George F. Shiels, a trustee of the San Francisco Polyclinic since its inception, has left San Francisco and will locate in New York City.—Dr. J. Coplin Stinson has resigned from the San Francisco Board of Health.

In Charge of Hospitals.—The board of directors of Redlands Hospital, which was opened November 1, consists of Dr. Christopher A. Sanborn, president; Dr. Hoell Tyler, vice-president; Dr. Gayle G. Moseley, secretary, and Drs. J. E. Payton and Charles E. Ide.—Drs. Charles D. Ball, John L. Dryer, James R. Medlock, Francis M. Bruner, John G. Berneike, Howard S. Gordon, John Weirly, James F. Boyd and Willella H. Waffle have been chosen directors of the Santa Ana Hospital Association, and Dr. Dryer has been elected president; Dr. Bruner, vice-president; Dr. Ball, secretary, and Dr. Gordon, treasurer, of the board.

Propositions for the Legislature.—At a conference of the health officers of the various counties and municipalities of the state, held at San Francisco October 29, the association resolved to submit the following five propositions at the next session of the legislature:

First.—That the State Board of Health be given power to control matters throughout the state and make regulations and punish offenders instead of being merely an advisory body.

Second.—That a State Board of Statistics be created and maintained.

Third.—That a State Registrar of Vital Statistics be appointed.

Fourth.—That a state bacteriological laboratory be established in San Francisco.

Fifth.—That county health officers be appointed on salaries.

ILLINOIS.

Personal.—Dr. John A. Pratt, Aurora, has returned from Europe.—Dr. Anrellus T. Bartlett has retired after 40 years of practice in Virden.—Dr. George W. Hall has returned to Chicago after spending several months in Europe.

Smallpox.—Smallpox has developed at La Grange. One of the patients is an Eddyite who objected to vaccination after she had visited a friend who had the disease.—Several cases are reported at Orland.—Alton reports two cases.

To Examine Staff Candidates.—The board of physicians to examine candidates to serve on the staff of Cook County Hospital is made up as follows: Surgery—Drs. Arthur D. Bevan, John B. Murphy, Louis L. McArthur; gynecology—Drs. Ferdinand Henrotin, Enilius C. Dudley and Henry Banga; obstetrics—Drs. J. Clarence Webster, Joseph B. DeLee and Charles S. Bacon; medicine—Drs. Otto Schmidt, Frank S. Johnson and William E. Quine; children's diseases—Drs. Frank B. Earle, John C. Cook and Alfred C. Cotton; skin, venereal and contagious diseases—Drs. James Nevins Hyde, Frank H. Montgomery and Joseph Zeisler; eye, ear, nose and throat—Drs. T. Melville Iiardie, William H. Wilder and E. Fletcher Ingals; nervous diseases—Drs. Hugh T. Patrick and Harold N. Moyer; pathology and pathologic chemistry—Drs. Ludvig Hektoen, Robert H. Harvey and F. Robert Zeit, and x-ray—Drs. Joseph F. Smith and Oliver S. Ormsby. Dr. Hugh T. Patrick has been elected chairman of the board. The examinations were to begin November 18 and to continue until all places are filled.

Chicago.

Fined Twice in One Week.—Dr. Adolph Brendecke was fined \$100 and costs for selling cocaine. Less than a week before he was found guilty of a similar offense and fined \$50 and costs. He says he will appeal from both decisions.

The Week's Deaths.—For the week ended November 12, 413 deaths were reported, equivalent to an annual mortality rate of 11.17 per 1,000. The rate for the previous week was 11.36, and for the corresponding week of 1903, 13.45 per 1,000. Pneumonia caused 57 deaths; consumption, 47; violence, 36; heart diseases, 33; intestinal diseases, 26, and Bright's disease and cancer, each 25.

Pneumonia Again Leads.—For the first time since the week of May 28 the deaths from pneumonia exceeded those from consumption; there were 57 pneumonia and 47 consumption deaths recorded during the week—an excess of 21.2 per cent. of pneumonia. During the intervening five months there were 1,188 deaths from consumption and 685 from pneumonia—an excess of 73.4 per cent. of consumption deaths.

IOWA.

Hospital for Mason City.—The Sisters of Mercy of Dubuque have received an offer from Mason City to establish a hospital there. The committee agrees to provide \$50,000 if the sisters will furnish \$30,000.

Tuberculosis in Iowa.—It was stated that in 1900 the deaths from tuberculosis in Iowa outnumbered the deaths from all other contagious diseases. A recent investigation indicates that there are about 8,000 cases of tuberculosis in the state.

Temporarily Blocks Vaccination Law.—In the District Court at Iowa Falls, November 12, Judge Richards granted a temporary injunction restraining the school board of that city from preventing pupils from attending school unless vaccinated in the manner prescribed by the State Board of Health, thus allowing those treated by the internal method to attend school.

KENTUCKY.

Medal for State Board.—The Kentucky State Board of Health has been awarded a silver medal at the Louisiana Purchase Exposition for its exhibit of literature on the prevention of disease.

Physician Wins Suit.—Dr. Thomas T. Cleaver, Lebanon, was given a verdict of \$7,500 against the Louisville and Nashville Railroad Company in the Circuit Court, October 18. Dr. Cleaver was injured last spring while driving across the railroad track in front of an incoming passenger train.

Personal.—Dr. Walter F. Boggess, Louisville, has resigned from the chair of practice of medicine in the Kentucky School of Medicine and has accepted the chair of practice of medicine and physical diagnosis in the Hospital College of Medicine.—Dr. Walter A. Lackey, first assistant physician of the Western Asylum for the Insane, Hopkinsville, has resigned to enter private practice.

Will Run No Risks.—Despite the report from the members of the Board of Health of Christian County that in their opinion the smallpox situation was well under control, the State Board of Health, which met in Louisville October 29, ordered Dr. James B. Jackson, Hopkinsville, chairman of the county board of health, to hold weekly meetings of his board until the state board is satisfied that all danger is passed. Christian County has been infected with the disease for the past six months, and it has spread to neighboring counties. While the situation is not one to give cause for undue alarm, the state board expressed the opinion that the disease should be thoroughly stamped out before winter sets in.

MARYLAND.

Baltimore.

Personal.—Dr. Augustus G. Pohlman has resigned as instructor of anatomy at the Johns Hopkins Medical School to accept an appointment as assistant professor of anatomy in the University of Indiana.

Plans for Johns Hopkins.—On November 11 President Remsen explained "the Homewood plans" for the Johns Hopkins University. The present needs of the university require only an administration building, a lecture hall, a library and four laboratories. When the move will be made is uncertain, but Dr. Remsen thinks it now feasible. The board of architects has chosen the plan of a Baltimore firm—one of the five which competed—pictures of which were thrown on a screen. Dr. Remsen recommends that the buildings be simple and comparatively inexpensive, but representative of a high style of architecture.

The Smoke Evil.—In an address before the Good Government Club, Dr. Howard A. Kelly condemned the smoke evil. "If we allow such a condition to go on," he said, "unchecked, and are content, like the people of Cincinnati and Pittsburg, to let our clothing, our streets, our houses, as well as our lungs, be insulted by this filth, then must ensue not only an injury to health, but what I consider an even greater evil, the lowering of the moral tone of the community. . . . You can not, day by day, breathe particles of coal dust or any other form of

dirt, without enormously enhancing your chances of tuberculosis and other pulmonary diseases; and with the lungs once clogged in this way, the powers of resistance to disease are lessened and the chances of recovery diminished." A bill passed one branch of the city council about a year ago for the arrest of this evil, but failed to pass the second branch. As a result of this meeting an address will be sent to the city council asking that this ordinance be revived and made a law.

MASSACHUSETTS.

The Massachusetts Sanatorium for Consumptives at Rutland has a capacity for 325 cases, to be increased to 400. They report 48.97 per cent. of cases cured, 43 per cent. improved, and only 7.9 per cent. unimproved.

Farewell Banquet to Dr. Collins.—The physicians of Haverhill, on October 31, tendered a banquet to Dr. William D. Collins, who, after 27 years in that city, is about to remove to Cambridge. After the banquet a silver loving-cup, suitably inscribed, was presented to Dr. Collins.

Massachusetts Charities.—Massachusetts has 463 charitable corporations, who spend \$5,320,000 per year, occupy property valued at \$17,725,000 and have invested funds totaling \$23,147,000. Of 382,537 beneficiaries during the year, 40,399 paid, 96,989 paid part, and 245,149 paid nothing.

Diphtheria on the Wabash.—The United States receiving ship *Wabash*, stationed at the Charlestown Navy Yard, has been invaded by diphtheria. A large number of mild cases have appeared, the vessel has been quarantined and patients have been removed to the Naval Hospital, Chelsea.

Irregular Practitioner Punished.—Charles J. Stuart, Grafton, who claimed to be a medical electrician, was found guilty of violation of the registration laws of medicine, was fined \$100, and sentenced to three months in the house of correction. On his appeal he was remanded to the Superior Court under bail of \$500.

Boston Deaths.—During the ten weeks ending Nov. 5, 1904, there were reported to the Boston Board of Health 1,946 deaths. There were reported 486 cases of diphtheria, with 32 deaths; 123 of scarlet fever, with 5 deaths; 390 of typhoid fever, with 46 deaths; 48 of measles, with 2 deaths, and 374 of tuberculosis, with 200 deaths. There were 162 deaths from pneumonia, 7 from whooping cough, 180 from heart disease, 43 from bronchitis and 61 from marasmus. Of the decedents 502 were under 1 year old, 635 under 5 years old, and 393 over 60 years old.

Asylum Report.—The Northampton Insane Hospital reports for the year ended September 30, 732 patients, an increase of 60 during the year. During the year 333 were admitted and 273 discharged. The patients come mostly from the western counties. The causes noted in order of frequency are heredity, intemperance, senility, congenital causes and organic diseases of the brain. The total expenses were \$145,125. The superintendent urges the establishment of colonies in the western part of the state to relieve the overcrowding which has resulted from taking all the pauper insane to state hospitals as now required by law.

An Academy of Medicine in Boston.—The movement toward the development of an academy of medicine in Boston takes form this winter in the promulgation of a plan for a series of meetings at the Boston Medical Library. The schedule has been prepared and sent to members of the Boston Medical Library and of the Suffolk district of the Massachusetts Medical Society. Refreshments are to be served each evening. All physicians will be welcome and it is expected that many will attend outside of these societies. The program is as follows:

November 16, Nephritis: Pathology, Prof. W. T. Councilman. Clinical Examination of Urine, Prof. E. S. Wood. Diagnosis, Dr. Richard C. Cabot. November 30, Prosis of the Abdominal Organs with Special Reference to the Kidney: Discussion, December 7. The Humane Treatment of Malignant Disease from a Surgical Point of View, Dr. John C. Munro. December 21, Nephritis: Medical Treatment, Prof. F. Pfaff. Surgical Treatment, Dr. Paul Thorndike. Prognosis, Dr. Frank Wells. January 4, General Treatment of Appendicitis: Discussion, January 11, Medical Charity, Dr. Geo. W. Gay. January 25, A Study of Objective Methods of Diagnosis of the Stomach in a Medico-surgical Clinic with Report of Cases, Dr. H. F. Hewes. Results of Surgical Treatment of Benign Disease of the Stomach, Dr. J. G. Mumford. February 1, Results of Operative Treatment of Cancer in and About the Mouth: Discussion, February 11, Physiological Economy of Nutrition, Prof. R. H. Chittenden. New Haven, February 15, Recent Work on Etiology of Disease, Prof. W. T. Councilman. March 1, The Surgery of Renal and Ureteral Calculi: Discussion, March 8, The Present State of Opinion Concerning Sewer Gas and Its Effects, Prof. Wm. T. Sedgwick. Nine Years' Experience in the Treatment

of Diphtheria with Antitoxin at the South Department of the Boston City Hospital, Dr. John H. McCollom. March 11, Open. April 5, Cerebral and Spinal Surgery: Discussion.

MICHIGAN.

Personal.—Dr. Elmer D. Gardner, Hancock, has accepted the position of head physician of the Louisiana Lumber Company and will locate at Clark, Caldwell Parish, La.

Smallpox at University.—Seven cases of smallpox were discovered November 14 among the students at the University of Michigan, Ann Arbor, six in the engineering and one in the law department. The health officer considers the disease under control.

Hackley Hospital Open.—Hackley Hospital, Muskegon, the latest gift of Charles H. Hackley to the city, was formally dedicated and opened November 17. The hospital, aside from its endowment, has cost more than \$200,000, occupies four city blocks, is built on the pavilion plan, is fireproof, 204 by 250 feet, and three stories in height.

Must Add to Curriculum.—High school graduates in Michigan can not enter the medical schools of the state because their standard does not come up to that of the state university. The deficiency is in biology, mathematics and physiology. The medical schools call for less geometry and a semester of trigonometry instead; a more extended course in physiology, and for zoology in addition to botany.

NEW YORK.

Fire in Children's Hospital.—A fire occurred in the Day Nursery and Children's Hospital at West Brighton, S. I., causing a loss of \$8,000. Fortunately, the children were not in the building when the fire occurred.

School Inspection.—The inspection of the schools of Rochester began October 17 under the direction of the Rochester Public Health Association. The following five physicians have been designated by the association as medical inspectors: Drs. Samuel H. Rosenthal, Charles R. Witherspoon, William E. Dake, Frank T. Bascom and Michael L. Casey. Each of these will be put in charge of, and be held responsible for, the health of three schools.

Albany Alumni Meet.—The Central New York Alumni Association of Albany Medical College held its fourth annual meeting and banquet at Syracuse, September 28. Dr. Eli Van de Warker, Syracuse, officiated as toastmaster.—The annual meeting of the New England Branch of the Albany Medical College Alumni Association was held in Springfield, Mass., October 20. Dr. Albert Vander Veer delivered an address on "Recent Progress in Surgery." Dr. Thomas D. Crothers, Hartford, Conn., was elected president; Dr. Alva E. Abrams, Hartford, vice-president; Dr. Walter G. Murphy, Hartford, secretary, and Dr. Alfred H. Hoadley, Northampton, Mass., treasurer.

New York City.

Hospital for Ruptured and Crippled.—The report for the year just ended showed that more than 45,000 cases were treated in the hospital and outdoor department during the past year.

New French Hospital Open.—The French Benevolent Society has opened its new hospital on West Thirty-fourth Street, M. Jusserand, the French ambassador, and Mayor McClellan conducting the exercises.

St. John's Guild.—At the annual meeting of this association a plea was made for more funds. During the past season the Floating Hospital carried 27,826 babies and mothers, and the Seaside Hospital accommodated 2,256.

Annex for Consumptives.—The New York Post-Graduate School and Hospital has been given an adjoining house, which is to be converted into a hospital for the treatment of consumptives, and has been promised \$6,000 yearly for its maintenance.

Montefiore Home.—The annual report of this institution shows that 889 patients had been cared for during the past year, but the resources were not half equal to the demands made on it. A strong appeal for funds for a larger building was made.

Contagious Disease.—There were reported to the sanitary bureau for the week ended November 5, 344 cases of tuberculosis, with 150 deaths; 504 cases of diphtheria, with 23 deaths; 178 cases of scarlet fever, with 9 deaths; 91 cases of typhoid fever, with 10 deaths; 70 cases of measles, with 5 deaths; 72 cases

of variella, 2 cases of smallpox, and 5 deaths from cerebro-spinal meningitis.

The Air of the Subway.—Because of the comments of several physicians and the announcement of Prof. Adolph Spicer, chemist at Cooper Union, in regard to the condition of ventilation in the subway, Commissioner Darlington is about to make an investigation. Professor Spicer announced that after testing the subway air he had found it lacking in oxygen and that passengers had to breathe much more rapidly than above ground. Dr. Darlington has authorized Prof. Charles F. Chandler of Columbia University to make the tests for the Board of Health and to report.

PENNSYLVANIA.

Personal.—Dr. John W. Coffin, Beaver Falls, for 10 years major-surgeon of the Tenth Infantry, N. G. Pa., has resigned and will locate in El Paso, Texas.

Bequest to Chester Hospital.—The Chester Hospital has received a gift of \$15,000 from A. O. Deshong, to be used exclusively for the equipment of a laundry for the institution.

First Hospital for Consumptives in Western Pennsylvania.—Through the generosity of a resident of Oil City, western Pennsylvania will have its first modern hospital for the treatment of pulmonary tuberculosis opened November 21. The hospital is located on a large farm about three miles from Oil City, and at an elevation of 1,600 feet. At present 15 patients will be accommodated. Both charity and pay patients will be received. The treatment will be the same as that which has been so successfully carried out at White Haven, Pa. Application for admission can be made to Dr. Harvey E. Kirschner or Dr. Frank McCarthy, Oil City.

Philadelphia.

Smallpox at League Island.—One case of smallpox was discovered among the marines on the battleship *Alabama* at League Island. The patient was transferred to the Municipal Hospital and every effort is being made by the medical staff of the yard to prevent the further development of the disease. There are nearly 700 enlisted men on the battleship.

Personal.—Dr. Harry C. Deaver sustained a Colles' fracture October 29 by being struck with the crank of his automobile.

—Dr. Alfred Gordon was elected instructor of neuro-pathology and psychiatry in the Jefferson Medical College, vice Dr. William R. Pickett, resigned.—Dr. D. Forrest Harbridge has been elected visiting ophthalmologist to the Chester City Hospital.

Dinner to Dr. Cullen.—Dr. Wilmer Krusen gave a dinner in honor of Dr. Thomas Cullen of Johns Hopkins University, November 10. Among those present were Drs. Edward E. Montgomery, John G. Clark, Samuel Wolfe, Henry J. Walcott, Jr., of Springfield, Mass., J. Thompson Schell, Elmer E. Brown, I. Newton Snively, Charles S. Barnes, John C. Applegate and Frank C. Hammond.

Bequests.—By the will of Emma M. Thompson \$9,988 is divided equally between the Philadelphia Home for Incurables and the Children's Hospital.—By the will of Anna H. Wilsbach the Hospital of the Protestant Episcopal Church, the Episcopal Home for Consumptives, and the Pennsylvania Hospital receive \$6,000 each, and the Howard Hospital \$800.—By the will of Sallie Tuston the Methodist Episcopal Hospital receives \$500.

Alumni Election.—The annual meeting of the Philadelphia Alumni Association of the Medical Department of the University of Pennsylvania was held November 12. The following officers were elected: President, Dr. Jay F. Schamberg; honorary vice-president, Provost Harrison; vice-presidents, Drs. De Forest Willard, Edmund Holmes, John Marshall, O. H. Davidson and Joseph Gibbs; treasurer, Dr. Herbert B. Carpenter, and secretary, Dr. B. Franklin Stahl.

Health Report.—The records for the week show a rather large increase in the death rate, due largely to pneumonia and Bright's disease. The deaths from all causes during the week numbered 423, an increase of 37 over those of last week and 47 over the corresponding period of last year. There was a decided increase in scarlet fever, the whole number of cases reported being 105, as compared with 73 for the preceding seven days. Three deaths resulted from traumatic tetanus, 35 from disease of the kidneys, 70 from diseases of the lungs other than tuberculosis, and 52 from tuberculosis. In all there were 229 cases of contagious disease, with 13 deaths, as compared with 217 cases and 13 deaths for the preceding week.

TEXAS.

New Hospital at Temple.—The Santa Fe Employees' Hospital Association will erect a three-story brick hospital building at Temple, to cost \$24,000.

Wolff's Successor.—Governor Lanham has appointed Dr. J. H. Florence, Dallas, now at Aransas Pass, quarantine officer at Brownsville to succeed the late Dr. Arthur S. Wolff.

October Quarantine Fees.—The receipts of the State Health Department from quarantine fees for the month were as follows: Galveston, \$2,182; Sabine Pass, \$847; Brownsville, \$22; Aransas Pass, \$5; Velasco, \$2, and Pass Cavallo, \$2; total, \$3,060.

New Building for Medical Department.—The trustees of Southwestern University have decided to erect a new building at Dallas for the medical department of the university, to cost from \$60,000 to \$75,000 and to be ready in time for the opening of the college year in September, 1905.

Colleges Consolidate.—The Dallas Medical College has consolidated with the Baylor University College of Medicine, and the new institution will be known in the future as the Dallas College of Physicians and Surgeons (Medical Department of Baylor University). The combined matriculation will number 250 students. The new consolidation carries with it membership in the Southern Association of Medical Colleges. The majority of the members of each faculty will have places provided in the new institution.

GENERAL.

Southern Medical College Association.—This organization will hold its next annual session in the Hillman Hotel, Birmingham, Ala., December 12.

To Study Epilepsy.—The fourth annual meeting of the National Association for the Study of Epilepsy, etc., will be held in the medical library of the Fenway, Boston, November 22. The association invites all persons interested in the welfare of epileptics and in charity work generally to attend the meeting. The preliminary program which we have received indicates that the meeting will be an instructive one. The secretary of the association is Dr. William P. Spratling, Sonyea, N. Y.

Southern Surgical and Gynecological Association.—The seventeenth annual meeting of the Southern Surgical and Gynecological Association will be held at Birmingham, Ala., December 13-15. There will be reduced rates on all railroads of the Southeastern Passenger Association. The secretary of the association is Dr. W. D. Haggard, Nashville, and the chairman of the committee of arrangements, Dr. John D. S. Davis, Birmingham. The preliminary program is a very interesting one and covers the whole field of work of the association.

Consumption of Spirits, Beer and Wine.—The Department of Commerce and Labor, through its bureau of statistics, has published the following table, which shows per capita the consumption of the three kinds of beverages in the following countries:

Countries	Gallons.		Wine.
	Spirits.	Beer.	
United Kingdom	1.38	35.42	.39
France	2.51	7.48	34.73
Germany	2.11	30.77	1.93
Italy	.34	.20	31.86
Russia	1.29	1.13	...
Belgium	1.42	56.59	1.25
Sweden	2.13	8.83	.15
United States	1.33	18.04	.48

It is seen that France shows the heaviest consumption of the most concentrated beverage, spirits, viz., 2.51 gallons per inhabitant. The United States is well-nigh at the end of the list of spirits-drinking countries. Belgium stands at the head of the nations in the matter of per capita consumption of beer, its per capita consumption being 56.59 gallons. Second in order is the United Kingdom with 35.42 gallons, while Germany, which shows the largest absolute figures of consumption, in the matter of per capita consumption, takes third place with 30.77 gallons. The United States follows with 18.04 gallons, while Italy has .20 gallon. The consumption of wine may be said to be concentrated in two countries chiefly, France and Italy, both the absolute and per capita consumption showing that wine in these countries is a common article of consumption rather than an article of luxury, used only by the favored few. The figures of per capita consumption of wine in these countries—34.73 gallons in France and 31.86 gallons in Italy—are almost identical with those shown for beer by the United Kingdom and Germany. The consumption of wine in the other countries is relatively insignificant.

Transportation Rates to Cuba and Panama.—Dr. H. L. E. Johnson, Washington, D. C., in charge of transportation arrangements for the American Public Health Association at Havana, Cuba, and the fourth Pan-American Medical Congress, at Panama, January, 1905, writes that the only rates obtainable are the winter tourist rates for 1905, which apply either at Tampa or Miami, with stop-off privileges and limitation to May 31. Round trip from Montreal, Canada, to Tampa or Miami will be about \$107.50; Portland, Maine, \$103.50; Boston, \$96.50; New York City, \$86.50; Philadelphia, \$82.50; Pittsburg, \$78.40; Washington, D. C., \$76.50; St. Paul, \$84.60; Chicago, \$69; St. Louis, \$59; San Francisco, via New Orleans and steamer, one way, \$78. The Transcontinental Passenger Association grants nine months' tourist rate, about one and one-third regular fare, round trip, about 2 cents per mile. From California common points to Chicago and return \$110, plus tourist rates from that point to Havana. To St. Louis, Memphis, New Orleans and return, \$102, to which add tourist rate to Havana, for example, San Francisco to New Orleans and return, \$102, plus transportation by ship to Havana and return. From North Pacific common points and return, to Chicago, \$110; St. Louis, \$102; Memphis, \$111.60; New Orleans, \$117. From these points, for example, from New Orleans add the boat rate to Havana and return. Ward lines out of New York and return, \$75 round trip, meals and berth; one way, \$40. Diverse routes returning can be arranged. A special ship is promised, if 25 members take passage via New York, at a special rate of \$60. (Rates subject to change.) For a combination trip to Panama the Di Giorgio Steamship Company of Baltimore offers a trip with meals, berths and no extra expenses, for \$130, for the trip of about 26 days, provided at least 50 persons take passage. The steamship *Athos* will leave Baltimore December 24, 1 p. m., touching Jamaica and arriving Panama January 1. After adjournment of Pan-American Medical Congress, leave Panama January 6, evening, due Havana, January 8, evening. After adjournment of American Public Health Association, leave Havana January 13, arriving Baltimore, January 17. The ship will be for the exclusive use of the party. Full information will be furnished by Mr. Ralph F. Nolley, agent, 103 Park Avenue, Baltimore, or Dr. H. L. E. Johnson, chairman of transportation, 1821 Jefferson Place, Washington, D. C. The Panama Railroad Steamship line, of New York and Panama, advise trip to Panama and return direct, cabin, \$150 to \$200, according to location. Ship leaves New York every Tuesday. General office, 24 State Street, New York City. C. C. Van Riper, agent. These ships do not touch at Cuba or Havana going or returning. Panama can be reached via New Orleans by the United Fruit Company's steamers.

CANADA.

To Limit Tuberculosis in Montreal.—The Montreal city council will pass a by-law prohibiting spitting on the public walks, etc., with the aim of preventing the spread of tuberculosis.

Toronto New Consumption Hospital.—The National Sanitarium Association reports 40 patients received into its new consumption hospital near Toronto. The physician in charge is Dr. Allan H. Adams. The institution is free and advanced cases are being accepted. This hospital will be maintained by a per diem allowance from Toronto patients, by a government grant and by private subscription.

Toronto General Hospital Report for October.—This hospital reports: Patients in hospital September 30, 244; admitted in October, 229; births, 7; discharged, 212; deaths, 23; remaining in hospital October 31, 245. The death record includes ten cases brought to the hospital in a dying condition. Over 900 extra patients received advice and treatment in the outdoor departments, and nearly 200 cases received first aid at the emergency branch.

Vaccination Popular in Montreal.—The annual health report of Montreal shows that out of 90 persons who had smallpox last year, not one had been vaccinated during the past five years. Montreal is now a much better vaccinated city than it was a few years ago. The health department now has the co-operation of all schools and factories in the city in order to enforce vaccination. Civic officials who are at present going around the schools vaccinating report that they meet scarcely any opposition, whereas two years ago over 1,000 children refused to attend school because they had to submit to vaccination.

Ontario Physicians Transferred.—Dr. R. W. Bell, second assistant physician at the Asylum for the Insane, London, Ont.,

has been made medical inspector of the Ontario Board of Health. His position at London has been filled by Dr. W. C. Herriman from the Kingston asylum. Dr. McNaughton of London asylum has been transferred to Kingston. Dr. W. P. St. Charles of the Mimico asylum has been appointed relieving officer to public institutions in Ontario. Dr. George M. Biggs has been appointed assistant at Mimico. Dr. W. T. Wilson, third assistant at the Hamilton asylum, has been transferred to London asylum.

Caring for Insane in Jails in Ontario.—For a number of years the jails throughout the province of Ontario have had to do service in housing some of the insane of the province, the government claiming insufficient asylum accommodation. The cry against this housing insane people with criminals has been effective, and the government is removing all those suitable for asylum treatment. Each jailer is now required to make a special report to the government each month on the insane people under his charge, and a similar one to the superintendent of the asylum in his district. Thus it is sought to avoid the unnecessary detention of any insane in the county jails.

Annual Health Report of Montreal.—The mean annual death rate for the past eighteen years for the city of Montreal, leaving out that for 1885, the year in which the great smallpox epidemic prevailed, was 24.77 per 1,000, while the rate for 1901 was 23.25, and that for 1902, 22.58 per 1,000. The rate for 1903, 20.21 per 1,000, is 4.56 less than the mean rate for the preceding eighteen years; 3.04 per 1,000 and 2.37 per 1,000 less than 1901 and 1902 respectively. Tuberculosis caused less deaths than in preceding years. Before 1900 the number of deaths was 692; in 1901, 647; in 1902, 644; while in 1903 the number was 633. In 1903 there were 2 deaths caused by smallpox, or 8 less than in 1902; 77 by measles, or 7 less than in the preceding year; 24 by scarlatina, or 40 less than in 1902, 21 less than in 1901, and 108 less than in 1900. The deaths by diphtheria and diarrhea can not be compared, as they have been classified according to the new international system. Typhoid fever caused 90 deaths, or 4 more than in 1902. Bronchitis caused 224 deaths. Pneumonia, including bronchopneumonia, caused 528 deaths, or 16 less than in 1902.

FOREIGN.

Defective Teeth in the British Army.—In future men who are suffering from defective teeth will not be accepted as recruits until the decayed teeth are replaced with artificial ones. Men who would otherwise be discharged from the army for this cause will now have their teeth attended to, a certain sum being deducted from their pay for this purpose.

Pension for Finsen's Widow.—A bill has passed the Danish lower house, presented by a cabinet minister, awarding a pension of nearly \$1,000 to Finsen's widow. This is three times the pension given the widow of any state official. A subscription list is being circulated also to raise funds for a memorial to Finsen, signed by all the cabinet ministers, members of the legislature and editors of the country, besides many of his patients.

Official Denunciation of Quackery in Bavaria.—A recent official notice issued by the Bavarian government urges physicians and medical societies to watch for swindling ads. published by irregular practitioners and to institute legal proceedings against them. It concludes with the remark that the authorities must bear in mind that quack practices have become a serious evil in public life, to the injury of the interests of the public and of the medical profession, and that efforts to reduce this evil promote the public welfare.

Infant Mortality in Berlin.—The last summer was an unusually hot season in Europe, but the infant mortality in Berlin was kept below the average by vigorous efforts to insure a good milk supply. The total number of deaths during the summer months of children less than a year old was 4,425 in 1900, 4,454 in 1901, and 3,522 in 1904. About 60,000 circulars on the care of infants were distributed, and 48 veterinary surgeons formed a volunteer force to supervise conditions in dairies. The total infant mortality for the year will probably range about 10,000, but in 1900 it was 11,762. The population of Berlin is about 1,900,000.

Quacks in Mexico.—An editorial in the last *Escuela de Medicina*, xix, No. 19, states that nowhere in the world do quacks have such absolute liberty to ply their trade as in Mexico. No one interferes with them in any way, and the lay press teems with their advertisements. The editorial makes a solemn appeal to the government to protect the pub-

lic against their practices. It has grappled with the questions of drunkenness and gambling, and no one has complained that the freedom of the individual is incompatible with legislative restrictions on these vices. "Why should there be any more outcry if the government should seek to protect the people against the swindling practices of the quacks?" Several flagrant instances of the latter are cited.

LONDON LETTER.

Yellow Fever Expedition to the Amazon.

The Liverpool School of Tropical Medicine proposes to dispatch a second yellow fever expedition to the Amazon to investigate still further this disease. It may be remembered that the late Dr. Myers was selected by the school with Dr. Herbert Durham to undertake an expedition to Para to investigate the disease a few years ago. They were both attacked by the fever and Dr. Myers died. The expedition will probably start at the end of the year.

Correspondence.

The Alma Sanitarium and Dr. Butler.

CHICAGO, Nov. 11, 1904.

To the Editor:—As former medical superintendent of the Alma Springs Sanitarium, Alma, Mich., I desire emphatically to deny certain reports to the effect that there were unpleasant and unsatisfactory relations existing between the sanitarium company and myself. I have nothing but commendable words to say of the institution, its management and of Dr. Raymond C. Turck, its present medical superintendent and business manager. He is a well-qualified physician and surgeon, and the institution is everything that is claimed for it.

Geo. F. BUTLER, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

SECRET METHODS OF TREATMENT.

EL PASO, TEXAS, Oct. 29, 1904.

To the Editor:—Kindly tell me through your columns what, if any, standing the "Ensor" treatment for inebriety has with the medical profession. I understand it is a secret system of treatment, and therefore inimical to the best interests of our profession. 2. Would a doctor hired by the company to administer this treatment, and who is giving the treatment, knowing it to be a secret form of treatment, i. e., administering drugs the nature of which he is ignorant, be eligible to membership in an affiliated society of the American Medical Association, a county society, for example?

X. Y. Z.

ANSWER.—1. We know nothing of it. 2. Not if the members of the county society to which he applies do their duty to themselves and to the profession.

TENTS AND HOUSES FOR CONSUMPTIVES.

LOWELL, IND., Nov. 10, 1904.

To the Editor:—Where may I find plans for an adequate frame building for the outdoor treatment of a tubercular patient? Where may a suitable tent be obtained for the same purpose?

A. J. WILLIS.

ANSWER.—An illustrated description of a frame building for consumptives appeared in THE JOURNAL, May 7, 1904, p. 1232; an excellent tent was fully described and illustrated in THE JOURNAL, Dec. 26, 1903, and methods of adapting porches for this purpose are illustrated in the *Illinois Medical Journal* (Springfield), October, 1904. Further, some tents are mentioned in the report of the Maryland Tuberculosis Exposition, described in THE JOURNAL, Feb. 6, 1904, p. 391. You ask for plans. None of the above gives what are called architects' plans. Such are probably unnecessary because of the simplicity of the building. Any carpenter competent to take charge of the erection of such a building can draw sufficient diagrams.

PRIVATE PRACTICE BY SURGEONS OF THE ARMY, ETC.

To the Editor:—1. Is a medical officer of the United States Army or of the United States Public Health and Marine-Hospital Service legally qualified, without having complied with the special medical

laws of the state or territory wherein he may be stationed, to engage in private practice? 2. Is it customary to treat such officers as legally qualified practitioners and to allow them to engage in private practice without undergoing the examination? 3. Is such an officer eligible to membership in an affiliated society without having complied with such state or territorial laws? X.

ANSWER.—1. No, unless the laws of the particular state make an exception in such cases. 2. Yes, this custom is very general in states whose laws do not provide for the case. When a physician leaves one of the services he is, we suppose, treated as an ordinary physician, subject to examination. 3. Officers of the medical departments of the Army, of the Navy and of the Public Health and Marine-Hospital Service are eligible to membership as such.

DURATION OF LICENSE TO PRACTICE.

CHICAGO, Nov. 9, 1904.

To the Editor:—1. Does a license to practice in Indiana, granted in 1895, entitle the holder to practice in that state now without an examination? 2. Give address of secretary of the American Confederation of Reciprocal Examining and Licensing Medical Boards.

T. ANSWER.—1. Yes. 2. Dr. L. D. Harrison, Sault Ste. Marie, Mich.

BOOKS ON CLIMATOLOGY.

ROCHESTER, N. Y., Nov. 13, 1904.

To the Editor:—Kindly inform me of the names and where I may obtain the latest and best books on climatology?

A. C. REMINGTON.

ANSWER.—This query was answered in THE JOURNAL, March 19, 1904, p. 784.

Marriages.

BURTON WELLES, M.D., Toledo, Ohio, to Miss Edna Myers of Tiffin, Ohio, November 1.

BENJAMIN DORES PARISH, M.D., to Miss Helen Griffith, both of Philadelphia, November 16.

EVERETT H. BUTTERFIELD, M.D., Ottawa, Ill., to Miss Letitia Rothwell, in Chicago, November 3.

FREDERICK L. OSGOOD, M.D., to Miss Blanche M. Osgood, both of Saxton's River, Vt., October 26.

CLARENCE B. WEAN, M.D., Lorain, Ohio, to Miss Edith Anna Griswold of Kinsman, Ohio, October 12.

FRANK CLIFFORD CARLE, M.D., Garrison, Iowa, to Miss Georgia Wilson of Weltman, Iowa, October 7.

ORA K. MCKITTRICK, M.D., to Miss Susette Harper of Plainville, Ind., at Terre Haute, Ind., November 3.

BRUCE B. EVERALL, M.D., Monona, Iowa, to Miss Myrtle Trumpler of Des Moines, Iowa, November 16.

HARRY JACOB JONES, M.D., North English, Iowa, to Miss M. Gertrude Downing of Wellman, Iowa, November 9.

CLARENCE JOSEPH MCCUSKER, M.D., Portland, Ore., to Miss Clare Alena Campbell of West Newton, Iowa, October 26.

Deaths.

DeWitt Clinton Wade, M.D. Albany (N. Y.) Medical College, 1860, of Holly, Mich., a member of the American Medical Association; given an honorary degree by the University of Michigan in 1902; local surgeon of the Grand Trunk Railway; superintendent of the Holly Hospital; member and acting president of the Oakland County Medical Society; member of the Michigan State Medical Society, died in a hospital at Flint, Mich., from appendicitis, after operation, November 4, aged 68.

William H. Huntington, M.D. University of Vermont, Burlington, 1881, a member of the American Medical Association; for several years brigade surgeon in the Vermont National Guard, and surgeon general on the staff of Governor Stickney; president of the Vermont State Medical Society in 1900, died at his home in Rochester, Vt., from appendicitis, November 7, after an illness of three days, aged 47.

James Anthony Dibrell, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1870, a member of the American Medical Association and vice-president in 1901; twice president of the Arkansas Medical Society; a member and once president of the Little Rock Medical Society; for 15 years physician to the Arkansas Deaf Mute Institute; one of the founders of the Medical Department of the University of

Arkansas, dean since 1884, and professor of anatomy in that institution; secretary of the State Board of Health from 1879 to 1881; vice-president of the Sanitary Council of the Mississippi Valley, and one of the foremost surgeons of Arkansas, died at his home in Little Rock, November 12, from pneumonia, after an illness of one week, aged 58.

Charles H. Potter, M.D. Baltimore Medical College, 1898, a member of the American Medical Association; formerly connected with the Johns Hopkins Hospital; who had made a specialty of microscopic photography for medical works in which his reputation was international, and more recently was in charge of the micro-photographic department of the Tuberculosis Exposition held in Baltimore, died suddenly at his home in Baltimore, November 9, aged 50.

Abner D. Kimball, M.D. Rush Medical College, Chicago, 1860, assistant surgeon in the Forty-eighth and later in the Ninety-ninth Indiana Volunteer Infantry; some time president of the Grant County (Ind.) Medical Society; chief surgeon at the National Home for Disabled Volunteer Soldiers at Marion, Ind., died at his home in that place, November 11, from diabetes, aged 65.

Henry E. Allison, M.D. Dartmouth Medical College, Hanover, N. H., 1878, medical superintendent of the Matewan State Hospital for the Insane, a member of the American Medicopsychological Association and Medical Society of the State of New York, died at his home from Bright's disease, after a long illness, November 12, aged 53.

W. S. Noblitt, M.D. Hospital College of Medicine, Louisville, who, after a controversy with the local board of health, secured a license to practice by order of the Supreme Court, died at his home in Honolulu, Hawaii, October 19, from typhoid fever, after an illness of one month, aged 36.

Charles H. Ludlow, M.D. Medical College of Ohio, Cincinnati, Ohio, 1902, who was found insensible at Hyatt Station, Ind., November 9, having been drugged, sandbagged and robbed of \$5,000, died from concussion of the brain at his home in Covington, Ind., November 10.

Thomas L. Laliberte, M.D. Laval University Medical Department, Quebec, 1876, a member of the American Medical Association; prominent as a physician and politician, died at his home in East Minneapolis, Minn., November 5, after an illness of five months, aged 53.

Augustus George Holloway, M.D. Cleveland Medical College, 1854, assistant surgeon in the Fifty-first and One Hundred and Ninety-seventh Ohio Volunteer Infantry in the Civil War, died at his home in Deatur, Ind., November 4, after an illness of 18 months, aged 75.

D. Morrow Barrere, M.D. Miami Medical College, Cincinnati, 1878, a member of the American Medical Association, a prominent practitioner of Dayton, Ohio, died at his home in that city from pneumonia, November 5, after an illness of ten days, aged 54.

Frederick Lefew, M.D. University College of Medicine, Richmond, Va., 1900, a member of the Medical Society of Virginia and the Roanoke Medical Society, was stabbed in the breast two weeks ago, and died at his home in Roanoke, November 15.

Jacobs Pollatsek, M.D. Royal University, Buda Pesth, Hungary, 1878, some-time quarantine officer at Cairo, Egypt, died at the Harbor Emergency Hospital, San Francisco, presumably from poison self administered, November 6, aged 63.

Charles G. Cruickshank, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1876, local surgeon for the Santa Fe system, died suddenly from heart disease at his home in San Marcial, N. M., October 12.

Caleb F. Farrar, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1846, an officer in the Confederate service during the Civil War, died at his home in Kingston, Miss., November 3, aged 80.

Littleton R. Tull, M.D. McDowell Medical College, St. Louis, Mo., 1848, died at his home in Carrollton, Mo., where he had practiced for more than half a century, November 6, after an illness of several months, aged 83.

Frederick A. Treacy, M.D. College of Physicians and Surgeons, Chicago, 1901, a member of the American Medical Association, of Lewistown, Mont., died at Helena, Mont., from tuberculosis, October 21, aged 30.

J. Wallace Collins, M.D. Denver (Colo.) College of Medicine, 1888, formerly county physician and health officer of Teller, surgeon in the national guard, died at his home in Victor, Colo., October 31, from apoplexy.

Charles N. Branch, M.D., Jr. Medical College of Ohio, Cincinnati, 1891, of Anderson, died from tuberculosis at Wickenburg, Ariz., where he went for his health two years ago, October 29, aged 32.

Franklin S. Whaley, M.D. Berkshire Medical College, Pittsfield, Mass., 1844, who retired from practice about ten years ago, died recently at his home in Compton, Cal., aged 85.

Frederick Schade, M.D. University of Tübingen, Germany, 1852, a retired physician of St. Louis, died at his home in that city, October 18, from heart disease, aged 79.

William Bray, M.D. Iowa, 1886, of Dubuque, Iowa, died at Mercy Hospital in that city, November 8, from typhoid fever, after an illness of three months, aged 46.

Guilford H. Gunter, M.D. Department of Medicine of the University of Pennsylvania, 1881, died at his office in Camden, N. J., November 5, from uremia, aged 50.

Cassius L. Gurney, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878, died suddenly at his office in Doon, Iowa, from apoplexy, November 5, aged 62.

Rufus A. Shimpoch, M.D. Long Island College Hospital, Brooklyn, N. Y., 1860, died at his home in Gold Hill, N. C., October 30, from Bright's disease.

Cassius W. Hare, M.D. Medical College of Virginia, Richmond, 1886, died suddenly from apoplexy at his home in Brentsville, Va., November 10.

John William Knight, M.D. Albany, (N. Y.) Medical College, for many years a practitioner of Walpole, N. H., died at Farmington, N. H., aged 82.

John Kerr, M.D. Western Reserve Medical College, Cleveland, 1848, died at his home in Cedar Falls, Iowa, November 8, after a brief illness, aged 85.

Henry L. Shireman, M.D. Toledo (Ohio) Medical College, 1885, died at his home in Nazareth, Pa., from paralysis, November 5, aged 63.

David A. Wood, M.D. Cleveland Medical College, 1872, died at his home in Norwalk, Ohio, after a long illness, October 30, aged 72.

J. Milton Welch, M.D. Ohio, 1878, died at his home in Los Angeles, Cal., November 6, after an illness of four months, aged 70.

William H. Oliver, M.D. University of Victoria College, Coburg, Ont., 1866, died at his home in Chicago, November 9, aged 80.

H. B. Pittman, M.D., died at his home in Hillsdale, Pa., October 26, after a lingering illness, from dropsy and paralysis, aged 69.

William H. Gardner, M.D. Bellevue Hospital Medical College, New York City, 1873, died at his home in Rockwood, Pa., October 29.

George Walton, M.D. New York University, New York City, 1873, died at his home in St. Louis, Mo., November 8, aged 55.

Arthur Young, M.D. Rush Medical College, Chicago, 1853, died at his home in Prescott, Wis., October 20, aged 75.

John B. Wilson, M.D. Ohio, 1853, died at his home in Mansfield, Mass., October 31, aged 71.

Nathan M. Smith, M.D., was shot and killed in a quarrel in Washington, Kan., October 31.

Charles W. Arnold, M.D. Ohio, 1850, died at his home in East Townsend, Ohio, October 26.

Thomas C. Quinn, M.D., died at his home in New Vienna, Ohio, October 30, aged 75.

William Kean Foltz, M.D. Ohio, 1859, died at his home in Akron, Ohio, November 9.

Deaths Abroad.

P. Tillaux, M.D., professor of clinical surgery at Paris, president of the Académie de Médecine, co-editor of the *Tribune Médicale* and author of a popular manual of topographic anatomy, died at Paris, October 20, aged 70.

C. Milone, M.D., professor of anatomy at Buenos Ayres since 1884, when he left a similar position in Rome to make his home in Argentina, died at Buenos Ayres, September 30, aged 60.

M. Bartels, M.D., one of the most prominent physicians in Berlin and author of several important medico-anthropologic and ethnologic works, died at Berlin, October 22, aged 61.

C. H. Huppert, M.D., professor of medical chemistry at Prague until 1901, died there October 19, aged 73.

Book Notices.

FOOD INSPECTION AND ANALYSIS, for the Use of Public Analysts, Health Officers, Sanitary Chemists and Food Economists. By Albert E. Leach, S. H., Analyst of the Massachusetts State Board of Health. First Edition. First Thousand. Cloth. Pp. 787. With 120 Figures and 40 Full page Half-tones. Price, \$7.50. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1904.

The fact is generally familiar to those concerned with public health matters that Massachusetts was the pioneer in establishing, some twenty years ago, a practical system of food and drug inspection. It is also universally recognized that the Massachusetts State Board of Health has in various ways given a powerful impetus to sanitary work of all kinds. Its activity has been displayed both in the original investigation of scientific problems and in the promotion of the publication of books and monographs dealing with the various undertakings in which it has been engaged. The present work on food inspection and analysis must rank as one of the most important that has issued from its laboratories. The book deals with the following topics: Food analysis and state control; the laboratory and its equipment; food, its functions, proximate components and nutritive value; general analytical methods; the microscope in food analysis; milk and milk products; flesh foods; eggs, cereals, legumes, etc.; tea, coffee and cocoa; spices; edible oils and fats; sugar and saccharine products; alcoholic beverages; vinegar; artificial food colors; food preservatives; artificial sweeteners; canned vegetables and fruits products; flavoring extracts. Considerable attention is devoted to the use of the microscope in food analysis. Well-chosen figures illustrating the microscopic structure of powdered tea, coffee, cocoa and the spices appear in the text, and a valuable set of photomicrographs (40 plates) is appended to the volume. The book is no mere literary compilation. The methods that it details have been mastered rather than copied, and we are given the full benefit of a wide, first-hand laboratory experience. It is not too much to say of the work that it takes its place at once as the authoritative standard in the English language.

A MANUAL OF GENERAL EXPERIMENTAL PATHOLOGY, for Students and Practitioners. By Walter Sydney Lazarus-Barlow, B.A., B.C., M.D., F.R.C.P., Director of the Cancer Research Laboratories of the Middlesex Hospital. Second Edition. Cloth. Pp. 736. Price, \$6.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

During the five years that have elapsed since the appearance of the first edition of this book, the advancements in pathology, particularly along certain lines, have made it necessary to practically rewrite much of the work, and this is what the author has done. The greatest changes are in the chapters on the pathology of the blood, on inflammation and on the pathology of infection and immunity. The need of a more uniform classification of the varieties of leucocytes is apparent, as the terms applied to the same kind of cell by different writers are confusing to one, not perfectly familiar with the subject. The greatest advancements in the future are to be hoped for along clinical lines, hence "The Pathology of the Blood Plasma" forms a very interesting chapter. The modern conception of infection and immunity as set forth by Ehrlich in his side chain theory is well presented. The various theories concerning the etiology of carcinoma and sarcoma, about which so much interest has centered of late, are clearly stated, and while the author leaves the matter still an open question, it is plain that he leans toward the non-parasite side. The illustrations are few in number, only 33, but the clearness of the text makes up largely for the deficiency. The general makeup of the volume is good.

HEALTH, STRENGTH AND POWER. By Dudley Allen Sargent, A.M., Sc.D., M.D., Director of Hemenway Gymnasium, Harvard University. Illustrated. Cloth. Pp. 276. New York and Boston: H. M. Caldwell Co.

This very readable book discusses the universal need for exercise, how and where it should be taken, what kinds are best for all ages and ends with a complete system of fully illustrated movements for individual use without apparatus. They will not particularly interest the athlete or the one who already has access to means of exercise; to one of sedentary habits they are to be recommended. The author's competency to speak on the subject leaves nothing to be desired. He adds

excellent advice as to bathing and food. Although an enthusiastic advocate of athletic sports for women, he cautions that their standards should be carefully maintained far below those of men and highly competitive matches avoided. The latter, he says, develop women away from some of their most desirable feminine qualities. In speaking of golf as a valuable sport for women he refers to its power in making the waist and abdomen more fit for the requirements of child birth. The publishers have made the book very presentable. Either they or the author are responsible, however, for the ancient spelling: "vigour," "odour," "favour," "labour," which look very odd in this country.

DISEASES OF THE NOSE AND THROAT. By D. Braden Kyle, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Third Edition. Thoroughly Revised and Enlarged. With 175 Illustrations and 6 Chromo-lithographic Plates. Cloth. Pp. 669. Price, \$4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This edition of this very valuable work contains a number of important additions to the previous ones. The chief changes made are in the chapters on "Keratoses," "Epidemic Influenza" and "Correction of Nasal Deformities by the Paraffin Method." "Hay Fever" and "Septal Deformities" are treated more fully than in the last edition. Of special interest is the consideration of the chemistry of the salivary and nasal secretions. The author believes that much can be determined in regard to the chemistry of the tissues by an examination of a physiologic secretion such as the saliva and that much may be accomplished in the cure of certain diseases by correcting abnormal chemical conditions, notably hyperacidity and hyperalkalinity, the former of which he usually overcomes by free administration of benzoate of soda and the latter by boric acid. It is impossible to do justice to his views in a brief space, consequently the reader is referred to the article with the promise that a careful perusal will more than repay him.

THE THEORY AND PRACTICE OF INFANT FEEDING, with Notes on Development. By Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children at the New York Post-graduate Medical School and Hospital. Second Edition, Revised. With Numerous Illustrations. Cloth. Pp. 312. Price, \$2.25. New York: Wm. Wood & Co. 1904.

The first portion of this book differs somewhat from other books on infant feeding. Dr. Chapin has made comparative studies of the digestive tracts of young animals and concludes therefrom that the digestive system of each animal is particularly suited to its natural food and that as the digestive tracts of young animals must be, in a general way, like that of their parents, the milk of one animal is not suited for the young of another species. Dr. Chapin considers that the trouble caused by the substitution of some other milk in infant feeding is probably due to the difference in the digestive system. In part 2 Dr. Chapin gives simply and practically the various methods of testing milk, etc. Part 3, on "Practical Feeding," comprises the care and diet of the mother and directions for preparing infants' food. Part 4, "The Growth and Development of Infants," contains tables of measurements and weight of infants at different ages. The book is comprehensive and practical.

THE MOTHER'S MANUAL. A Month by Month Guide for Young Mothers. By Emelyn Lincoln Coolidge, M.D., Visiting Physician of the Out-patient Department of the Babies' Hospital, New York. Illustrated. Cloth. Pp. 262. Price, \$1.00 net. New York: A. S. Barnes & Co. 1904.

Among "mothers' guides" this book may be distinguished by its simplicity. Some matters seem to the young mother too simple to ask the physician or even a lay friend about and so she blunderingly worries along—unless she possesses a book which, like the one discussed, tells every little detail. The book is almost too full and may tempt some mothers to depend on home treatment too much. We certainly do not approve of the mention in such a book of preparations containing 17 and 20 per cent. of alcohol with the statement that they are of value between meals for infants and children with marasmus, etc., especially in view of the danger that the mother will take into her own hands the prescribing and administering of them. On the whole, however, Dr. Coolidge brings out very clearly at what times the mother should call a physician, how she should carefully follow his advice and that she should be

ware of patent medicines, which "have no place in the household."

A TEXT-BOOK OF HUMAN HISTOLOGY. Including Microscopic Technic. By Drs. A. A. Böhm and M. von Davidoff, of Munich, and G. Carl Huber, M.D., Professor of Histology and Embryology in the University of Michigan, Ann Arbor. Second Edition, Thoroughly Revised and Enlarged. With 376 Original Illustrations. Flexible Cloth. Pp. 525. Price, \$3.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

The second edition of this valuable text-book on histology appears in a form which is a great improvement over that of its predecessor. Although the text has been added to and the number of illustrations increased by 26 new plates, the volume is only half the thickness of the first edition, owing to the light paper and the flexible cover. The additions to the text are found chiefly in the sections dealing with histologic technic, but there is also a new section on the hemolymph glands, giving the results of Warthin's researches. The section on neuroglia is also enlarged. The new illustrations, many of them from Sobotta's atlas, show a tendency toward realism which is highly to be commended in a book designed for students.

CLINICAL DIAGNOSTIC BACTERIOLOGY, Including Serum Diagnosis and Cyto diagnosis. By Alfred C. Coles, M.D., D.Sc., F.R.S. Edin. With Colored Plates. Cloth. Pp. 237. Price, \$2.75 net. London: J. and A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1904.

As is indicated in the title, this book is intended for the use of the clinician, but it inclines strongly toward the laboratory rather than the clinical side of diagnosis. The author has endeavored to place before the reader the methods of examination best adapted for practical diagnostic purposes, and has also included an account of some research work made by him on the acid-fast bacteria. Unfortunately for the practitioner too much space (about one-third of the book) is devoted to this subject, although it will prove of interest to the research worker. Such bacteriologic examinations as involve elaborate investigation, such as cholera and glanders, have been omitted entirely; and, judging from its omission, we presume the author included the typhoid bacillus in this class, an opinion to which we wish to take exception. There is also a short account of serum diagnosis and cyto-diagnosis, but not sufficient to be of more than passing interest.

HAND-BOOK OF PHYSIOLOGY. By W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. Nineteenth Edition, with Nearly Seven Hundred Illustrations, Including Some Colored Plates. Cloth. Pp. 901. Price, \$3.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

Considerable changes in the arrangement of the exercises have been made in this edition. A new first lesson on the detection of the elements contained in substances of physiologic interest has been added, and the fats, which were somewhat meagerly treated in former editions, have now been made the subject of a separate lesson. Many new exercises have been inserted in other places, and the advanced lessons on milk, pancreatic digestion, muscle and Kjeldahl's method have been rewritten, bringing the work abreast of advances in science without detracting from its value as a serviceable and practical laboratory guide.

A COURSE IN QUALITATIVE INORGANIC CHEMISTRY. By Arthur L. Green, Ph.D., M.D., Ph.D., Dean and Professor of Chemistry, School of Pharmacy, Purdue University, and Charles E. Vanderkleed, Ph.C., B.S., A.C., Analytical Chemist with the H. K. Mulford Co. Fourth Edition. Cloth. Pp. 158. Lafayette, Ind.: Arthur L. Green.

This little book is a well-arranged laboratory manual, one which will be received with a full measure of appreciation by the student. It is provided with a thumb index, part of which can be used from before backward and vice versa.

Miscellany.

Syme's Staff.—In Dr. Parker Sym's article on Prostatic Obstruction in *THE JOURNAL*, November 5, page 1381, a typographical error made "Syme's staff" read Sym's staff.

Legible Type on Labels.—Mr. W. Bodeman of Chicago, president of the State Board of Pharmacy, in the *Practical Druggist*, calls the attention of manufacturers to the small type in

which it is customary to print the dose stated on bottles of hypodermic tablets, granules, small pills and similar goods. He says that it requires a microscope in some cases to distinguish between 1/3 and 1/8 grain, or between 1/10 and 1/100 grain, and thinks the figures should be large and distinct. He also calls the attention of manufacturers of synthetic preparations to the desirability of stating on each package the solvent of the chemical, its dose and whether or not it is hygroscopic.

Rhythmic Nose-Pulling as a Resuscitating Measure.—Young ladies will not consider it so genteel to faint, now that Panyrek of Prague has announced that vigorous pulling of the nose should be tried as a means of reviving persons in a faint or asphyxiated from any cause. He explains its effect as due to reflex stimulation of the vasomotor nerves of the cortex and the centers of respiration and circulation by the energetic, rhythmical movements of the nose upward and downward, repeated several times. The sudden stimulation of the sensory nerves thus effected is reflected to the vasomotor nerves above and the respiratory and circulatory centers. The principle is somewhat similar to that of rhythmic traction of the tongue, which is now a widely adopted means of resuscitation.

Jamaica as a Health Resort.—Dr. E. E. Lewis, in a recent issue of the *Journal of Balneology and Climatology* advocates the claims of Jamaica as a health resort. He says that the tradition attaching to Jamaica as an unhealthy station is rapidly being dissipated, and the pretensions of this beautiful island to be regarded as a health resort are meeting with many advocates. Of the total area of the island more than half is 1,000 feet above sea level. Cool nights, a temperate wind—"the doctor" as it is termed—and an equable climate go far to commend Jamaica to both the sick and the well. Mineral springs at Bath, some forty-five miles from Kingston, possess the same mineral constituents (but in larger quantities) as those of Aix-la-Chapelle, Baresges and Bagnères de Leuchon.

Open-Air Treatment for Tubercular Children.—The *American Journal of Nursing* states that the open-air treatment of tuberculosis is being tried at the Children's Hospital, Boston. A shack, twenty by forty feet, lighted by ten windows which open like a transom, has been built at Wellesley Hills and connected by a covered passageway with the temporary building used as the convalescent home of the Children's Hospital. The windows are kept open day and night. The children sleep in flannel night gowns, flannel night caps, woolen bed socks and between blankets. In the daytime they wear flannel underwear, dresses, sweaters and woolen hoods. There has not been a case of sore throat or cold in the head and the appetites of all have improved. The children are those who have been treated in the hospital for tubercular disease of the joints and bones, and tubercular empyema and peritonitis.

Anatomic Proof of Healing of Military Tuberculosis Under Tuberculin.—Spengler of Davos writes to the *Zft. f. Hyg. und Inf.-Krankheiten*, XLVII, 1, to describe a healed case of military tuberculosis of the lungs. The patient was a consumptive belonging to a tuberculous family. In 1890 there was a military dissemination of the tuberculosis over the hitherto exempt portions of the lungs. He was treated by tuberculin in stages, the "Etappen-Tuberculin" treatment, and was apparently completely cured after the sixth series of injections, which closed in August, 1904. He succumbed a few months later to a brain affection, probably an abscess. Examination of the lungs alone was allowed. The lung process had entirely healed. Each single nodule was found enclosed in a wall of connective tissue or surrounded by a rampart of leucocytes. Not a trace of tubercle bacilli could be discovered.

Alcohol Dressings for Superficial Lesions.—A. Puhf of Hanover lauds the Salzwedel method of alcohol applications as the simplest, cheapest and best method of treating cutaneous superficial wounds, inflammations of connective tissue, swollen glands, furuncles, inflamed periosteum and bursa, and also for deep lying lesions, inflamed joints, glands and body cavities. He finds that 40 to 50 per cent. alcohol displays much

the strongest bactericidal power. Fluid alcohol does not penetrate deep into the tissues, but applied in the form of compresses covered airtight the fumes of the alcohol have great penetrating power. He writes from an experience of 117 cases thus treated. Leutz has always found the alcohol dressings an effective mode of treating chilblains. A piece of gauze folded in eight thicknesses is moistened with 70 per cent alcohol, applied to the part and covered with a piece of perforated oiled silk or rubber tissue, the whole held in place with a bandage.

Effects of Deprivation of Salt on the Nerves.—Vincent has been making a systematic study of hyperchloridation and hypochloridation in various nervous affections. He found that 12 to 15 gm. of salt taken by hysterics in addition to their usual food, invariably aggravated their nervous symptoms and caused an outbreak of symptoms in the latent cases. Diarrhea and vomiting were sometimes noted, much relieving the patients by the evacuation of the excess of salt. It seems to affect latent hysteria in the same way as alcohol, lead, mercury or other poisons, aggravating pre-existing morbid nervous tendencies. Claude has been studying the effect of deprivation of salt in health, and has become convinced that the intake of salt has a much greater influence on the nutrition than has been hitherto recognized. Cramps, dyspeptic troubles, lassitude and incapacity to work were noted during the five days of hypochloridation, while the restoration of the usual modicum of salt rapidly restored conditions to normal. Their research was reported to the Paris Soc. Méd. des Hôp., July 8, and they theorized to explain the effects observed, advocating a trial of transient deprivation of salt in certain nervous affections, especially in hysteria.

Lumbar Puncture in Headache of Bright's Disease.—Legrain quotes P. Marie and cites a case from his own experience to demonstrate the benefit liable to be derived from lumbar puncture in case of the persisting headache of advanced Bright's disease. It has also proved beneficial in the headache of lead poisoning. In a communication to the *Progrès Médical*, XXXII, 44, he reiterates that lumbar puncture may be repeated without danger several times in succession at intervals of two to four weeks. It causes no disturbance if done aseptically, with a fine, sharp needle, the subject reclining for two or three hours afterward. His patient was a worker on copper, 56 years old, the diagnosis being uremia with vertigo and epileptiform seizures followed by transient cerebral disturbances. An attack of almost intolerable headache recurred every day, or rather night, sometimes as many as two or three in the twenty-four hours. After failure of all other measures about 12 c.c. of cerebrospinal fluid were withdrawn by lumbar puncture. There was no hypertension, the fluid escaped a drop at a time, the patient seated. Seven punctures were made in all, the patient clamoring for them when the headache became unendurable. Each was invariably followed by subsidence of the pain for two days at least. The amount of fluid withdrawn ranged from 12 to 15 c.c. The epileptiform seizures became much less frequent after the second puncture. As the cerebrospinal fluid in this case never showed signs of abnormal pressure, the benefit from the punctures must be ascribed to its extra toxicity. In the other cases on record the fluid escaped under pressure and the relief from pressure was evidently a factor in the benefit derived.

Veratrum Viride in Puerperal Eclampsia.—Dr. René de Coctret eulogized this method of treatment of puerperal eclampsia in a communication to the Congress of French-Speaking Physicians at Montreal in June. He says that he has never had a mishap from its use, but has found it decidedly beneficial. He insists that it is free from danger, even when large doses are given, provided the patient is kept in the horizontal position. He uses the fluid extract or tincture, and always by hypodermic injection. The dose varies according to the pulse. With a pulse of 120 or over, he gives, at once and without fear, from 20 to 25 drops of the fluid extract; with a pulse of 100 he gives 20 drops. If the pulse is below 100 he never

gives less than 10 drops for the first dose. About thirty-five minutes are required for the drug to exert its principal action and slow the pulse. The pulse must be reduced below 60 to control the convulsions. Even at 60 they sometimes reappear. If the pulse is not down to 56 or 50 by the end of thirty-five minutes, a further injection of 5 to 10 drops should be made. It is truly astonishing, he remarks, the way in which the pulse drops and the convulsions cease in response to the injections. When the convulsions are frequent and keep up before the drug has had time to work, he gives a few whiffs of chloroform as a convulsion commences, to tide the patient over this interval. She must be kept under the influence of the veratrum, that is, the pulse must be kept under 60, for twelve to twenty-four hours. If the pulse becomes too slow, 25 to 30 beats, a stimulating injection, preferably of morphin, one-fourth of a grain, will accelerate it at once. The Italians have lately been using veratrum viride in eclampsia with equal confidence and good results, especially the Florence school.

Ligature of Subclavian Artery in Aneurism.—De Garay was the first surgeon in Mexico to extirpate the sac in treatment of aneurism, his first case dating from 1893. The aneurism in this instance was in the femoral artery. He has since perfected a method of ligating the subclavian artery which he has successfully performed in 3 cases of traumatic aneurism of the axillary artery. It is a modification of the Lisfranc technique and he describes it in detail in the *Escuela de Medicina*, XVIII, No. 17. He advocates it as a less serious operation than extirpation of the sac, while the results show that it is harmless and answers the same purpose. He reaches the subclavian artery by a vertical incision 5 to 6 cm. long, about 1 cm. inside of the center of the clavicle, supplemented by a short perpendicular incision, thus forming an L, avoiding the external jugular vein. The inner lip of the incision is then detached back to the margin of the sterno-mastoid. The aponeurosis is then incised, or cut with scissors, below the omohyoid muscle, without opening the sheath of the subclavian vein. By this means the external jugular may be safely drawn to one side of the field of operation and the subclavian vein is protected by the fascia. It is advisable to remove any ganglia and fatty tissue obstructing the view. He commences by outlining the external jugular, making his incision inside of it, and thus leaving it undisturbed in the flap, while the subclavian vein is likewise undisturbed in its sheath, neither coming into view during the operation. The field is well exposed, and the space between the scaleni, the nerves passing to the brachial plexus, etc., are readily recognized. The subclavian artery can then be easily ligated, no forceps being required in his 3 cases nor the slightest inconvenience encountered, even in the cases of much tumefaction of the axillary artery. The pains were reduced almost at once, and the member did not grow cold nor exhibit signs of gangrene in any instance. The wound was 6 cm. deep, but rapidly healed. The ligature thread fell off the tenth day.

The Surgical Conscience.—At the meeting of the Montreal Medical Society of March 22, Dr. Coytex-Prevost of Ottawa delivered an address, but instead of recounting his successes as a surgeon, he reviewed the fatalities in about a thousand operations. Fifty-nine deaths in all, the patients succumbing notwithstanding or on account of the operation. The largest percentage was in cases of acute obstruction of the intestines, and the extensive ravages found in apparently the mildest cases now impel him to operate without delay. The lesson he has learned from the 10 fatal cases of appendicitis is to operate in every case seen before the end of the third day. He discusses whether the too tardy operation hastened the fatal termination or whether the final result would have been the same under expectant treatment. He remarks that the number of cases of appendicitis seems to be increasing every day and it alone is almost enough to support the medical man. Guided by experience we will soon be able to reduce to zero the mortality of operative statistics. Then will come the golden age of abdominal surgery, but the general practitioner will then feel justified in operating, and the gynecologic specialists will become the victims of the application of a sort of Monroe doc-

trine. It is to be hoped, however, he added, that a few women will still be left weary of their ovaries or sighing for the restitution of relaxed organs. He concluded his review of the tombs in his practice by confessing that his hesitancy and trust in expectant treatment had cost lives, and that he deserved to be stoned, "let that surgeon cast the first stone who does not carry around with him a little cemetery in some corner of his memory." His address is published in the *Revue Médicale du Canada* of the corresponding date. We have not learned of his having been stoned to death as yet.

State Boards of Registration.

COMING EXAMINATIONS.

New Mexico Board of Health, Santa Fe, December 5. Secretary, R. D. Black, M.D., Las Vegas.

Ohio State Board of Medical Registration and Examination, Columbus, December 13-15. Secretary, Frank Winders, M.D., Columbus.

State Medical Examining Boards of Delaware, Wilmington and Dover, December 13-15. Secretary, P. W. Tomlinson, M.D., Wilmington.

The Medical Examining Board of Virginia, Richmond, December 13-16. Secretary, R. S. Martin, M.D., Start.

Board of Medical Examiners of Maryland, Baltimore, December 14-17. Secretary, J. McI. Scott, M.D., Hagerstown.

Missouri State Board of Health, St. Louis University, St. Louis, December 19-21. Secretary, W. T. Morrow, M.D., Kansas City.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, December 21-22. Secretary, J. F. Kennedy, M.D., Des Moines.

Oklahoma Medical Examining Board, Guthrie, December 28. Secretary, E. E. Cowdrick, M.D., Enid.

AMERICAN CONFEDERATION OF RECIPROCATING EXAMINING AND LICENSING MEDICAL BOARDS.

Semi-Annual Meeting, held in St. Louis, Oct. 25, 1904.

The President, Dr. W. A. Spurgeon, Muncie, Ind., in the Chair.

This report is concluded from THE JOURNAL, November 5, page 1407. In that issue the schedule of questions for examination was referred to as having been unanimously adopted. It was so adopted, but by a later motion was held over until the next meeting for further consideration. The same action—postponement for a later final action—was taken in the case of the following committee reports:

Uniform Entrance and Graduation Requirements.

The committee on uniform entrance and graduation requirements recommended as a minimum entrance requirement to medical colleges a legitimate and duly accredited high school diploma, or its equivalent, and that such credential be simply treated as a credential of identification, and that its acceptance shall be dependent upon a certain number of credits, the same to be determined later. The committee recommended further that a medical diploma in the future be simply treated as a matter of identification, and that the medical course must consist of at least four thousand hours; that the division of subjects under this limit shall be in hours multiples of twenty-five; that no college shall be recognized that falls below this standard over 25 per cent. in any one branch, or over 10 per cent. in the total.

Advanced Standing.

The committee on advanced standing suggested that graduates in dentistry and veterinary medicine, and holders of baccalaureate degrees, or equivalent, from a reputable college or university may be given time credits not exceeding one year, provided that the applicant has had at least 40 hours in physics, 144 hours in chemistry, 24 hours in osteology, 292 hours in anatomy, 124 hours in histology, 85 hours in embryology, 145 hours in physiology and 46 hours in materia medica; and provided that the applicant for such time credits satisfies the professor in charge of the various subjects as to his proficiency in the subjects for which he seeks time credit. Further, that in case of transfer of students from one medical school to another, the dean of the recipient institution must secure an official statement from the school from which the student comes

as to the latter's educational and moral status, and no student shall be advanced to a higher class in his own school or any other medical school who has more than two conditions in his previous year's work, these conditions to be removed before the end of the school year on which the student enters. But no student shall be permitted to enter the fourth year until all conditions of the third year shall have been removed.

The committee on uniformity of forms also reported and was continued to report further at the next meeting, to be held in Indianapolis, on call of the secretary. The present incumbents in office were re-elected to serve for the ensuing year. The secretary is Dr. B. D. Harrison, Sault Ste. Marie, Mich.

The following states were represented at the meeting:

- Indiana.—W. S. Spurgeon.
- Michigan.—Wm. Bell and B. D. Harrison.
- Wisconsin.—J. B. Stevens, W. T. Saries, L. F. Bennett, A. P. Andrews, F. P. Klahr, J. R. Currens and F. A. Forsbeck.
- Kentucky.—J. N. McCormack and C. A. Mayer.
- Iowa.—J. A. McIlveen and J. H. Sans.
- Nebraska.—B. F. Bailey.
- Illinois.—G. W. Webster, J. A. Egan and W. H. Hipp.
- Ohio.—H. F. Beebe and S. B. McGarran.
- Colorado.—S. D. Van Meter.
- Kansas.—O. F. Lewis and C. E. Johnston.

Louisiana October Report.—Dr. Felix A. Larue, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Oct. 21-22, 1904. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 25, of whom 17 passed and 8 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Medical College of South Carolina	(1901)	92.6
University of the South, Sewanee	(1904)	78.8
Med. Dept., Tulane Univ.	(1904) 66.6, 51.4;	(1899) 91.2
Laval University, Montreal	(1893)	80.6
Med. Dept., Columbian Univ., Washington, D. C.	(1904)	86.4
Woman's Med. Coll. of Pennsylvania	(1888)	87.4
University of Michigan	(1904)	82.4
University of Tennessee	(1904)	81.4
Nat. Med. Univ., Chicago	(1904)	88.2
Maryland Medical College	(1904)	76.8
Kentucky University	(1903) 75,	(1904) 82.4
Memphis Hospital Medical College	(1899)	77.0
Bellevue Hospital Medical College	(1898)	86.4

FAILED.

Univ. of the South, Sewanee	.....	(1903) 67.2,	(1904) 59.8,	73.73
University of Louisville	.....	(1902)		67.6
Memphis Hospital Medical College	.....	(1900)		66.0
Flint University	.....	(1902) 63.6,	(1904)	67.0

Montana October Report.—Dr. William C. Riddell, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, Oct. 4-5, 1904. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 20, of whom 15 passed and 5 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Trinity Medical College, Toronto	(1903)	81.6
University Medical College, Kansas City, Mo.	(1903)	76.0
University of Michigan	(1904)	83.2
Kentucky University	(1904)	78.3
Detroit College of Medicine	(1904)	73.1
Northwestern University	(1904)	78.3
University of Illinois	(1904)	75.9
College of P. and S., New York	(1904)	87.5
Imp. Alexander's Univ., Pilsand	(1894)	*78.2
Queen's Univ., Kingston, Ont.	(1903)	75.4
Rush Medical College	(1903) 86.3,	(1902) 85.6
St. Louis College P. and S.	(1895)	†76.6
Bellevue Hospital Medical College	(1894)	79.8
College of P. and S., Kansas City, Kan.	(1904)	75.2

FAILED.

Hahnemann Medical College, Philadelphia	.....	(1901)	66.4
New York University	.....	(1893)	41.9
Kansas City Medical College	.....	(1895)	47.7
Howard Medical College, Washington, D. C.	.....	(1892)	57.1
Dunham Medical College, Chicago	.....	(1901)	63.6

* Second examination. †Third examination.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Nov. 12, 1904:

Williamson, L. P., asst.-surgeon, leave of absence extended fifteen days.

Owen, Wm. O., surgeon, left Fort Logan, Colo., on thirty days' leave.

Swaney, Verne E., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and ordered to Fort Mackenzie, Wyo., for duty.

Rutherford, Henry H., asst.-surgeon, relieved from duty at Fort Mackenzie, Wyo., and ordered to the U. S. Army General Hospital, Presidio of San Francisco.

Phillips, Jno. L., surgeon, ordered to take charge of the office of the chief surgeon, Department of the East, during absence of Col. Valery Havard, chief surgeon.

Hammond, Thos. E., surgeon, relieved from duty at the Louisiana Purchase Exposition, St. Louis, and ordered to Fort Assiniboine, Mont., for duty.

Metcalfe, K. F., asst.-surgeon, sick leave of absence extended thirty days.

Brown, Polk D., Johnson, Charles W., and Warriner Benjamin B., contract surgeons, Sorber, Ord M., and Tignor, Edwin P., contract dental surgeons, called on the *Sherman* November 1 from San Francisco for Philippine service.

Werthenbaker, Clark I., contract surgeon, ordered from his home at Cleveland, Ohio, to Madison Barracks, N. Y., for duty.

Smith, Rodney D., contract surgeon, granted leave of absence for three months.

Guttrud, Alwin M., contract surgeon, granted an extension of one month to his leave of absence.

Nash, Francis S., contract surgeon, granted leave of absence for four months.

Woods, Oscar W., contract surgeon, returned to duty October 31, at Vancouver Barracks, Wash., from leave of absence for two months.

Truheoltz, Clarence A., contract surgeon, left General Hospital, Fort Bayard, N. M., November 5, on leave of absence for two months.

Dade, Waller H., contract surgeon, granted leave of absence for one month on account of sickness at the expiration of his present leave of absence.

Reagles, James, contract surgeon, left Fort Yellowstone, Wyo., November 7, for duty at Fort Keogh, Mont.

Adair, George F., contract surgeon, left Fort Du Pont, Del., November 9, for his proper station, Fort Wadsworth, N. Y.

Merrick, John N., contract surgeon, granted leave of absence for two months.

Turner, Samuel S., contract surgeon, granted leave of absence for four months.

Navy Changes.

Changes in the medical corps of the Navy, week ending November 12, 1904:

Lewis, D. G., medical inspector, detached from the *New York* and ordered to the *Chicago*.

Furlong, F. M., P. A. surgeon, detached from the *Chicago* and ordered to the *New York*.

Brown, E. M. asst.-surgeon, detached from the *New York* and ordered to the *Chicago*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Nov. 9, 1904:

Williams, L. L., asst.-surgeon general, granted leave of absence for eight days from November 7.

Metzch, F. C., surgeon, granted leave of absence for two days from November 5.

Blue, Rupert, P. A. surgeon, detailed to represent the service at convention of League of California Municipalities at Santa Ana, Cal., November 16-18.

Clark, Tallaferra, F. A. surgeon, on being relieved at Baltimore, Md., by Asst.-surgeon J. W. Schereschewsky, to rejoin station at Philadelphia.

Anderson, J. F., P. A. surgeon, granted leave of absence for seven days from Nov. 9, 1904, under Paragraph 191 of the Regulations.

Billings, W. C., P. A. surgeon, to proceed to St. John, N. B., for exclusive duty in connection with inspection aliens.

McIntire, C. B., P. A. surgeon, granted extension of leave of absence for twenty-three days from November 7.

Schereschewsky, J. W., asst. surgeon, on completion of examination to determine fitness for promotion to the grade of P. A. surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Baltimore for exclusive duty in connection with the inspection of aliens.

Safford, M. V., A. A. surgeon, granted leave of absence on account of sickness for four days from October 21.

Rehrig, A. M., pharmacist, Department letter of Sept. 1, 1904, granting leave of absence for thirty days, amended to read twenty-five days from Sept. 12 to Nov. 7, 1904.

Miller, Chas., pharmacist, granted leave of absence for fourteen days from November 10.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Nov. 11, 1904:

SMALLPOX—UNITED STATES.

Illinois: Chicago, Oct. 30-Nov. 5, 28 cases, 2 deaths; East St. Louis, Aug. 15-Oct. 20, 200 cases, 25 deaths.

Louisiana: New Orleans, Oct. 30-Nov. 5, 1 case.

Michigan: Oct. 30-Nov. 5, at 50 places, present; Detroit, 1 case.

Minnesota: Oct. 25-31, Hennepin Co., 8 cases; Todd Co., 1 case.

Missouri: St. Louis, Nov. 1-7, 7 cases, 1 death.

New York: New York City, Oct. 30-Nov. 5, 6 cases.

Ohio: Canton, Oct. 16-22, 3 cases; Toledo, Oct. 23-29, 1 case.

Pennsylvania: Philadelphia, Oct. 30-Nov. 5, 2 cases.

Wisconsin: Milwaukee, Oct. 30-Nov. 5, 22 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Oct. 16-22, 4 cases.

Brazil: Pernambuco, Sept. 30-Oct. 13, 43 deaths; Rio de Janeiro, Oct. 3-9, 236 cases, 115 deaths.

France: Paris, Oct. 16-22, 7 cases, 1 death.

Great Britain: Bradford, Oct. 9-22, 4 cases; Oct. 16-22, Manchester, 3 cases; Newcastle-on-Tyne, 17 cases, 2 deaths; Nottingham, 6 cases, 1 death.

Italy: Catania, Oct. 2-8, 1 death.

Italy: Catania, Oct. 21-27, 1 death; Palermo, Oct. 16-22, 1 case, 5 deaths.

Russia: Moscow, Oct. 23-29, 4 cases; St. Petersburg, Oct. 19-25, 5 cases, 1 death; Warsaw, Oct. 29-26, 19 deaths.

Turkey: Constantinople, Oct. 17-23, 10 deaths.

West Indies: Barbados, Oct. 25, 2 cases on British bark *Endenado*, from Rosario.

CHOLERA.

India: Bombay, Oct. 5-11, 7 deaths; Madras, Oct. 2-8, 6 deaths.

Russian Empire: Saratov Province, Saratov, Sept. 27-Oct. 7, 18 cases, 9 deaths; Trans-Caspian District, Sept. 25-Oct. 2, 11 cases, 5 deaths; Trans-Caucasia, Baku, Sept. 28-Oct. 11, 191 cases, 114 deaths.

Turkey: Sept. 27-Oct. 3, 233 cases, 160 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Oct. 3-9, 1 case.

Cuba: Havana, Oct. 26, 1 case from American S. S. *Havana* from Mexico.

Mexico: Tuxtitepec, Oct. 23-29, 47 cases, 12 deaths; Merida, Oct. 23-29, 1 case.

PLAGUE.

Africa: Port Elizabeth, Oct. 2-8, 1 case.

Australia: Brisbane, Sept. 10-24, 1 case, 1 death; Perth, Sept. 5-24, 4 cases, 1 death; Sydney, Sept. 12-26, 2 cases, 2 deaths.

Brazil: Rio de Janeiro, Oct. 3-9, 43 cases, 15 deaths.

Egypt: Oct. 1-7, Alexandria, 4 cases, 2 deaths; Port Said, 1 death.

Formosa: Sept. 1-30, 4 cases, 3 deaths.

India: Bombay, Oct. 5-11, 71 deaths; Karachi, Oct. 3-9, 12 cases, 13 deaths; Madras, Oct. 1-7, 1 case.

Peru: Oct. 1, Arica, present; Eten, present; Pacasmayo, present; Sept. 25 Oct. 1, Callao, 1 case; Lima, 11 cases.

Straits Settlements: Singapore, Sept. 22-28, 2 deaths.

Society Proceedings.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, Oct. 6, 1904.

The President, Dr. Richard C. Norris, in the Chair.

The Intermediate Repair of the Cervix.

DR. BARTON COOKE HIRST declared that experience has demonstrated that intermediate repair after the fifth day gives the best results. This fact dictates the time for the repair of all the pelvic injuries, if the cervix must also be repaired. To give special attention to the community at large Dr. Hirst recommended that the poorer classes be confined in well-appointed and intelligently managed hospitals, and that the wealthier classes be attended by their family physicians under the supervision of a specialist, who could deal with complications in labor, examine the patient during the puerperium, repairing whatever damage has been done, and make the final examination at the end of the puerperium.

The Immediate Repair of the Pelvic Floor and Perineum.

DR. EDWARD P. DAVIS said that when the uterus is well contracted, when inspection of the cervix reveals no laceration with bleeding, and when torn vessels in the posterior segment of the pelvic floor are not bleeding, that persistent hemorrhage is caused by a laceration of the vulva or anterior segment of the pelvic floor, and that on inspection a positive diagnosis can be readily made. Treatment may be expectant or by suture. Lacerations of considerable extent are apt to cause prolapse, etc., and primary closure by fine or medium sized chromicized catgut is satisfactory. If in extensive laceration high up it is impossible to close the entire laceration, one or two sutures of medium sized catgut buried deeply enough to include the fascia will prevent prolapse. Lacerations of the posterior segment of the pelvic floor are divided into tears of the pelvic floor and tears of the perineum. To recognize injuries to the pelvic floor requires especial care; the patient must be placed on the back or side at the edge of a bed or table, the labia separated and the pelvic floor raised for inspection.

If the laceration of the posterior segment be considerable and the condition of the patient bad, operation may be delayed

24 to 36 hours. The most important stitches in closing lacerations of the pelvic floor are those placed at the highest points in the tears in the sulci. In repairing the perineum, the operator should begin near the anus and bring together the skin edges and underlying fascia with silkworm-gut stitches, taking a considerable portion of tissue, but without tension. The perineum should be brought together up to the point where the posterior vaginal wall begins. If the pelvic floor sutures are continued on the perineum, the posterior wall of the vagina will be brought downward and protrusion of the vaginal mucous membrane will result. If the stitches are drawn too tightly they will cut; if sufficient tissue be not included in the stitches, only superficial union may occur. In complete tears, the rectum may first be closed by continuous suture of No. 1 chromicized catgut, prepared to last ten days, the stitches passed into the connective tissue, turning the mucous membrane into the bowel. A careful approximation will turn but little mucous membrane into the intestine and secure good application for the stitches. The fascia and sphincter muscle of the bowel may then be accurately closed and then the pelvic floor and perineum as in an incomplete tear. Chromicized catgut No. 2, prepared to last ten days, has given good results in the sulci of the pelvic floor and where but one stitch was required in the fascia and muscle of the sphincter of the bowel. For closing the anterior segment of the pelvic floor and the rectum, No. 1 catgut of the same sort has been useful. In the skin perineum, silkworm gut has given satisfaction. In complete tears, the free use of salt solution on the mucous membrane of the bowel tends greatly to prevent infection. Where there is edema, the application of hot sterile compresses or irrigation with hot sterile salt solution may be useful. Vaginal douches should be avoided, because they may carry infective material from the perineum to the cervix. The after-treatment consists of surgical cleanliness so applied as least to disturb the tissues and parts which are healing. The use of the catheter after this operation should be as brief as possible and its employment should cease after two or three days. After complete tears the rectum must be kept quiet for 48 hours, and after that daily movements of softened fecal matter should occur. After the operation for complete tear, fistula may remain between the vagina and rectum for some time. Fluid may pass between these cavities. If care be exercised in aseptic precautions and saline flushing, these fistulae will close spontaneously and their presence will delay convalescence but slightly. Where partial union occurs, as soon as the first stitches have been removed, a good result can often be obtained by curetting thoroughly the unhealed parts of the laceration and by inserting stitches a second time. In estimating the success of an immediate operation we must take into consideration whether the vaginal walls are completely or very nearly in apposition and without prolapse, whether there is good control of the sphincter of the bowel, and the patient free from pain, especially when using a closet or commode, or when moving about, and whether there is discharge from the sutured tissues.

DISCUSSION.

DR. E. E. MONTGOMERY said that the possibility of infection must influence the procedure, whether it be immediate, intermediate or of a later date. He would want to know something of the methods of the attending obstetrician before he would resort to immediate repair of cervix, vagina or perineum. In a number of cases of laceration of the pelvic floor, where the immediate repair was made, and in which aseptic precautions had not been employed by the attendant, sepsis developed and it was necessary to remove sutures to give the patient a chance for recovery. In a case seen in consultation, he found that there had been a bilateral laceration of the cervix into the lateral fornices to the peritoneum. A laceration of the perineum to the sphincter had been repaired. As a result the tissues were bathed with a lot of decomposing material and there was high fever. Instead of hysterectomy, he advised removal of the perineal sutures, the entire cavity irrigated and packed with gauze. A few hours later there was a temperature of 106; but there was subsequent recovery. In other cases the im-

mediate repair of the perineum has been followed by much necrotic tissue between the sutures, no union ensuing and the necrotic tissue giving rise to danger from absorption of the putrescent material. Objection is sometimes made to immediate repair of the cervix from the fact that the parts are so relaxed that the sutures have to be tied firmly, and, owing to the rapid involution, become loosened, and union does not result. In the majority of primæ gravida laceration of the cervix occurs. In a series of examinations made at the Philadelphia Hospital, in the great majority of cases the laceration had healed spontaneously. The acid secretion of the vagina causes the more rapid disappearance of the catgut than is evident in other parts of the body. In some cases, catgut prepared for a short time has been absorbed too soon, and there is stretching of the parts and formation of cicatricial tissue. In operations on the vagina and perineum the operation should include every laceration in the genital canal, otherwise there will be danger to the patient from the accumulation of material in the vagina giving rise to septic processes.

DR. JOHN G. CLARK quoted Dr. Dickinson as advocating waiting five days for the repair of all lacerations of the cervix, except in the three following classes: 1, those in which there is a profuse hemorrhage from the laceration; 2, those in which there had been bilateral incisions; 3, those in which the cervix is low in the vagina and may easily be reached at the time of the perineorrhaphy. There must first be taken into account the time when injuries to the perineum are sutured. Dr. Clark urged that careful operative technic is the keynote of the situation. For several years the consensus of opinion has been in favor of immediate repair. Considering the bad surroundings under which these operations are necessarily performed and the uniformly good results following, Dr. Clark believes that a general departure from this custom is not justifiable. If under unfavorable conditions these results follow, there may be expected even more perfect healing following the treatment described by Dr. Davis. If it were admitted that the perineum should be at once repaired, then the cervix should be either immediately repaired, or, if deferred, at a more remote day after the puerperium is completed. All have seen cases in which healing occurs most satisfactorily when left alone. If primary healing is not satisfactory the more remote trachelorrhaphy is so good, that to break into a woman's early convalescence and throw her house into turmoil six days after her labor, by operating at a time when the milk secretion is fairly established and the baby nursing well, is not justified by the surgical exigencies of the case.

In the discussion of the immediate repair before the American Gynecological Society, Clifton Edgar and Cragin of New York, Williams of Baltimore, Craig of Boston, and Wakefield of San Francisco all opposed the immediate repair of a lacerated cervix. Cragin admitted that it might be done by skilled hands successfully, but that he could not sanction this teaching to students. Dr. Clark had no doubt that these injuries, if repaired in a well-equipped maternity hospital, would do well, yet the vast number of labors occur in private houses, in the majority of which there are no facilities for repairing a lacerated cervix. It would be ideal to have all women confined in maternity hospitals, or if in private houses to have an expert in consultation, but the domestic environments of the parturient woman are usually such that this will never be the case, consequently these operations must be considered from the standpoint of the conditions under which they will usually be performed. If the immediate or five-day repair were generally to be adopted, not only would the morbidity, but also the mortality of puerperal cases overbalance the good which this procedure might do, if solely confined to the hands of the specialist.

DR. STRICKER COLES said that for the last ten years he has closed all lacerations of anterior and posterior vaginal walls and in the cervix, if the tear were large, immediately after labor. He has not had to delay in a single case for 24 hours, for he prepares for it before delivery. The stitches should be placed at the uppermost part of the tear, but should not be placed too far down, as the lumen of the cervix will be nar-

rowed and the flow of lochia retarded. His results with immediate closure of the perineum, pelvic floor and anterior vaginal wall have been most satisfactory, even when the tear was complete. He emphasized the importance of bringing muscle to muscle, and to do this with the buried suture it is often necessary to bring the retracted ends into direct apposition. He tries to obviate the swollen and edematous condition of the parts, which largely causes the objection to immediate closure by watching his cases and not allowing the tissue to become devitalized by prolonged pressure. The healthy epithelial cell is the best barrier to sepsis and he endeavors to protect and keep its continuity. He wonders whether sepsis will not be more frequent when raw surfaces are left exposed for five or ten days, and what will be the effects of an operation at this time on the mother's milk. When done immediately the operation takes a very few minutes, causes the patient no inconvenience and only slight pain, and gives almost as good a result with the cervix and equally as good with the perineum, pelvic floor and anterior vaginal wall.

DR. E. P. BERNARDY said that his results have been very good, without elevation of temperature. Everything should be properly prepared, even at the bedside of the patient. While 25 per cent. of lacerations of the cervix heal spontaneously, the other 75 per cent. are either operated on, or the patients live with lacerated cervixes. Dr. Bernardy stitches lacerations of the perineum immediately after the birth of the child and he cited one case seen in consultation, in which there were used twenty-two stitches in the vagina and perineum, and in which on the ninth day the patient left her bed entirely well and without a sign in perineum or vagina that there had been a laceration. In cases in which the parts are mutilated and black and blue an attempt should be made to bring the tissues to normal condition by douching with warm saline solutions before stitching, when the results invariably will be good.

DR. GEORGE M. BOYD said that he thinks it would be bad teaching to tell the average family doctor, who must be an obstetrician, to sew up every cervix. The average maternity is not sufficiently careful to repair injuries after labor.

DR. O. HOPKINSON, JR., said that in his experience, tears had been bilateral and the anterior lip much larger, edematous and more easily reached than the posterior. He cited one case in which a man with little experience in the repair of the cervix, tried to pull the posterior lip down even with the anterior, with the resultant giving way of the tissues. Immediate repair of the cervix should be done by some one with experience. He believes it safer, except in the presence of hemorrhage, to leave it alone for five or more days.

DR. THEO. A. ERCK stated that he places stitches for laceration of the perineum at the termination of labor. All have seen and operated on cases in which the result of the primary repair was a failure, and he suggested the substitution of silk-worm gut, so that the operator will see the result during the removal of the stitches.

DR. RICHARD C. NORRIS thought that the intermediate operation must be considered from two view-points: 1. Its practicability; 2. its results. It is the experience of most men that the immediate operation for laceration of the cervix, unless done for the special indication of hemorrhage, is not justifiable. When the intermediate repair is chosen and an examination is made on the sixth, seventh or eighth day of the puerperium, the cases of spontaneous healing of the cervix will be found to be pretty well advanced, and the experienced surgeon will not operate; if spontaneous healing has not occurred the experienced surgeon will operate at this time. Operation on the cervix, after the sixth or seventh day, has been quite as successful as in a later operation. If equally satisfactory union follows an intermediate operation, what advantage can accrue to the patient by delay? In many cases, while the wound in the cervix unites, the uterus undergoes chronic interstitial changes, and there has been evolved a train of symptoms which often persist, but which would not exist if the cervix had been repaired at an early date. If it can be demonstrated that better results will follow an immediate operation for repair of the pelvic floor and perineum than can

be obtained by the intermediate operation, then the immediate operation should be done, and the advantage of the intermediate cervix repair must be abandoned. If it can be demonstrated that the operation on the perineum has no disadvantages by being delayed and that equally good results can be obtained, then the combined intermediate repair of both cervix and perineum will be the ideal treatment. If the obstetrician has not conducted the labor with the highest grade of asepsis and antiseptic he had better not operate immediately or after a few days. It should be determined by actual experiment whether it is any detriment to the patient to allow the perineum and pelvic floor to remain unrepaired for six or eight days. There would not be so many secondary operations if the average physician did not neglect at once to repair these cases, and yet patients so neglected seldom have serious infection. If the average practitioner gets bad results in the primary operation, he will get bad results in the intermediate. He had better do the best he can with the immediate repair of the perineum, and when the patient is convalescent send her to a gynecologist for reasonably early repair of the cervix. As time goes on the new generation of physicians will be prepared for clean surgical and obstetric work, and the intermediate operation on both the cervix and pelvic floor will gain in popularity with the profession. Among the more intelligent class of private patients, appreciation of the ultimate gain will offset the natural objections on the part of the patient and her family to an anesthetic and a formal operation following so closely the anxiety of the confinement.

DR. B. C. HIRST agrees with Dr. Norris that the question can not be decided by theorists, but only by men with large practical experience. His experience coincides with that of Dr. Norris. Until three and a half years ago he believed it a bad plan to attempt too much in the way of repair, but he happened to see Lusk's statement in regard to the repair of the cervix and one or two articles advocating primary repair, and determined to try it. As a result of that trial, for three and a half years, in an experience comprising more than 150 cervical operations alone in the University Maternity, beside a number in other hospitals and private practice, he is in a position to recommend the procedure. Fifty or sixty years ago the average practitioner was not able to use the forceps. An old graduate told him that when he left the university fifty years ago to settle in the country he took an obstetrical forceps with him, and an old practitioner, having a case of adherent placenta, sent for him to bring those "new-fangled instruments" and see what he could do with them. Dr. Hirst believes that in the near future the majority of physicians in general practice will do this work well or they will not do it at all. In the University Maternity he said that they demonstrated more than 50 cervical operations every season, done usually at the end of a week, to a class of about ten men each, so that each man acts as assistant in about five cervical operations. He believes that these students ought to be prepared to do this work as it should be done. Dr. Hirst said that he at first thought the immediate operation was the better one and he had tried it in 40 or 50 cases, but had found that there was too large a percentage of fever after the repair of the cervix immediately. After the intermediate operation this tendency was not observable. Dr. Hirst disagrees with Dr. Dickinson if the latter is quoted correctly as saying that if the perineum must be repaired then the cervix should be immediately repaired. There is no harm whatever in letting the perineum go to the end of a week.

DR. E. P. DAVIS said that he has not noticed the absorption of No. 10 catgut alluded to by Dr. Montgomery in puerperal cases. It seems to him that the reaction of the lochial discharge is not the same as that in the vagina of a woman not parturient. By immediate repair he would understand repair within an hour after the expulsion of the child, not 12 or 24 hours. In a certain class of cases the results have been satisfactory. The cases are watched through the entire labor and the tissues are not allowed to become nodular, edematous nor bruised. After delivery the entire genital tract up to the internal os is inspected for lacerations. Lacerations of the cer-

vix more than one-quarter of an inch long and of the pelvic floor and perineum are closed. He has seen no fever following this procedure. He has seen a number of very satisfactory unions in the cervix and, of course, a very high percentage of unions in the pelvic floor and perineum. Those cases were in good hands, and the operation was practically immediate. The so-called intermediate, or five or seven-day operation, is on trial. Is obstetrics to be done as a makeshift, a disagreeable necessity by the practitioner, to eke out his living; or, is it to be a surgical specialty? Many cases will fall into all sorts of unskillful hands, and in such hands, the least interference the better; but, if obstetrics is to take the place of a surgical specialty, then the students will develop an individual aptitude for practice, and some will take up medical work; others will do surgical work, and those students will be competent to perform operations on the genital tract, whether it be done within an hour, in ten or twelve days or in two or three weeks, and the work will go to those men.

CLEVELAND ACADEMY OF MEDICINE.

Twentieth Regular Meeting, held Sept. 16, 1904.

The President, Dr. G. W. Crile, in the Chair.

The Surgical Treatment of Paralytic Deformities with Demonstration of Cases.

DR. WALTER G. STERN presented three cases of severe paralytic pes varus caused by paralysis of the tibialis anticus and posticus muscles. One was operated on by grafting the tendon of the extensor proprius hallucis into the tendon of the tibialis anticus just below the annular ligament, with the result that the flat-foot has disappeared. The patient constantly holds the foot straight or slightly inverted and can actively invert the foot, when, at the same time, he extends it. Through active massage, exercise and gymnastics, the patient can invert the operated foot almost as well as the sound one, and the tendon of the extensor hallucis has hypertrophied. The second case showed still more hypertrophy of the ingrafted extensor hallucis. In this case it could easily be mistaken for the tendon of the tibialis anticus. The third case had, in addition, a paralysis of the first two tendons of the extensor digitorum. This case was operated on according to the plan of Hoffa. The extensor digitorum was shortened, all the tendons being united in one, the extensor hallucis was inserted into the tendon of the tibialis anticus and the peroneus brevis was cut off from its insertion at the fifth metatarsal and brought around behind the tendo Achilles and firmly sewn into the periosteum of the scaphoid. This operation gave an ideal result, patient can actively invert and evert, pronate and supinate the foot, and has in addition a moderate amount of extension in the toes. Two cases of paralytic pes equino-varus were cured by lengthening the tendo Achilles, and inserting one-third of it into the tendons of both peronei muscles. The tibialis anticus was divided, one-half being sewn into the paralyzed extensor digitorum, the other half being lengthened. The entire extensor hallucis was brought over and sewn into the periosteum of the cuboid. Both operations were preceded by forcible correction by means of the Thomas wrench and tenotomy of the plantar fascia and tendons. The result in both cases is such that the feet are permanently in a valgus position and can actively be flexed, extended, inverted and everted. One case of Volkmann's ischemic paralysis of the wrist was straightened by lengthening the flexor tendons, and inserting the cut tendons of the palmaris longus and flexor ulnaris into the extensor communis digitorum by means of artificial tendons of silk. The hand was dressed in a hyper-extended position. The patient can now hold the hand straight and slightly flex and extend the fingers.

The object sought by these operations is not to add new muscle power, but to distribute the power left to the member so as to bring the parts into a condition of stable muscle equilibrium. Lange's teachings were closely followed, but not to the exclusion of the sound principles of the Nicoladoni-Vulpus method. These cases show that flexor tendons can

learn to act as extensors and vice versa, and that when the proper after-treatment is employed comparatively weak tendons may be made to hypertrophy when called on to do the work of a more powerful muscle. Silk was used in sewing the tendons and for the artificial tendons, and silkworm-gut for the skin. The member should always be held in an over-corrected position for at least eight weeks. This is best done by means of a plaster cast. Failures from tendon transplantation may be attributed to the following reasons: 1. Lack of after-treatment. This is a very prolific cause. Davies' report of 38 cases operated on in Boston lacks the important mention of after-treatment, and their failures may be due to this one factor alone. 2. Inflammation. Hemostasis and asepsis must be absolute. Silk should be boiled on three successive days, and catgut should be tabooed. Inflammatory reaction which would be harmless in a laparotomy will cause adhesion of the transplanted tendons and failure. Extensive mutilation should be avoided, as Senn has shown that repair begins from the tendon sheath. 3. Lack of sufficient muscular tension. All paralyzed muscles lose tone and elastic tension, and therefore all transplantations must be done under sufficient tension to allow the muscles to work. This tension is rendered latent and harmless by holding the limb in an overcorrected position for eight weeks. 4. The use of weak or paralyzed muscles. This can not always be foretold. Electrical reactions in children are extremely uncertain. Muscles may simply be overstretched and not paralyzed. Cutting into the muscles is not always a safe guide, as the color depends on the relative amounts of healthy muscle, fat and regenerated muscle fiber in that particular spot.

Some Common Errors in Obstetric Practice.

DR. R. E. SKEEL said that patients themselves are frequently responsible for poor work, because of unwillingness to pay for adequate attention and nursing. Proper ante-partum examinations are still neglected in spite of text-book advice, with the result that eclampsia occurs unnecessarily. Malpresentations are not discovered until labor is well under way, and disaster, in the way of maternal or fetal death, often occurs. Neglect of scrupulous aseptic technic is fostered by the fact that Nature's own efforts frequently overcome infection before systemic absorption takes place, and it would be better if a definite minimum amount of septic material in the vagina were invariably followed by reaction. In that event every attendant would use the proper precautions to prevent its introduction. Most frequent failures in asepsis are due to too great faith in chemical antiseptics and the belief that infected cases can be handled with impunity if the hands are washed in bichlorid solution. The development of the aseptic conscience will be followed by better results, as it will lead to the use of rubber gloves, infrequent vaginal examinations, and in the future to resort to the sharp knife and clean incision more frequently, and the heavy, bungling instruments with the traumatism which they produce will be less often seen. Fetal death is often caused by premature operative interference in cases of difficult labor, due to close adaptation of the fetal head. Conditions, not hours, should count in the indication for operative termination of labor. Pelvic floor injuries are overlooked or badly repaired by efforts to minimize their importance and sew them up immediately after the close of labor. This is much better done if deferred for twelve or twenty-four hours, and perfect results can be obtained at this time. Exact diagnosis of any post-partum elevation of temperature is necessary in order to treat it intelligently. Great harm is done by failure to recognize that persistent temperature without apparent cause is usually due to infection. More harm is done by trying to treat all such infections when recognized by the intra-uterine douche. Diagnosis of the treatment may be applied. Peritonitis, postabortion or postpartum seems to be managed most successfully by simple incision and drainage. Pryor's incision and iodoform gauze pelvic drain work well in nearly all early cases, although a number will need secondary removal of the diseased organs. The laity still fails to recognize that a competent nurse is almost as important as a com-

petent physician, and the so-called experienced nurse whose chief assets are her unbounded confidence in her douche bag and her consuming desire to wash the baby is altogether too much in evidence. By proper education and insistence on the part of the physician this defect can be overcome in time, but, at the present, conditions among the masses of people are anything but satisfactory.

DISCUSSION.

DR. F. S. CLARK emphasized the importance of the preparation of the attendant and the patient before examinations were made; the methods are usually careless and the field is a more difficult one to keep clean than the surgeon's operative field. Clipping the vulvar hair was important, and care in inserting the examining fingers so as to avoid contact with the surrounding parts.

The cut end of the cord should be antiseptically dressed at once; usually this is not done for an hour or more, and cord infections are more frequent than is generally supposed.

Trichinosis.

DR. SHULER reported a case of trichinosis in a girl aged 10. The swelling of the eyelids was marked, and he regards this as a very important symptom. The patient was flushed, delirious and had a high fever, but no albuminuria. Subsequently he saw several other cases in the neighborhood infected from the same source as the original one.

Intussusception.

DR. R. E. SKEEL reported a case of acute intussusception in a child of 11, who had for a week some abdominal pain, for which he had been given cathartics with satisfactory results as regards the bowel movements. On examination there was slight resistance on the right side of the abdomen, but no elevation of temperature, the pulse was normal and there had been no bloody stools. The next night he had more pain and vomited once or twice, and next morning a characteristic sausage-shaped tumor was found extending across the abdomen into the left iliac region. An operation was performed; the invagination had begun at the cecum immediately above the appendix, and extended to the sigmoid. Reduction was easy, as few adhesions were present. A gangrenous spot was found at the tip of the invagination, and this was closed with sutures; the sutures prevented a tendency to reinvagination, noted when the condition was at first reduced. The case recovered satisfactorily.

Adrenal in Collapse.

DR. YARIAN reported the successful use of adrenalin with saline solution in the collapse of an infant suffering from digestive troubles.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, held Oct. 20, 1904.

Dr. Andrew H. Smith in the Chair.

Primary Malignant Neoplasms of the Lung and Pleura.

DR. ISAAC ADLER delivered the Wesley M. Carpenter Lecture. He said that the treatment of malignant neoplasms of the lung and pleura is almost entirely neglected in the literature. Dr. Adler has seen ten cases, in all of which the diagnosis made during life was confirmed at the autopsy. Primary malignant disease of the lungs and pleura probably is much more frequent than is generally supposed. Organs which are so often affected by secondary deposits are rarely the seat of primary ones. It is difficult to determine whether tumors of the lung arise in the epithelium or in the endothelium. The endothelium has a very strong tendency to proliferate and it is difficult to distinguish a neoplastic growth from proliferation. In primary epithelioma of the pleura this structure becomes very much thickened, especially the costal pleura, which becomes hard and lacks its normal glossy surface. The diagnosis must be decided by the microscope.

The proportion of males to females is about 5 to 1 and the right side is more often involved than the left. It is less frequently found in children than in adults. Wolff of Munich in

20,160 autopsies found primary cancer of the lungs in 46 cases. Carcinoma was found in 211 cases, sarcoma in 22, endothelioma in 24; 10 cases were mixed and the remainder he was unable to classify. The majority of cases of carcinoma originated in the bronchi and had a tendency to ulceration. They formed large tumors in the mediastinal spaces where adhesions were readily formed involving the pericardium and other nearby structures. There was frequently a tendency to hemorrhage. It was exceedingly difficult to diagnose between carcinoma and sarcoma, the essential feature of the former being the character and behavior of the epithelial cells.

Sarcoma of the lung occurred in massive tumors while softening and degeneration with the formation of cavities rarely occurred. Extensive papillary growths of the pleura often occurred and it was quite common to find cancerous erosions of the blood vessels which caused metastasis. The retroperitoneal lymph nodes and the mesenteric and inguinal glands were frequently involved. Metastasis occurred 87 times in the liver; in 49 instances the kidneys were affected and frequently the pericardium also. The heart was sometimes affected by direct proliferation. In 27 cases metastasis occurred in the brain. Certain nerves, the diaphragm and peritoneum were also frequently involved.

Heredity, habits and occupation do not seem to be predisposing factors. If traumatism has any influence it is probably as a stimulant to neoplastic growth. Dr. Adler thinks that these growths and tuberculosis may exist at the same time. In 37 cases there was no expectoration and in 158 cases the character of the expectoration gave no aid in diagnosis. The sputum in many cases contained gangrenous masses. Death may be due to hemoptysis. Dyspnea was frequently noted. Pain was noted as an early symptom in 128 cases, and this was considered an indication of the extent of the pleural involvement. Pleuritic effusion was of common occurrence and an examination of the exudate may aid in diagnosis. In examining the chest flatness was noticed in some cases; in others, tympanitic sounds were elicited. At times intense dullness with a woody resistance in the upper part of the right or left lung associated with abolished voice and breathing sounds, not extending to the apex, presented symptoms which were pathognomonic of this affection. The one absolute sign is the finding of tumor elements in the sputum. There is a great difficulty in making a diagnosis between tumor and tuberculosis. Syphilis and aneurism must also be differentiated. The x-ray is of value in making a diagnosis.

CALIFORNIA ACADEMY OF MEDICINE.

Meeting held in San Francisco, Sept. 27, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Value of the X-Ray in the Diagnosis of Certain Headaches.

DR. C. M. COOPER described the case of a woman with severe periodic headaches for which no cause could be discovered until the x-ray showed a marked osteosclerosis of the cranial bones with obliteration of the diploë and of the sutures.

DISCUSSION.

DR. H. C. MOFFITT described a similar case in which the headache had for years been regarded as a functional condition until the x-ray showed a thickening in the bones of the cranium. One year later double optic neuritis developed. In a second case an osteoma of the skull was demonstrated by the use of the x-ray.

DR. GEORGE BLUMER stated that he had performed an autopsy on a case very similar to those described by the preceding speakers and had found an enlarged pituitary body without any other signs of acromegaly except the thickened cranium.

Use of the Iodids.

DR. C. M. COOPER stated that he had seen several cases in which the continuous use of iodids in large quantities had given rise to a slight exophthalmos and a von Graefie phenomenon. In a case of gummatous meningitis, by using a com-

bination of the iodids, with thyroid extract, he had obtained a better result than by the use of iodids alone.

DISCUSSION.

DR. EVANS stated that he had administered iodin in this manner and not only obtained good therapeutic results, but had been able to demonstrate the iodin in the urine in considerable quantities and for a long time after ceasing the administration of the drug.

Malignant Papillary Growth of the Colon.

DR. L. W. ALLEN stated that the patient began to complain of burning sensations in the abdomen and attacks of vomiting about the middle of May, 1903. He became very constipated and passed blood in the stool. He rapidly lost in weight; 42 pounds in ten weeks. Physical examination about August 1 revealed a large mass in the right ileocecal region extending up under the ribs. He continued to lose weight during the next month, but seemed to recover the loss in the next six months, and on April 13, 1904, he came under Dr. Allen's care. A mass the size of a small orange, which was freely movable and not tender, could be felt in the right iliac fossa. Owing to the low percentage of hemoglobin, operation was postponed until June 13, and a tumor of the ascending colon was discovered. The transverse colon was divided near the hepatic flexure and the end of the distal portion turned in. The ileum was divided near its termination and a lateral implantation of the end of the ileum on the side of the transverse colon was made. Finally the ascending colon and cecum were removed. The patient recovered from the operation. Pathologically the growth proved to be a malignant papilloma.

Effects of Bile on the Ester-splitting Properties of Pancreatic Juice.

DR. HEWLETT made a preliminary report on the effect of bile on the action of the pancreatic lipase. It has long been known that bile assists in the digestion and absorption of fats, but the nature of this action has never been fully worked out. The addition of bile to pancreatic juice will increase the action of this secretion many times on certain esters (ethyl butyrate, ethyl acetate, amyl acetate, triacetin), as much as forty times being observed in certain instances. This action was due, in part at least, to the lecithin contained in the bile. The lecithin acts as a zymo excitator and not by converting a proferment into an active ferment.

DISCUSSION.

DR. OPHULS called attention to the somewhat similar action of lecithin in activating the hemolytic substance present in cobra venom as has been shown by Kyes.

A New Analgetic, Stovain.

DR. DUDLEY TAIT stated that many substitutes for cocain have been proposed, yet none has as yet replaced it. Stovain¹ is a drug which promises to come into general use. The experiments of the Paris surgeons would seem to indicate that stovain is as effective as cocain as an anesthetic, and is only one-third to one-half as toxic. It is possibly somewhat more fleeting in its effects. When dropped into the conjunctival sac it will induce anesthesia, but here it is inferior to cocain, being more painful and at the same time less analgetic. It causes hyperemia of the tissues instead of anemia. This may be disadvantageous when it is used as a local anesthetic, but is probably of advantage when it is used for spinal anesthesia. The use of stovain as a spinal anesthetic is not followed by such bad effects as are liable to follow the use of cocain. Possibly it may prove to be of use in high spinal anesthesia. It is possible to introduce a needle into the sixth intervertebral space without injuring the cord, provided one pays sufficient attention to the sense of resistance offered by the ligaments and the dura. The anesthesia resulting from an injection of cocain at this point is complete, but the method is attended with a certain amount of danger on account of the depressing effects of the cocain.

1. A description of stovain may be found in THE JOURNAL, PAGES 575 and 636.

Travel Notes.

CEYLON.

FROM AUSTRALIA TO CEYLON—ISLAND OF CEYLON, ITS CLIMATE, PEOPLE, DISEASES—COLOMBO GENERAL CIVIL HOSPITAL—CEYLON MEDICAL COLLEGE—CEYLON LEPER COLONY—LEPER BUDDHIST CELEBRATION—KANDY GENERAL CIVIC HOSPITAL.

(Concluded from page 1497.)

NICHOLAS SENN, M.D.
CHICAGO.

SOYSA BACTERIOLOGIC INSTITUTE, COLOMBO.

Since its opening this institution has undertaken work of diverse character, and is now supplying a long-felt want in the colony by its researches in bacteriologic analyses of tissues, secretions, blood, etc., so indispensable to scientific diagnosis of diseases. The acting director, Dr. S. C. Paul, F.R.C.S., is consulted by government medical officers and private practitioners for reports on specimens submitted to him on bacteriologic and allied subjects.

CITY OF COLOMBO.

The city of Colombo is an important port and the largest city in the island. It has a very mixed population of 128,000. More Europeans live here than anywhere else in Ceylon. The steamers anchor some distance from the wharf. It has excellent streets, the so-called red streets, a bright red from the color of the soil, electric lighting and electric tramways. The Grand Oriental Hotel, near the wharf, is the best hostelry in the island. Every room has an electric fan—a great comfort to the traveler throughout the entire year. The rooms of the hotel are never locked, as stealing and robbery are almost unknown. The crowd of chamber-men and servants are always ready to wait on the guests and understand to perfection the system of exacting a substantial tip. At the present writing the temperature in my room, in spite of the faithful fan, registers 91 degrees F. The air is thoroughly saturated with moisture, which is accountable for the oppressive sensation of heat that every newcomer experiences.

The Cinnamon Gardens is the city park and is a lovely place. The drives along the coast are beautiful and disclose at every turn the luxuriant vegetation of this wonderful island. The native policemen are courteous and devoted to their duties. They are fully impressed with the responsibility and dignity of their office, and cross and recross their beats with a keen eye for any evildoers. The city has a museum, free library and many charitable institutions for the sick and poor.

THE GENERAL CIVIL HOSPITAL.

This hospital is made up of numerous one-story brick-and-mortar pavilions connected by roofed colonnade, cemented walks which impart to the whole complex of buildings a fine architectural appearance. The snow-white walls and pillars and the red tile roofs are in strong and beautiful contrast with the perennial green surrounding the buildings inside and outside of the large square court which they inclose. The income from pay patients is not large, but the government appropriations are liberal. All of the employes are salaried, including physicians, internes and nurses. Dr. Thomasz, one of the two attending surgeons, receives 4,000 rupees a year. He conducted me through the different wards and showed me many interesting surgical and medical cases. The nursing is in the care of thirteen Anglican sisters and a number of women nurses, graduates from the Lady Havelock Hospital. A corps of native men and women act as helpers. The wards are airy, well lighted and furnished plainly but comfortably.

Echinococcus, so common in Australia, is not seen here; on the other hand, elephantiasis is quite common. Dr. Thomasz has operated on a number of cases of scrotal elephantiasis with success. The natives are not very good subjects for prolonged major operations, as they are very liable to inordinate

slough. Chloroform is used as a general anesthetic, and in several thousand anesthetics only two deaths occurred. The operating room is old and not up to modern requirements. The equipments and appliances also leave much to be desired. Asepsis has not succeeded here as well as could be desired and the many failures to obtain primary wound healing have finally led to the abandonment of buried absorbable sutures of any kind. Silk is used almost exclusively and the sutures are removed from three to seven days after the operation. The same practice is followed in the Kandy General Hospital. In the outdoor department I watched an interne dress two recent wounds. He did not remove his coat, and a basin with some antiseptic solution was relied on in performing primary disinfection. Not much time or effort was expended in preparing the wounds for suturing, and I have little doubt that the sutures rather retarded than assisted Nature's efforts in repairing the wound.

Ovarian tumors are quite common, but myofibroma is rare among the native women. Women the subjects of ovarian cysts of enormous size frequently enter this hospital for operation. Little operating is done in the country villages and patients usually do not seek medical advice until they are much inconvenienced from the size of the tumor. Prostatectomy is performed by the suprapubic route. Stone in the bladder is not of frequent occurrence. Tuberculosis of the lungs is quite common, as during one year, 1901-1902, 956 cases were admitted to the different hospitals. Surgical tuberculosis is much less prevalent, as during the same year only 60 cases of tuberculosis of the glands of the neck were treated, 32 of lupus and only 5 cases of tuberculosis of the joints. I did not see a single case of spinal deformity among the thousands of people I saw in Ceylon and only one case of ankylosis of the hip and 2 cases of ankylosis of the knee joint, and very few cases of tuberculosis of glands of the neck or its remote result, scarring of the neck. Only 12 cases of snakebite are reported for one year, of whom 2 died.

SEPTIC THROMBOPHLEBITIS OF THE SPERMATIC VEINS.

Dr. Thomasz a few years ago described a form of septic thrombophlebitis occurring in young men the subject of varicocele; the immediate cause is usually an injury of some kind which induces the thrombosis. When this has taken place the pus microbes find in the obliterated lumen of the veins a favorable soil for their reproduction, which leads very rapidly to prenia and death. The disease pursues a very acute course and is nearly always fatal unless an early radical operation is performed, which must also include the testicle on the affected side.

CEYLON MEDICAL COLLEGE.

The Ceylon Medical College was formally opened on June 1, 1870, with one principal and three lecturers. The first intent of the school was to be "simply an elementary school." The faculty was increased three years later and in 1888 it became a regular medical college with power to license in medicine and surgery. Lady students were admitted to the college for the first time on May 5, 1892. The one-story building of the college, with library, lecture rooms and laboratories, was erected at the expense of the late Susew de Soysa. The dissecting room is a separate building as well as the laboratory for physiology and pathologic chemistry. The clinics are given in the General Civil Hospital, opposite the college building. The course of study embraces five years. The teaching force consists of 32 professors, lecturers, demonstrators and assistants. T. F. Garvin, M.B., C.M. Aberdeen, is lecturer on surgery, and H. G. Thomasz is clinical lecturer. Physics, biology and elementary zoology are included in the primary branches. All the specialties are included in the faculty. The present attendance of students is about 120. The students are given ample opportunity to serve in the hospital as dispensers and dressers, and the clinical material for instruction is very large, including practical obstetrics in the De Soysa Lying-in Hospital. The school has also a department for apothecaries. The standards for admission and graduation correspond with those of the medical schools of the United Kingdom. The fee for the whole

course in advance (to be paid in one sum at the commencement of the first college year), is 800 rupees (\$250). A number of prizes and medals have been established by friends of the institution. At the close of the session 1901-1902 the school graduated 26, the following year only 9 candidates. Part of the entrance and professional examinations are conducted in the Tamil and Singhalese languages, of which the student must have a fair knowledge.

LEPER ASYLUM AT HENDALA.

I visited this institution, which by the carriage drive is ten miles distant from Colombo. The road leads through a series of native villages, rice fields, marshes and strips of primeval forests and dense jungles. The colony is located on seventeen acres of land enclosed by a stone wall. The numerous one-story buildings of brick and mortar are connected by roofed cement walks. The entire settlement, exclusive of physicians, numbers 360, of whom there are only 69 women. The youngest patient is only 6 years old. One of the patients, a man 60 years of age, has been here for thirty years. He is afflicted with the anesthetic form of the disease, is totally blind and has lost all of his fingers and toes. The disease has cured itself, but has left the patient a helpless, shapeless mass of flesh. It appears that the anesthetic and tubercular forms of the disease occur about with the same frequency. The institution is well managed and the nurses and two resident physicians do all in their power to render the existence of these hopelessly



Leper Asylum at Hendala.

diseased victims as comfortable as possible. The patients appeared to be content with their fate and the humane restraint that is practiced. The law of segregation came recently in force, but the authorities find it difficult to carry it out with the strictness for which it is intended.

LEPER BUDDHIST CELEBRATION.

The day I visited the asylum was the annual celebration to the memory of Buddha. It was a gala day, the walk leading from the entrance to the little Buddha temple was decorated with palm leaves. The procession was formed outside of the gate. There was no elephant to draw the shrine of Buddha perched on a rude cart, but a little humpbacked bullock answered the purpose very well, and he performed his part of the celebration with credit to his kind. A brass band and a band with native instruments headed the procession, then came the shrine followed by a number of bronze-colored yellow-robed priests, and lastly the Buddhist lepers in all stages of the disease. Explosives were thrown against the stone wall, where they exploded with a terrible report, emitting at the same time a blue-black smoke which enveloped the slowly moving procession. The bombardment, with the ear-splitting music of the native band, imparted to the whole affair a weird appearance. When the procession entered the temple silence was restored, and only the murmurings of the priests could be heard outside of its sacred walls.

CITY OF KANDY.

This little city of 20,000 inhabitants, the former residence place of the kings of Ceylon, has degenerated into a dilapidated mountain village. It is located in a valley in the subalpine region, surrounded by verdant hills and nestled around a little artificial lake of the same name. It is accessible from Colombo by rail, the road passing the first fifty miles through rice fields, marshes, then ascending for thirteen miles in a zigzag line to the height of 1,600 feet above the level of the sea, and then through a valley nine miles in length, when the little city suddenly comes into view. The beauty of Kandy and its environments have been greatly exaggerated by sentimental writers. The town is noted for the Temple of the Tooth, an old, crumbling pile of stones which contains in its most interior and not accessible part a tooth of the famous prophet. I happened to be in the city on the day when the Buddhists turn out in masses to do honor and homage to their deity—Buddha.

THE ANNUAL BUDDHA CELEBRATION.

For three days the little city was packed with a seething mass of humanity. In many places standing room was scarce. The great event took place at 9 o'clock Saturday evening, August 27. The procession, headed by a band of native musicians and three elephants abreast with their riders, was made up of 24 other elephants, an army of chiefs gorgeously arrayed, and bareheaded yellow-gowned priests, dancers with faces disfigured by white stripes, screaming and yelling boys and the faithful followers of the god of whom at least one tooth had remained to testify that he once inhabited this earth; the tooth that was carried in the procession in a shrine carefully guarded. The most solemn celebrants were the 29 magnificent elephants, who marched with slow, thoughtful steps, their sly little eyes peeping through small holes in their masks of royal red, casting a glance now and then on the sea of humanity on either side of the road. The great mass of people who took an active part in this celebration and the enthusiasm aroused when the hiding place of the tooth of Buddha came into view showed only too clearly that this deity has not lost his influence and power among the natives of Ceylon.

BOTANICAL GARDEN.

The botanical garden four miles from Kandy is the most interesting spot in this part of the subalpine region of Ceylon. It comprises thirteen acres of land, included in a horseshoe bend of the Mahaveli ganga. Every known variety of palm can be found here, as well as specimens of nearly all trees and shrubs of the tropics. I saw here a clove tree (*Eugenia caryophyllata*) at least forty feet high, an ebony tree (*Diospyros ebenum*) and a nux vomica tree of about the same dimensions. The towering palms, the dark walks cut through the otherwise impenetrable jungles, and the gorgeous flowers, of trees, shrubs and plants, make this spot a real paradise on earth, a great contrast to the dilapidated city of Kandy.

KANDY GENERAL CIVIC HOSPITAL.

This is a very pretty, comfortable, clean, well-managed general hospital, built on the same plan as the Colombo General Hospital. It is located outside of the depressing influences of a formerly famous, now crumbling city, in a little vale surrounded by green hills on all sides. The snow-white one-story pavilions and the connecting, roofed cement walks lined with square columns of the same color, around a central square ornamented with jack and botrees, palms and flower-beds, give it the very picture of isolation, comfort and peace. The 243 patients inside of its walls enjoyed the blessings of careful nursing and the benefits of excellent surgical and medical skill.

Dr. James William de Hoedt is the physician and surgeon in charge, ably assisted by a woman house surgeon, Miss Winifred Nell, L.R.C.P. and S. E. Dr. Nell is not only a very competent physician, but at the same time a skilled naturalist, as I had an opportunity to learn during the visit we made together to the botanical garden. The nursing staff is in charge of an Anglican sister, Sister Eustacia Mary, a well-trained nurse and charming lady. I found here a number of interesting emergency cases and the usual predominance of ankylostoma,

malaria and enteric fever. There have occurred here in the small maternity ward recently five cases of puerperal tetanus, all recovered. This hospital has a remarkable record in the treatment of tetanus, 13 cases without a death. Buried sutures are not employed, silk is used exclusively and the sutures are always removed. Chloroform is the favorite anesthetic and biniodid of mercury is largely relied on in hand and surface disinfection.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Jaundice.

Porter, in the *Medical Record*, gives the following suggestions for the treatment of this condition:

DIETETIC.

The author recommends that the different classes of food-stuffs be given in quantities that will not overtax the digestive functions nor exceed the oxygenating capacity of the system. In some patients the exclusive use of skimmed milk or butter-milk is most valuable. This is to be followed as soon as possible by the use of unskimmed milk, beef tea, plain meat broths, and raw eggs may be added to the diet as soon as the patient can tolerate them. Later, as soon as the system will digest them, soft cooked eggs and beefsteak may be allowed. Last of all, bread is added to the diet, in the form of dry toast or plain wheat bread which is from twenty-four to forty-eight hours old. Fruit and many other vegetable foods it is advised to void in all forms of intestinal indigestion, as these articles are prone to cause acidity and fermentation.

ATTENTION TO THE BOWELS.

It is indispensable in the successful treatment of jaundice that from one to three free movements of the bowels should be secured daily. The cathartics and antiseptics work best when combined with the bile and pancreatic extract and should be administered before each meal. For direct action on the liver the author recommends calomel in varying doses. Calomel may be given alone or in combination with arsenic, bichlorid of mercury and ipecac. Hygienic conditions must be given proper attention. These patients should have access to plenty of fresh air and light; a sojourn in the country is often of very great benefit.

In the treatment of jaundice the continuous use of sodium phosphate has found favor with many clinicians. This drug may be administered in doses of from one dram to one-half ounce three times a day, best given before meals. It should be given over a period of considerable time. Even after the jaundice has disappeared it is advisable to continue its use in small doses.

Vomiting.

Lemoine, in *Nord. Medical*, for Sept. 15, 1904, says that he has found the following mixture valuable in the vomiting of pregnancy, and also in various cases of gastritis:

R. Mentholi	.....g. iss	30
Tincturæ opii	.....
Tincturæ belladonnæ	.....
Tincturæ hyoscyami, Æ.	.....m. xv	1
Alcoholis	.....	32/3 20
M. Sig.:	Five drops in a little water every hour.	

Striæ Atrophicæ of Pregnancy.

The *Journal des Praticiens* recommends the following ointment, which may be of use in preventing the above condition:

R. Tincturæ nucis vomicæ
 Tincturæ calisayæ, āā.....m. lxxv 5 |
 Lanolini
 Petrolati, āā.....32/3 20 |
 M. Sig.: To be applied by massage for ten minutes every evening.

Typhoid Fever.

Hackett, in the *Medical Record*, describes his treatment of typhoid fever and calls it a specific treatment. It consists of the administration of mercury in the form of blue mass and calomel. The author believes that mercury is absorbed, taken up by the circulation and distributed throughout the body; by this means the mercury comes in contact with the typhoid bacilli and destroys them.

OUTLINE OF TREATMENT.

Blue mass in doses of from one to two grains is given every three hours from the time the patient comes under observation until the constitutional symptoms of mercurialism are noticed, such as soreness in the gums. An initial dose of five or ten grains of calomel is given, to be followed in a couple of hours by a seidlitz powder or two drams of Rochelle salts, unless hemorrhage or grave diarrhea is present. If constipation persists, five grains of calomel may be given once every day. Whether the bowels are constipated or loose, the rule is to give an alkaline cathartic during the fever; for example, a seidlitz powder or a teaspoonful of Rochelle salts. For restlessness and lack of sleep the author recommends an opiate which likewise quiets peristaltic action. If necessary, an enema of glycerin and water may be used to bring about a stool. For hemorrhage, morphin should be given hypodermically.

DIET.

Water and milk, equal parts to make a tumblerful, is given ice cold every two hours. If the stomach rebels after a fair trial, give some light farinaceous gruel or peptonized milk. Water is given freely. Watermelon has proved harmless and is a great source of comfort to the patient. The author has found that the mercury obviates to a degree the necessity for cold baths to reduce temperature.

As a result of this treatment he gives the following conclusions:

"1. In all cases of typhoid fever mercury is well borne by the system; it requires more mercury to get the constitutional symptoms of tenderness of the gums when typhoid fever is present than under any other circumstances.

"2. As the system becomes impregnated with mercury the bacilli gradually disappear, so that when the system is impregnated with mercury to the extent of a slight soreness of the gums the bacilli are no longer active. This is signified by a gradual reduction of the temperature to normal and a rapid convalescence.

"3. With the use of mercury the patient's blood is in a more healthy state; mercury maintains the red corpuscles of the blood, and accordingly the system does not fall into that state of grave anemia so common to the disease under other or no treatment.

"4. The patient may begin taking solid food as soon as the temperature is normal without danger of relapse. This I attribute to the healthy condition of the blood due to the action of the mercury in the system.

"5. A few days after the beginning of the administration of mercury in the treatment of typhoid fever the tongue becomes gradually moist. The breath gradually becomes less fetid, indicating a more healthy condition of the stomach, and there is a desire on the part of the patient to take the nourishment described. The stools also gradually lose their fetid odor. I have not had a dry tongue continue beyond three or four days after treatment was instituted since I began the use of mercury in this disease.

"6. The temperature of the patient treated with mercury in typhoid fever does not become subnormal after fever drops. The reason I ascribe for this is twofold: (a) We get control of the disease before the patient falls into a very low physical condition, and (b) the mercury increases the red corpuscles of the blood, tending to maintain the physical standard.

"7. It is unnecessary, unpardonable and unscientific to salivate a patient when using mercury in the treatment of typhoid fever, but I have yet to observe any ill effect of the slightest nature from the use of mercury in the system to the extent only of the soreness of the gums."

Diet in Typhoid Fever.

Henry, in the *New York Journal of Medicine*, says of the diet in typhoid fever that he gives nothing but water for from one to two or even more weeks, depending on the condition of the patient. Large quantities of water are given internally. After about a week, with everything going well, the patient is allowed every three hours a little orange or grape juice expressed fresh from the fruit. After all symptoms of bowel trouble have disappeared, the morning temperature normal and the tongue clean or clearing, food in very small quantities is allowed. The author states that he is not particular as to the kind of food allowed, but says: "I do not allow milk, soups, broths, or fresh foods or their extracts of any kind. As preferred by the patient, the most of the cereals or breakfast foods may be given, as well as the breadstuffs and about all kinds of fresh fruits. I allow the patient to eat but once in six hours, and for a number of days but one kind of the articles selected at a meal. Beginning with but a very small quantity at first, the amount can be gradually increased from day to day. Whatever is taken should be most thoroughly masticated; the dryer foods, such as toast or bread, should be chewed until they become quite fluid in the mouth, and the softer breads worked over in the mouth for some time, to insure thorough insalivation. I usually advise giving the fruit juice for some time after solid foods have been resumed."

The following formula is recommended for use in excessive tympany in typhoid fever:

R. Olei terebinthinæ3i 4 |
 Olei olivæʒiv 120 |
 Emulsi asafoetidæ q. s. ad.....ʒviii 480 |
 M. Sig.: Shake well; use as a rectal injection.

Medicolegal.

Weight to Be Given Expert Opinions.—The Supreme Court of North Carolina says, in re Peterson's Will, that where the expert states precise facts in science as ascertained or settled, or states the necessary and invariable conclusion which results from the facts stated, his opinion is entitled to great weight. Where he gives only the probable inference from the facts stated, his opinion is of less importance, because it states only the probability. Several eminent judges and authors express the opinion that the rule, even as limited, is not sound, and should be rejected. Certainly, in view of the wide divergence and often irreconcilable opinions expressed by medical experts in respect to mental capacity on personal knowledge of conditions and hypothetical questions, the principle should not be extended beyond the limits herein prescribed. This case presented a striking illustration of the danger of undertaking to prescribe any rule for weighing the testimony otherwise than by the opportunities for knowing the facts on which their opinions are based. Of the four intelligent physicians examined, two expressed positive opinions that the testator had sufficient mental capacity to make the will, and two with equal confidence expressed opinions exactly to the contrary. It would seem that the safer rule would be to permit the entire evidence to go to the jury, to be weighed and considered by them in the light of all the other evidence on the question.

Is It Heresy for an Eddyite to Have Superfluous Hair Removed?—The Supreme Court of Michigan says in the case of Meyer vs. Knott that it was novel (not to say unique). The defendant was a teacher of Eddyism, and was in February, 1901, first reader of the First Church of Christ, Scientist, of the city of Detroit. The declaration alleged that on Feb. 14, 1901, the defendant falsely represented to said plaintiff that she (the defendant) was then a conscientious believer in and

practitioner of the principles of "Christian Science," and "mentally and morally qualified and competent to give class instruction in Christian Science mind healing"; that the plaintiff agreed to pay and did pay the defendant \$100 for instruction, which was given; that by reason of the defendant not being a sincere and faithful believer in and practitioner of Christian Science, the plaintiff received no benefit from the instruction given him, wherefore he sought to recover the money paid and compensation for the time spent in the attempt to learn to "cure disease through the power of Christian Science mind healing." On the trial it appeared that the defendant had, two or three years prior to the contract with the plaintiff, had superfluous hair removed from her face by a physician by electrical treatment, and, as the plaintiff was able to call medical experts who testified that the superfluous hair was known to pathology by the name of "hypertrichosis," and was a disease, and as Eddyism is opposed to material treatment for disease, the Supreme Court says that it follows that one who has superfluous hair removed is not a true believer in, and adherent and practitioner of, the principles of Eddyism. But the court goes on to say that, apart from the consideration that this departure from the true faith, if it be such, occurred two years before the contract with the plaintiff, thus leaving ample time for the defendant to mature her belief, the court deems it sufficient answer to the plaintiff's contention that, if it be conceded that superfluous hair is a disease, it is also regarded by many as a facial blemish. Some conceal it as well as they may by the use of face powder: some have it removed. The defendant, because her little son teased her about the appearance of this superfluous hair, caused hers to be removed. This was not done as a treatment for disease, but as a means of making herself more presentable. The court thinks this did not tend to show that the defendant was guilty of fraud in holding herself out as a teacher of Eddyism. The court takes pains to add that it is to be understood that both the plaintiff and the defendant proceeded on the theory that Eddyism, as taught by Mrs. Eddy's book, "Science and Health," is true, and that it had therefore determined the case on that assumption. (Judgment for defendant was affirmed.)

Wisconsin Doctrine as to Privileged Communications.—The Supreme Court of Wisconsin says, in *re Hunt's Will*, that its decisions on the statute (section 4075, Revised Statutes of 1898) giving privilege of secrecy to all information acquired by physician from patient in attending latter professionally, necessary to enable prescription for such patient, have eliminated from consideration very many of the refinements and distinctions with which some other courts have limited, if not emasculated, similar statutes. Thus the privilege under the Wisconsin statute is not confined to communications made by the patient, but extends to all information, however derived by the physician in the course of professional attendance and for the purpose specified. Neither are the words "necessary" or "prescribe" to receive any technical or unduly restricted meaning. Further, this court has held that the privilege is created for the protection of the patient, and is personal to him; and has in the plainest terms repudiated the doctrine supported by some authority elsewhere that others can in any degree waive the privilege. In *Boyle vs. Northwestern Relief Association*, 95 Wis. 312, this construction was announced, although its application was merely to deny right of waiver to physician. In *Bruendl's Will*, 102 Wis. 45, right of waiver was contended for in behalf of the heirs of the decedent, who offered the physician's testimony, and the whole subject was argued and considered fully, whereon it was said: "The legislature has decided wisely that public policy requires such measure of restriction on the freedom of the physician to testify or of others to demand testimony." While the decision in that case turned on other considerations, the above remark was made with deliberation, and in response to full discussion. The court adheres to that view, and holds that no one, save the patient himself, can effectively consent to withdrawal of this mantle of secrecy which the statute has cast about the information which the physician needfully ac-

quires in and for professional treatment. Nor does the court agree with the contention that the statute has no application to a contest over the probate of a will. It says, among other things, that, as to physicians, its attitude, as already pointed out, is adverse to any power to waive the secrecy of professional information, and is also adverse to the grounds asserted by other courts, notably Iowa (*Winters vs. Winters*, 102 Iowa, 53), viz., that the "statutes are for the protection of the patient while living and of his estate when dead." Whether this last idea may be correct as to communications to attorneys with reference to property transactions, it certainly is not true with reference to the sheltering of information acquired by attending physicians. The purpose of that statute is personal. It is to protect the patient himself from disgrace or chagrin. Its effect on property rights or estate is only incidental. Such reasons do not cease on the death of the patient. His memory and good name are still subject to injury by publication of information necessary to proper treatment by his physician, and apprehension of such enforced publication after his death may well result in reluctance or unwillingness to make those disclosures necessary for preservation of life or health which it is the policy of the statute to encourage by assurance of their secrecy. The authorities supporting admissibility of attorneys' testimony as to the transaction of preparing and executing a will, which do not rest on a right of waiver of privilege in the legal representatives, do rest on grounds wholly inapplicable to the physician's testimony. The real ground, albeit not very clearly, declared in some of them is that the very transaction itself evinced an intention and desire on the part of the testator that the attorney should disclose what transpired, and therefore he himself had waived the statutory and common law seal of secrecy. Obviously no such purpose can be ascribed to the disclosures made to a physician for purpose of treatment by him because at or about the same time the patient prepares and executes a will. There is no rational connection between the two things; no probability that the patient expects or wishes his physician to publish to the world acts perhaps indicating parietic or other conditions, which might blacken the patient's good name and memory, or threaten the peace of mind of his descendants. Wherefore, after considering all the arguments urged or suggested in authorities cited, the court says that it is constrained to adhere to the views heretofore maintained by it that section 4075 is to be enforced according to its words, with no exceptions, save in the presence of a clear waiver of the privilege of secrecy by the patient himself; and that, after his ability to make such waiver is terminated by death, the physician's lips are forever sealed under all circumstances.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

November 5.

- *The History of Pediatrics and Its Relation to Other Sciences and Arts. A. Jacobl.
- Dangers in the Use of the Glass Catheter During Parturition. Guy L. Hunner.
- Taine's Ill-health. George M. Gould.
- *A Typical Case of "Chronic Dyspepsia" (Surgical Ulcer of the Stomach and Duodenum); Operation; Recovery. Charles A. L. Reed.
- Acute Pancreatitis with Disseminated Fat Necrosis; a Report of Two Cases. S. W. Sappington.
- *Congenital Partial Luxation of the Knee; Genu Recurvatum. Sydney M. Cone.
- *Roentgen Ray in the Treatment of Sarcoma. Joseph F. Smith.

1. See abstract in THE JOURNAL of October 8, page 1078.

4. **Chronic Dyspepsia.**—The conditions revealed in the case reported by Reed were such as are found, with but slight variation, in all patients who insist on medicinal and dietetic treatment and realize little, or, at best, only temporary benefit from it. They are generally variously treated for "chronic dyspepsia," "gastralgia," "painful digestion," gallstones," "di-

lated stomach," "cardialgia," etc. Many of them, if left alone develop into cancer. The only rational treatment is rest and drainage. The only way absolute rest can be given to an ulcerated pylorus is to close it, while the only way drainage can be affected is to divert the food current. In the case cited, Reed performed a gastroenterostomy and a supplementary duodeno-duodenostomy three inches below the union to the stomach; the bile current was cut off from the stomach by plicating the proximal segment of the duodenum between the two artificial openings; complete occlusion of the pylorus was also affected by plication. The patient made an uneventful recovery.

6. **Genu Recurvatum.**—Cone reviews the pathology of this condition and reports one case for the purpose of adding more proof to the idea that the pathology is that of a displaced tibia due to a bending forward of the epiphysis on the diaphysis of the femur. Also, to indicate that if taken early and properly modeled and firmly fixed, the chances for a cure are much greater and much time is saved.

7. See abstract in THE JOURNAL of September 24, page 908.

Medical Record, New York.

November 5.

- 8 *Cancer of the Larynx. Felix Semon.
- 9 *Thyroidectomy for Exophthalmic Goiter. Based on Forty Operative Cases. Charles H. Mayo.
- 10 Two Cases of Chronic Nephritis Treated Surgically. James A. Nydegger.
- 11 Paralysis of the Left Recurrent Laryngeal Nerve in a Case of Mitral Stenosis. John G. Sheldon.
- 12 Two Cases of Locomotor Ataxia in Man and Wife. E. Staehlin.

8. **Cancer of the Larynx.**—Semon urges the importance of early diagnosis of laryngeal cancer. The attention of the general practitioner should be drawn to the fact that there are no more promising cases for radical operation than those in which the disease is at first manifested by obstinate hoarseness, occurring, without any apparent cause, in middle-aged and elderly persons. The clinical diagnosis ought, whenever possible, to be confirmed by microscopic examination before a radical operation of any kind is undertaken. This, however, should only be done if the patient previously consents to immediate radical operation being undertaken in the event of the microscope confirming the diagnosis. The microscope is by no means infallible in these cases, and should its evidence be negative or inconclusive, microscopic examination should either be repeated, if necessary, several times, or, if the clinical symptoms do not warrant postponement, exploratory thyrotomy should be undertaken. The intralaryngeal method is unsuitable for the radical removal of malignant new growths of the larynx. Sub-hyoid pharyngotomy, apart from being applicable in a very small number of cases only, is still *sub judice* with regard to its advisability in such cases. Thyrotomy, if undertaken in suitable cases and at a sufficiently early period, and if performed on the lines which experience has shown to be successful, is a perfectly ideal operation in intrinsic cancer of the larynx. Hemi-laryngectomy comes into question only when, after opening the larynx it is found that mere thyrotomy will not suffice. When performed it may be accompanied by removal of the tributary lymphatics even if, apparently, not diseased. Semon advocates that total laryngectomy should be reserved for extrinsic, and for those cases of intrinsic cancer in which both sides of the organ are affected and in which the disease has proceeded too far to be eradicated by milder measures. When performed it should be accompanied by the removal of the laryngeal lymphatics on both sides of the neck.

9. **Thyroidectomy for Exophthalmic Goiter.**—Mayo prefers thyroidectomy to cervical sympathectomy in treating exophthalmic goiter surgically. He says if it were possible to eliminate more of the hopeless and yet operate on medium and severe types of the disease, the results of thyroidectomy would justify the operation and compare favorably with those obtained by other methods. His own cases show marked improvement of all who survived the operation. Of these, 50 per cent. made a very early recovery, especially of the severe

symptoms—tachycardia, nervousness and tremor; 25 per cent. did so after several months, and 25 per cent. were improved, yet suffer from irregular recurrence of some of the major symptoms. He says if the condition of the patient is fair, operate, but if the pulse is from 130 to 160, or if it suddenly fluctuates in tension and rapidly, if there is anemia, with swelling of the feet, the patients are placed on the belladonna treatment for several days. The more severe types are also given x-ray exposures in addition, which is continued for from 2 to 6 weeks.

Medical News, New York.

November 5.

- 13 Subdivisions of the Concrete Concept Area of the Human Cerebrum. Charles K. Mills.
- 14 *Report of a Case of Splenomedullary Leukemia Treated for Nine Months by the X-ray. Wm. F. Cheney.
- 15 A Complete Case of Syringomyelia. M. G. Schiapp and James J. Walsh.
- 16 *The Conveyance of Yellow Fever. Henry R. Carter.
- 17 *Endotracheal Medication. J. J. Richardson.

14. **Splenomedullary Leukemia.**—When Cheney began the use of the x-ray in the treatment of this case the red blood corpuscles numbered 2,508,000; the white cells, 120,000; hemoglobin, 47 per cent. Throughout the course of the treatment the static machine and the street current were used and a "soft" or low vacuum Queen's tube. The duration of the treatment was usually from twelve to fifteen minutes. The tube distance was 10 inches, except in a few instances, when it was only 8 inches. The site of exposure usually was the splenic tumor, either directly in front or on the left side. Whenever there was any skin reaction the x-ray applications were made over the long bones—thighs and legs in particular, the sternum less frequently. At first daily exposures were made but because of intolerance of the skin Cheney adopted the plan of giving them every other day. During the nine months the patient was under treatment he received in all 144 applications. The effect on the patient's general condition was good. He improved in health, gained in weight, felt none of his old symptoms of weakness, dyspnea and abdominal distress. From a symptomatic standpoint he is well. However, the size and contour of the splenic tumor has not changed materially. The white cells fell as low as 45,000, but most of the time fluctuated between 70,000 and 90,000, the fluctuations apparently being dependent on the regularity or irregularity of treatment. The red cells gradually increased until they numbered 4,000,000, and they have never fallen below that point. The hemoglobin likewise has markedly improved, remaining stationary at 75 per cent. No bad effects were observed, except the dermatitis.

16. **Conveyance of Yellow Fever.**—Carter lays down the proposition that yellow fever is conveyed from the sick to the well by a mosquito host, the *stegomyia fasciata*, contaminated by feeding on the sick man; and, in nature, it is only thus conveyed. That this is the only method of conveyance, the argument is: 1. The analogy of other diseases conveyed by living hosts. 2. That the facts observed of the natural propagation of yellow fever agree with this theory. 3. That measures based on this theory have given the very results which they should have given if the theory were true. 4. No other natural method of conveyance is proven.

17. **Endotracheal Medication.**—Richardson believes that in intratracheal injections we have a valuable method of treating many of the inflammatory and infective diseases of the lower respiratory tract. The method is simple, safe and practical. The success in making the injections depends in no small measure on the selection of the syringe. The one which he has found most satisfactory is Shradel's. It consists of a glass barrel enclosed in metal and having a spiral spring attached to the piston. When the syringe is filled with the liquid for injection, it is relieved of its contents by gentle pressure with the index finger on a small spring that allows the liquid to flow out slowly or quickly, according to the will of the operator. The canula is about 8 inches in length and is of the proper curvature for its introduction and passage through the larynx. The selection of the medicaments is also of paramount importance. He has made most use of the volatile essential oils,

eucalyptus and thyme, combined with menthol, camphor, creosote, iodoform, or orthoform, with sterilized oil as a vehicle. The injections should be given daily, one or two drams of the liquid being injected at a time. The diseases treated have been bronchitis, bronchial asthma, tracheitis, bronchiectasis and pulmonary tuberculosis. Its greatest field of usefulness is in the treatment of bronchitis. The mixture which has proved the most beneficial in this class of cases is 5 per cent. campho-menthol with eucalyptus and thyme and sterilized olive oil, or a highly refined bland petroleum. No other treatment gives such prompt relief in the so-called "winter cough," chronic bronchitis of alcoholics, and the acute attacks which so often follow dissipation. As to tuberculosis, intrapulmonic injections have not proved to be all that was hoped for in the beginning. In most cases nothing more than temporary relief was afforded. The injections have no specific effects. Richardson believes, however, that they are a means of alleviating the local and general symptoms of the disease in many cases, better than by the internal administration of drugs.

Boston Medical and Surgical Journal.

November 3.

- 18 *Treatment of Lateral Curvature. Edward H. Bradford.
 19 Fractures of the Radius in Starting Automobiles. E. B. Lund.
 20 Three Cases of the Association Neurosis, with Remarks on Its Genesis. John E. Donley.

18. Treatment of Lateral Spinal Curvature.—The object of Bradford's paper is to present simple principles and methods of treatment for lateral curvature without structural changes, which can be adopted without demanding elaborate preparation or outlay. The methods vary in the rigor of application according to the severity and urgency of the case. The simplest method for the application of a constant force is one applied with precision and in such a manner that it will stretch the curved and distorted ribs and not the other portions of the spine. When, however, any alteration in the shape of the bones has taken place, the use of a stronger correcting force is necessary. For this purpose, nothing is as efficient as the fixed plaster jacket applied with the patient in a corrected position, or in a position as nearly corrected as is possible for the patient to endure. It is necessary that judgment should be used in the use of corrective force, and a certain amount of skill is required in order that jackets put on will be borne by the patients. It is undesirable that the first jacket should be applied with a distressing amount of force. Windows can be cut in the plaster, allowing respiration in the portions of the spine which do not need pressure, but in any event the application of a plaster jacket, if any corrective force is used, should be employed only when it is possible to watch the patient for twenty-four hours after the application. In most jackets, it is necessary that the bandage should be applied above the shoulders. It is rarely necessary to include the head, though in the most severe upper curves this would undoubtedly be desirable. Repeated applications of the jacket are necessary if much correction is expected. The greater the amount of structural change and the older the patient, the less the amount of practical correction which can be expected. Fixed plaster jackets should not constitute a method of treatment any longer than is absolutely necessary. They should be followed as soon as possible by removable corsets and by the use of gymnastics. Removable jackets can be made either of plaster, leather, celluloid or of cloth, reinforced by properly applied steel bands. These removable corsets should be regarded as applicable when the danger of increasing growth has passed, or when the greatest amount of correction has been obtained. That form of removable plaster jacket which is most within the reach of the general practitioner can readily be made if a plaster jacket is removed from the patient and a cast is poured into the jacket, thus making a mold; around this a plaster jacket may be applied, reinforced by bandages, which are rolled in a mixture of dextrin and plaster of paris. A jacket made in this way requires a longer time to harden than the ordinary bandage, but it is somewhat more elastic and durable. If split and arranged with lacing it will serve as an adequate jacket to a faulty position.

New York Medical Journal.

October 29.

- 21 Intra-capsular Fracture at the Hip Joint with Complete Union of the Fragments. Thomas H. Manley.
 22 Accessory Thyroid on the Posterior Third of the Tongue. Oliver C. Smith.
 23 The Disturbances of Menstruation and Their Significance. E. E. Montgomery.
 24 Vulvo-vaginitis in Little Girls. A Clinical Study of 190 Cases. (Concluded.) Sara Welt-Kakels.
 25 *Inflammatory Diseases of the Joints and Their Treatment by Massage. Gustaf Norstrom.
 26 Notes on Some Unusual Forms of Infectious Diseases of the Central Nervous System. James J. Putnam and George A. Waterman.
 November 5.
 27 Woman's Duty Toward the Health of the Nation. S. A. Knopf.
 28 The Outlook in This Country from the Medical Point of View. Andrew F. Currier.
 29 *A Clinical and Statistical Study of Convergent Strabismus. Wendell Reber.
 30 Clearing Ship for Action. J. A. Guthrie.
 31 *Chronic Dysentery; Two Cases Treated by Inguinal Colostomy and Irrigation. G. Childs MacDonald.
 32 Primary Nasal Diphtheria; a Flwa for Its Early Recognition and a Report of Three Cases. Anna S. Wilner.

25. Massage in Diseases of the Joints.—Norstrom reviews the progress made by massage as a therapeutic measure in the treatment of various forms of arthritis. He says that where formerly the surgeon tried to prevent bed sheets from coming in contact with the joint on account of the fear or pain or still more serious consequences, we now perform effleurage, instituting systematic extension and flexion. The dictum of absolute rest has given way to that of allowing the patient to walk. Acute processes, instead of contraindicating massage, are now taken to indicate its use. Immobilization is neither necessary nor useful. In acute arthritis massage yields rapid and positive results. Even after the first treatment the pain and tumefaction often are diminished and a permanent cure is arrived at in a very few days. Massage will also cure a certain number of cases of chronic arthritis. In tuberculous affections of the joints, however, it may be a factor in contributing to serious general disturbances. In ordinary hydrarthrosis, Norstrom has always succeeded in causing a disappearance of the liquid and nearly always in preventing its reappearance, probably by modifying the secreting surface. The application of massage in the course of a rheumatic affection is often interrupted by the occurrence of relapses of varying intensity. It is useless to interrupt the treatment unless the relapses are real acute or subacute attacks, when massage ought to be stopped and salicylate of sodium administered for some days, before the massage is taken up again. It is desirable, in order to secure a permanent result, to supplement massage—simultaneously or when the massage treatment is over—which is better—by general treatment in the form of thermal baths. It should never be forgotten that rheumatism is a general disease and that the effects of massage are purely local. In gout he uses massage only when the attack has subsided and when the arthritis, or tenosynovitis, or bursitis with effusion, remains and shows very little tendency to become absorbed. Massage is useless in arthritis deformans, except in so far that it diminishes the muscular atrophy. Sometimes, too, massage may be applied with profit in the accompanying effusion of the joints, probably of rheumatic nature. The manipulations employed in chronic arthritis are generally effleurage and friction. Tapotement is only used when the arthritis assumes a torpid character and when it is necessary to provoke reaction and revive the vitality of the tissues. No hope of success from the use of massage in gonorrhoeal arthritis is entertained so long as a discharge persists. After the cessation of the urethral discharge, the patient should be advised to have recourse to massage. In hyperplastic granular synovitis massage should be avoided because its use favors the absorption of a product containing a specific element.

29. Convergent Strabismus.—Reber's study has led him to draw the following conclusions: 1. Esotropia is most likely to manifest itself before the end of the third year. 2. It can not yet be said whether any of the various reasons assigned by parents for the appearance of strabismus have aught what-

ever to do with it. Whooping cough may be related to it. 3. Heredity certainly plays a part in bestowing on some children a congenitally deficient visual apparatus. 4. The degree of deviation will average about 30 in a large number of cases. It is in no special way bound up with the degree of refractive error. 5. The amblyopia of esotropia is presumably an amblyopia ex anopia, the present day evidence being against Schweigger's theory of a congenital amblyopia. 6. The degree of amblyopia increases with the length of time elapsing between the appearance and the time of treatment; especially is this true after the seventh year. 7. Improvement may be expected in the amblyopic eye in from 50 to 60 per cent. of cases by properly adjusted glasses. This improvement varies from 20 per cent. to ninefold betterment. 8. While a defectively developed fusion apparatus has much to do with the genesis of esotropia, the influence of hypermetropia and its allied states seems almost as important as in the days of Donders. 9. The part played by astigmatism is no little one. 10. There seems to be no special relation between the degree of refractive error and the degree of deviation. 11. Hypermetropic conditions of from 1 to 4 diopters seem most commonly associated with esotropia. 12. A very high degree of hypermetropia does not necessarily exclude strabismus. 13. If taken before the fifth year, there is no reason why the strabismus should not be cured by non-operative methods in 70 per cent. of cases. This percentage will, in all probability, be increased to 80 per cent. in the next ten years. 14. The results of non-operative treatment in children, if adhered to with any persistence, are infinitely better than any "scissors" statistics thus far offered.

31. **Chronic Dysentery.**—There is no doubt in MacDonald's mind that all chronic cases of dysentery, and most acute ones, should be operated on. The cecum is the home and head center of the germ, whatever one there is, and he believes that operation will, in the future, be just as common as wiring a fractured bone. The operation advocated by him is an inguinal colostomy, the cecum being opened. The edges of the abdominal wound are whipped with a continuous suture fastening the peritoneum to the skin; the cecum is then sutured to this, care being taken that the suture passes only through the peritoneal and muscular coats of the bowel. The wound is then packed with iodoform gauze and the patient returned to bed. Two days later the cecum is opened and potassium permanganate irrigations are begun. A large tube with shoulder is placed in the inguinal wound, and the anus is made patulous by a similar process. Three gallons of a 1 to 10,000 solution is passed through the bowel twice daily. There is some difficulty in closing the wound. MacDonald objects to the old semi-circular flap inasmuch as that leaves two weak places in the abdominal wall instead of one; but if the gut is closed carefully and then dissected back far enough to get to the peritoneal surface of the bowel, and use a Lembert's suture, the closure becomes easy. The permanganate solution should be hot and plenty of it used.

Cincinnati Lancet-Clinic.

November 5.

33 *A Plea for Wider Knowledge Concerning Diseases Which Affect the Joints. C. Travis Drennen.

33. See abstract in THE JOURNAL of October 29, page 1326.

St. Louis Medical Review.

November 5.

34 Medical Education in Japan. K. Mitsakuri.

35 A Case of Polymyositis, with Blindness. C. Beville.

Medicine, Detroit.

October.

36 Treatment of Pulmonary Tuberculosis. Albert Abrams.

37 Etiology of Cleft Palate. Eugene S. Talbot.

38 Chlorotone in the Vomiting of Pregnancy. C. M. Bowcock.

39 Experiences with Suggestion. Julius Grinker.

40 Hydrocephalus; an Attempt at Classification, with Report of a Case of Pseudotubercles Associated with Acute Internal Hydrocephalus. William C. Krauss.

41 Acetozone Treatment of Typhoid Fever in Fourteen Private Cases. Alphonse Outman.

November.

42 Feeding with the Essential Fat of the Tubercle Bacillus. D. MacDonald.

43 A Case of Generalized Blastomycosis. J. H. Cleary.

44 Forensic Relations of the Imperforate Mental State. H. C. B. Alexander.

45 Imperforate Anus, with Report of a Case. Wm. F. Stucky.

46 Mental Hygiene. Mary Lawson Nef.

42. **Feeding with Essential Fat of Tubercle Bacillus.**—MacDonald claims to have discovered that hydrous cholesterol fat (wool fat) gives the essential tests of the tubercle bacillus. The importance of the discovery is that when patients are fed on it there is a marked increase in weight and a favorable influence on the progress of various chronic wasting diseases. More than half a pound has been administered daily, with excellent results, both in health and disease. About half of the tubercle bacillus consists of fat, which explains the historic therapeutic value of the latter. The author details a number of chemical experiments and confirmatory tests, together with clinical results, to prove his findings.

45. **Imperforate Anus.**—An examination of Stucky's case showed the entire perineum to be smooth with the exception of a small spindle-shaped bleb slightly darker than the surrounding integument, at the posterior margin of and running into the scrotum. No fluctuation nor bulging could be seen. An incision about half an inch long was made at the normal site of the anus. This was increased in depth to one inch without encountering the rectum. It was then decided to cut into the small bleb, hoping that it might have some connection with the bowel. The result was the escape of a small amount of gas, but no meconium. This point proved to be the termination of the rectum, which organ was almost straight, lacking both the curve in the direction of the hollow of the sacrum and coccyx and the curve in the opposite direction near the anus. Although no fecal contents had escaped, no obstruction could be found higher up. A piece of small rubber tubing was introduced and fastened with silk sutures, and the first incision closed with interrupted silk sutures. An hour later the child was given one-half teaspoonful of castor oil, which resulted in a copious action of the bowels. There was no infection, and the wound healed by first intention. The tubing was removed on the sixth day and the silk sutures two days later. The anus began to take on a natural appearance and the stools were normal. No further trouble was experienced with the intestinal tract, but after a few days of apparent improvement in strength and vitality, the patient began to decline steadily and finally (seventeen days after birth) succumbed to marasmus.

Archives of Electrology and Radiology, Chicago.

October.

47 *A Large Fibrosarcoma Treated by Roentgen Radiation. Clarence Edward Skinner.

48 Electric Resonance. Karl G. Frank.

47. **Fibrosarcoma Treated by Roentgen Radiation.**—The tumor in the case cited by Skinner was situated in the lower part of the abdominal wall in the region of a cicatrix, the result of a laparotomy performed three years before, for what was regarded as a fibroid tumor of the uterus. The fibrosarcoma was the size of a cocoanut, filling up the entire iliac fossa, extending nearly to the umbilicus, and two inches beyond the median line to the left. The tumor was very firmly fixed and seemed to involve the abdominal wall. Microscopic examination showed it to be a fibrosarcoma. Erysipelas toxins were used for ten months. During the first two months the growth decreased more than half in size, and for a long time thereafter, while there was no decrease, there was no distinct growth. Later on, the influence of the toxins seemed to have become lost, and there was a slow but gradual increase in size. X-ray applications were then begun, and were administered by means of a tube giving rays of high penetration and backing up a spark of from four to six inches, excited by a machine having 12 thirty-two inch revolving plates, for the first seven months, and by a machine of the same type having 16 revolving plates thirty-two inches in diameter, for the rest of the time. The anode was placed nine inches from the patient's skin and the duration of the application was fifteen minutes. The tube was focused on the middle of the anterior surface of the tumor at one seance, on one side at the next, on the other side at the third, and so on, treating these different

areas successively. One layer of thin toweling was interposed between the source of the rays and the patient's skin, and the face, chest and thighs, below the level of the pubis, were shielded by tin foil, gauge No. 22. The patient received 136 applications within 739 days, the applications being given on an average of every 2.5 days at the beginning of the treatment, then, later on, one in five days, fifteen days and thirty-seven days. Twenty-eight months after beginning the treatment, the patient had increased considerably in weight and the tumor had entirely disappeared. Among the conclusions deduced by Skinner are the following: 1. Roentgen radiation sometimes brings about the entire disappearance of large, deeply located, malignant neoplasms, which have been proven to be hopelessly lethal in their tendency under any other management, and simultaneously restores the patient to apparently perfect health. 2. The fact that it sometimes accomplishes this result, taken in connection with the size of the malignant mass in the case just cited demonstrates that the lack of satisfactory influence which attends its employment in so many cases is not due to weakness, inherent in the remedy itself, nor to mere thickness of the tissues intervening between the pathologic focus and the source of rays, but to some at present undetermined factors. 3. There is probably a direct and intimate connection between systemic toxemia and the disappearance of malignant growths under Röntgen radiation as indicated by the uniform occurrence of sudden diminution in the size of the tumor immediately following each onset of toxic symptoms during the later course of the case reported. 4. The application of the Roentgen rays to a malignant growth belonging in the same class as the one described should be persisted in as long as the patient's condition will permit, even if no benefit is observable. 5. There is a vast difference between the therapeutic effect of the rays derived from a tube excited by a static machine and those derived from a coil-excited tube, and the difference between the rays derived from these two sources will sometimes constitute the difference between success and failure in the management of deeply located malignant processes.

International Journal of Surgery, New York.

November.

- 49 Hip and Shoulder Amputations. Myles F. Porter.
 50 Broken Links in the Chain of Surgical Asepsis. Walter B. Chase.
 51 *Vagino-fixation for Retrodeviation of the Uterus, with a Report of 120 Cases. L. R. Garrigues.
 52 The Up-to-date Treatment of Fractures. H. L. Stickney.
 53 A New Brace for Fracture of the Thigh. J. F. Myers.

51. **Vaginal Fixation of Retrodeviation.**—Garrigues presents the results obtained in 120 cases, the uterus being examined seven weeks after operation. Of 78 extra-peritoneal operations, 16 cases were examined and found normal at periods varying from three months to two and a half years. Among the 42 cases operated on by the intraperitoneal method one recurrence was found; 9 were examined at periods varying from three months to two years after operation. Of these 120 cases, 12 became pregnant; of this number 2 aborted, and 1 aborted but later bore a child normally. The rest bore children at term without artificial aid or unusual pain. The patients are all reported to be well since their confinement. There were no deaths following the operation, nor was the bladder wounded. Garrigues' technic may be described, briefly, as follows: Make a longitudinal incision through the vagina extending from 1.5 cm. below the meatus urinarius to well below the bladder. Two flaps are dissected to the sides with the handle of the scalpel, and the forefinger gradually inserted under the bladder to separate this organ from the uterus, which is held antverted with a sound, and pulled down with a bullet forceps. As the finger is pushed higher it penetrates between the uterus and its peritoneal covering, and the latter is seized with hemostatic forceps and incised. The adnexa are then palpated and freed from adhesions, if they are slight. If the adhesions are dense and the adnexa diseased, the fundus must be delivered through the incision. The adnexa are then ligated and excised, cysts broken, subperitoneal fibroids excised, adhesions torn, etc. The uterus is replaced by traction on the cervix and gentle pressure on the fundus. In closing

the peritoneal cavity, care must be taken to approximate the peritoneal edges so as to get only sero-serous adhesions. This is done by passing a medium sized sharply curved needle armed with silkworm gut through the vagina near the urethral end of the vaginal incision, through the peritoneum, the fundus of the uterus, the other side of the peritoneal incision, and finally through the vagina again and tying the suture. It is important for the ultimate result of the operation to insert the suture at about right angles to the tip of a sound introduced into the uterus. A second suture is introduced slightly below the first, but similar in other respects. The rest of the open peritoneum is united with a running catgut suture, and the vagina with interrupted silkworm gut. All cases are first everted to avoid septic complications. When the anterior vaginal wall is short, a transverse incision just above the cervix is made instead of a longitudinal one, and the vaginal sutures inserted so that the two ends of this incision are united, thus lengthening the anterior vaginal wall. Garrigues lays particular stress on the use of the transverse incision in cases of congenital retroflexion as, in his opinion, the large number of failures reported to permanently correct by various operations the malposition of the uterus in these cases is due to the short anterior vaginal wall pulling the cervix forward and hence the fundus backward. Should the vagina be too narrow to work through to advantage, an oblique vulvovaginal incision is first made, which is subsequently sutured. If an operation on the cervix is required it is performed before the fixation so as not to strain the sutures holding the uterus in place. Should a cystocele exist, a semilunar portion of the vaginal wall is cut away from each side of the longitudinal incision before suturing. After the operation there remains a uterus freely movable in all directions except into retroflexion. The suture material should never be silk, as it often carries infection from the vagina and thus causes a very tight fixation. Silkworm gut is best on account of its dense nature and unirritating properties. The sutures are left in seven weeks, the patient going home in the meantime, and are then removed. The operation is a safe one; the results are durable; no scars are left; the ovaries and tubes can be operated on conveniently if found diseased; the plastic work so frequently required can be readily performed, and there is no difficulty with gestation if the method is well chosen.

Journal of Nervous and Mental Disease, New York.

November.

- 54 President's Address, at Thirtieth Annual Meeting of the American Neurological Association. Frank R. Fry.
 55 *Purulent Myelitis: Focal and Disseminated. Joseph Collins.
 56 *Hallucinations. Wm. A. White.

55. **Purulent Myelitis.**—Collins reports a case of an unmarried woman, 25 years old, who, shortly after an attack of influenza, complained of parasthesia and pain in the left leg and back. Three months later she had to stop work because of weakness of the left leg. The pain and weakness continued to grow worse and nine months after the onset of her illness the right lower extremity became involved. The leg felt cold, there was a burning sensation in the knees, the legs felt stiff, and there was a constant sensation of burning in the lower part of the abdomen. Examination revealed exaggeration of the knee and ankle jerks, patellar and ankle clonus and Babinski jerk; anesthesia on the anterior surface of the left thigh, anesthesia and thermoanesthesia on the outer side of the same area. On the posterior surface there was less disturbance of sensibility than on the anterior. On the inner and outer surfaces of the right thigh there was complete loss of sensibility. On the anterior surface of the right thigh there was still some sensitiveness. Two months later there was complete paraplegia, the left leg being spastic, the right flaccid. Loss of both plantar jerks, knee and ankle jerks present, left greater than the right. Anesthesia, thermo-anesthesia, and some analgesia of both lower extremities from the crests of the ilia and a line drawn around them downward. Just above this line there was a belt of hyperesthesia two inches wide. There was some tenderness at the tenth dorsal vertebra. Death ensued fourteen months after the onset of the illness. At the autopsy no evidences of syphilis were found.

The viscera and other structures of the body revealed no focus from which the abscess of the cord took its origin. The entire lower end of the spinal cord was flooded with thin creamy pus. No abscess cavity was detected until after the cord was sectioned, when a longitudinally placed cavity was found in the sacral region, chiefly in the posterior portion of the gray and partly also in the white matter. It reached from the lower end of the cord about one inch upward. Numerous extensive disseminated purulent foci were found throughout the entire cord. A diagnosis of syphilitic spinal paralysis was first made and, naturally, when the paraplegia was not yet complete, such a diagnosis was quite as tenable as any other. Moreover, there was apparently no attributable cause for a starting point for the abscess formation, save possibly the attack of influenza. The final diagnosis was reached only by exclusion. The onset and course of the disease, its clinical manifestations and the findings at autopsy are of considerable interest.

56. **Hallucination.**—White narrates ten cases illustrating how phenomena, as ordinarily experienced, can graduate into a true hallucination, and arrives at the following conclusions: 1. Hallucinations are false perceptions. To have a false perception there must be something to perceive, and that something is in the environment and can only enter as a factor into the mental life through the intermediation of sensation. Ideas can not be perceived. 2. Hallucinations are secondary sensations either arising in the same sensory field, in which case they may be described as illustrations in the sense of Esquirol, or arising in other sensory fields, in which case their secondary character is quite clear. 3. The mental state in illusions and hallucinations is identical. 4. Given the sensory elements, the falseness in their perception is due to central derangement.

Journal of Cutaneous Diseases, New York.

November.

- 57 Notes on Certain Post-vaccinal Eruptions. William T. Corlett.
 58 *Erysipeloid, with a Record of 329 Cases, of Which 323 Were Caused by Crab Bites, or Lesions Produced by Crabs. T. C. Gilchrist.
 59 *Granuloma Fyrogenicum* (Botryomycosis of French authors). M. B. Hartzell.

58. **Erysipeloid.**—The observations made by Gilchrist in his cases are as follows: The incubation period varied from three hours to two days, in the majority of cases the latter. The duration of the disease was about a week, although in many cases it was only three or four days, and in a few extended from ten days to two weeks. In practically all the cases the disease occurred on the fingers or hands, there being only two cases where the lesions appeared on the soles of the feet. The history is practically always that of a bite or injury from a crab. The part bitten becomes red, swollen, painful, hot and accompanied by a throbbing sensation. The lower border of the eruption presents a distinct line of demarcation and is slightly raised. The disease extends slowly from finger to finger, finally encroaching on the back or palm or both sides of the hand. The characteristic slightly raised margin retains its definite bright red outline wherever it advances, but usually presents a rather more acute inflammatory aspect than the enclosed area. A particularly characteristic feature of this dermatitis is that suppuration never occurs, neither do any papules, vesicles nor pustules form on the surface, unless, as very rarely happens, pus organisms infect primary lesions. Desquamation does not follow. There are practically never any constitutional symptoms, except, perhaps, a slight pain extending up the arm. Careful bacteriologic examination failed to reveal the presence of any micro-organism. The disease is differentiated from erythematous eczema by the character and location of the lesion. In eczema also there is intense itching, whereas erysiploid is accompanied by pain, which is relieved by firm pressure. Erysipelas, on the other hand, is unusual on the hands alone or on the fingers, and it is accompanied by constitutional disturbances. The treatment in these cases consisted of thorough disinfection of the injured part with bichlorid solution, then a carbolic acid solu-

tion varying in strength from 1/20 to 1/30 was injected hypodermically at the growing margin of the disease, and finally the affected portion was dressed with iodoform ointment. Unna's salicylic acid plaster was also used. At first 50 per cent. was applied in strips to the diseased portion, and also well beyond the growing edge of the patch. In many cases one application was sufficient to cure the affection. The results of various methods of treatment have shown that the salicylic acid plaster of the strength of 25 per cent. is the best remedy, although plain adhesive plaster is frequently efficacious. After removal of the salicylic plaster, at the end of three days, the skin is white and sodden. A simple ointment is then prescribed.

New Orleans Medical and Surgical Journal.

November.

- 60 Paratyphoid; with Clinical Illustrations and Comment. T. H. Evans.
 61 *Pruritus Considered from a General Standpoint. H. E. Ménage.
 62 *A Preliminary Note on a New Clinical Method as an Aid in Diagnosing Renal Impairment. A. C. Eustis.

61. **Pruritus.**—The one remedy which has proven most useful in Menage's experience in the treatment of pruritus is cannabis indica. The initial dose should be small, 5 drops three times a day, well diluted and given after eating and increased gradually until 20 or 30 drops are taken at a dose. Next, in the order of his preference, are camphor monobromate, valerian, musk and castoreum, given separately or combined in pill form in full doses. Locally he uses a combination of carbolic acid, menthol, camphor and chloral. He has also used the galvanic current with good results in a few obstinate cases of localized pruritus. The current should be applied with as much intensity as the patient will and can stand. In general pruritus currents can not be used in any such strength, and in such cases the electric bath with the sinusoidal current, as suggested by Oudin and Bisserie, is the one worth trying.

62. **Diagnosis of Renal Impairment.**—Eustis' method is based on the nitrogen content of the blood and is carried out as follows: Twenty cubic millimeters of blood are sucked up after pricking the ear, in the Gower hemoglobinometer pipette and transferred to a test tube, preferably one six inches long. The pipette is washed out with distilled water into the same test tube and 1 c.c. of concentrated sulphuric acid is added. The mixture is then boiled and small crystals of potassium permanganate are added from time to time, until the black color caused by the charring of the sulphuric acid has entirely disappeared. A water-white solution is thus obtained in a few minutes. After cooling, the acid solution is diluted to 100 c.c. in a Nessler jar and 2 c.c. of Nessler's solution are added. A yellow color is produced, varying in intensity with the amount of ammonium sulphate present. By comparing the color obtained with the color produced by known amounts of a standard ammonium chlorid solution, after the addition of the same amount of Nessler's solution, the nitrogen in the 20 cm. of blood can be ascertained. The standard ammonium chlorid solution used is made by dissolving .314 grams of C. P. ammonium chlorid in 100 c.c. of water. Five cubic centimeters of this solution are diluted with distilled water, sufficient to make 500 c.c. Each cubic centimeter of the dilution contains .01 mg. of ammonia or .008 mg. of nitrogen. By multiplying the number of cubic centimeters of standard ammonia solution required to produce the same color as obtained with the blood by .008, and this result by 5,000, we obtain the milligrams of nitrogen in 100 c.c. of blood. Comparisons of the colors should not be made until the solutions have stood twenty minutes. Thirty minutes in all are required for the entire operation, provided the solutions needed are at hand. Examinations of the blood of 18 normal and healthy individuals have given Eustis a reading of from 40 to 80 mg. of nitrogen per 100 c.c. of blood, and usually they were below 40 mg. Variations in color of less than 1 c.c. were not noted, and he took 40 mg. as his normal. In all cases of nephritis he obtained a high content of nitrogen in the blood, while in those cases in which there was no renal impairment the nitrogen content was low. Three cases are cited in which the diagnosis

was made from the blood finding alone. From the cases observed Enstis concludes that if the blood of a patient shows a nitrogenous content below .50 mg. of nitrogen per 100 c.c. of blood there is no renal impairment. If the blood shows a nitrogen content of from 120 mg. to 140 mg. per 100 cc., there is partial renal impairment. If the blood shows a nitrogen content of 200 mg. to 100 c.c. of blood, the patient is suffering from uremia. Recommending the method are the short time required for its performance, the small amount of blood needed, its simplicity and its applicability in doubtful cases of uremia.

Louisville Monthly Journal of Medicine and Surgery.

November.

- 63 Rickets. Gavin Fulton.
- 64 *Radical Cure of Hernia. Hal C. Wyman.
- 65 Is the Practice of Producing Abortion Common Among Medical Men? T. B. Greenley.
- 66 *Death Through Misadventure. W. W. Vinnedge.
- 64.—*See abstract in THE JOURNAL of October 29, p. 1326.
- 66.—*Ibid.

Albany Medical Annals.

November.

- 67 The Genesis of Insanity. J. Montgomery Mosher.
- 68 New York State Medical Library. Dunkin Van R. Johnston.
- 69 History of the Bender Hygienic Laboratory. George E. Gorham.

Journal of the Association of Military Surgeons, Carlisle, Pa.

November.

- 70 The Ideal Military Surgeon. John C. Wise.
- 71 Outline of the Organization of the Department of Health of the Isthmian Canal Commission, Isthmus of Panama. John W. Ross.

Fort Wayne Medical Journal-Magazine.

October.

- 72 Surgical Aspects of Tuberculosis. J. C. Fleming.

Quarterly Journal of Inebriety, Hartford, Conn.

October.

- 73 The Relation of the Pauper Inebriate to the Municipality and the State from an Economic Point of View. Lewis D. Mason.
- 74 Recent Contributions to Our Knowledge of Alcohol, and Its Action on the Animal Body. Winfield S. Hall.
- 75 Evolutionary Pathology of Chronic Alcoholism. W. Ford Robertson.
- 76 The Influence of Alcohol on Digestion. J. H. Kellogg.

Brooklyn Medical Journal.

October.

- 77 The Nerve Elements of Uterine Contractions. William L. Chapman and Lewis N. Foote.
- 78 Apoplectic Motation. William Browning.
- 79 Fibroid Tumor of the Abdominal Wall. J. R. Taylor.
- 80 Notes on the Treatment of Cardiac Insufficiency; with Report of a Case of Diphtheritic Myocarditis. Edward E. Cornwall.
- 81 A Study of Six Cases of Extrauterine Pregnancy. Thomas Bray Spence.
- 82 Influence of Weather Changes on Man and Some Lower Animals, with a Record of Experiments on Pigeons. E. H. Bartley and W. L. Chapman.

Canadian Practitioner and Review, Toronto.

October.

- 83 Address, Canadian Medical Association. Simon J. Tunstall.
- 84 Address in Medicine, Canadian Medical Association. R. C. McKechnie.
- 85 Surgical Treatment of Complete Descent of the Uterus. E. C. Dudley.
- 86 Expectancy of Life in Morbid Conditions of the Cardio-vascular System. Robert J. Dwyer.
- 87 The Genesis of Insanity. J. Montgomery Mosher.
- 88 Involvement—Operation and Termination in Fatal Purulent Leptomenigitis. J. D. Gibb Wishart.

Atlanta Journal-Record of Medicine.

October.

- 88 Cataract Operations—Report of 103 Cases. T. M. McIntosh.
- 89 Individual Peculiarities of the Male Urethra. W. B. Emery.

Woman's Medical Journal, Toledo.

September.

- 90 The Chinese Management of a Transverse Presentation. Anna D. Gloss.

Bulletin of the Johns Hopkins Hospital, Baltimore.

October.

- 91 The Causes of Cardiac Insufficiency. Joseph H. Pratt.
- 92 Notes on Form of the Cavity of the Knee Joint. Joseph M. Flint.
- 93 Report of a Case of Acute Myelogenous Leukemia. Hermon C. Gordinier.
- 94 History of Some Famous Quacks. Francis R. Packard.

Medical Examiner and Practitioner, New York.

October.

- 95 Syphilis and Life Insurance. Alfred Blaschko.
- 96 Etiology of Arteriosclerosis. E. Morwitz.
- 97 Nervous Troubles and Labor Mishaps. L. Poels.

Old Dominion Journal, Richmond, Va.

October.

- 98 Venereal Disease as a Social Menace. J. N. Upshur.
- 99 A Plan for the Prevention of Venereal Diseases. Manfred C. Call.
- 100 Evolution of Psychiatry; or Progress in the Care and Treatment of the Insane. (To be continued.) William F. Drewry.
- 101 The Adrenal System and Its Importance in Health and Disease. C. P. Osteen.
- 102 The Diagnostic Value of Hematuria. W. M. Randolph.
- 103 Medical Organization. James B. Bullitt.
- 104 What Re-organization Has Done for the Michigan State Medical Society. Andrew L. Biddle.
- 105 The Success of the Wisconsin Reorganization Movement. C. S. Sheldon.

Archives of Otolaryngology, New Rochelle.

October.

- 106 Case of Thrombosis of the Jugular Bulb Operation—Recovery. Carl Koller.
- 107 Case of Pulmonary Tuberculosis, with Interstitial Neuritis of Both Cochlear Nerves Together with Persistent Embryonic Adhesions in the Scala Tympani. F. Siebenmann.
- 108 The Radical Operation for Chronic Empyema of the Frontal Sinus According to Killian. Dr. Eschweiler.
- 109 The Operative Treatment of Otitis Intracranial Complications. Prof. Denker.
- 110 Otitis Brain Abscess. V. Uehermann.
- 111 A Photographic Acometer. W. Sollier Bryant.

American Practitioner and News, Louisville.

October 1.

- 112 Accidental Corneal Infections. M. F. Coomes.
- 113 Fractures and Dislocations of the Femur. Frank B. Norton.
- 114 Acute Inflammation. Will Salin.

Therapeutic Gazette, Detroit.

October 15.

- 115 The Problems of Therapeutics. (To be concluded.) Lander Brunton.
- 116 The Relation of Therapeutics to Other Sciences in the Nineteenth Century. Oscar Liebreich.
- 117 Consideration of Some of the Methods for the Treatment of Cancer of the Rectum. Lewis H. Adler.
- 118 Calomel as Intestinal Antiseptic. Alexander McAllister.

Medical Sentinel, Portland, Ore.

October.

- 119 Address, Oregon State Medical Association. Walter T. Williamson.
- 120 Humanity and Common Senses Versus Idealism in Venereal Prophylaxis. G. S. Peterkin.
- 121 Cancer of the Large Bowel. C. H. Mayo.

Northwest Medicine, Seattle, Wash.

October.

- 122 Address, Canadian Medical Association. Simon J. Tunstall.
- 123 What Is Fever? Woods Hutchinson.
- 124 The Diagnosis of Surgical Pathology in the Upper Half of the Abdomen. H. D. Niles.
- 125 Notes on Treatment of Gonorrhea. W. B. Parsons.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

October 29.

- 1 The Limits of Freyer's Operation of Suprapubic Prostatectomy. J. W. T. Walker.
- 2 *A Further Series of 57 Cases of Total Extirpation of the Prostate for Radical Cure of Enlargement of That Organ. P. J. Freyer.
- 3 The Cause of Enlarged Prostate, Together with a Note on the Prostatic Glands. Herbert T. Herring.
- 4 The Pathology of Prostatic Enlargement. P. L. Daniel.
- 5 *Chronic Appendicitis. W. Blair Bell.
- 6 *Congenital Hypertrophic Stenosis of the Pylorus. Jas. H. Nicoll.
- 7 A Series of Cases of Resection of Malignant Growths of the Colon. Charles A. Morton.
- 8 *The Remote Results of Operations for Varicose Veins of the Lower Extremities. Robert Kennedy.
- 9 Use of Paraffin in Plastic Surgery. Stephen Paret.
- 10 Two Cases of Lightning-Stroke. J. Lyon Thomas.
- 11 Case Illustrating the Operative Treatment of Paralysis of the Serratus Magnus by Muscle Grafting. A. H. Tubby.
- 12 Remarks on the Value of Gastrojejunostomy and Jejunocolostomy in Cases of Chronic Gastric Ulcer, With and Without Adhesions and With and Without Dilatation of the Stomach. T. Gelston Atkins.
- 13 Two Cases of Urethro-vaginal Fistula Treated by Operations. Frederick J. McCann.
- 14 A Further Contribution Towards the Study of the Natural History of Tubal Gestation. Augustus W. Addinell.

2.—See abstract in THE JOURNAL of September 3, p. 690.

5. **Chronic Appendicitis.**—A new method of closing certain wounds is described by Bell and the term "autorrhaphy" is applied to it. This method, or a modification of it, can be utilized to close wounds in the abdominal wall and wherever aponeurotic tissue of sufficient strength is available. A fairly long skin incision is made, rather lower and nearer the an-

terior superior iliac spine than is indicated in the text-books. It is the most convenient incision for reaching the appendix at once and it also gives better strands of the aponeurosis of the external oblique which are to be utilized in closing the wound. In a chronic case or in the "quiescent" period of an intermittent case, the best and usually adopted method of separating the muscles in the direction of the fibers should be employed. When the aponeurosis of the external oblique is reached it must be very carefully cleared of its fascial investment, in order that the fibers may separate easily when required later. This done, a clear interfibrous space is found and opened for the whole length of the wound with the knife. The divided aponeurosis is then raised and undermined for about half an inch throughout the length of the incision on either side of its division. Next, the internal oblique is divided in the ordinary way in the direction of its fibers and the transversalis fascia and peritoneum in the same direction; as a rule, quite a small opening is required in order to deliver and remove the appendix. The object of the operation being successfully accomplished, the divided external oblique aponeurosis is seized on the side nearest the umbilicus and an interfibrous space sought for about one-sixteenth inch from the edge. This space is opened with the point of the knife, and the handle or a blunt dissector used to split the isolated strand up to the ends of the original incision. This divided strand is removed with knife or scissors, and is threaded on one of the special needles with a large eye, or it is seized at one extremity by a modified Cleveland needle forceps and then passed through the internal oblique and transversalis muscles and the peritoneum on either side of their division and tied. As a rule, one suture is quite sufficient to close the innermost layers, but should another be required it can be obtained in the same way and from the same side as the first. Next, two other strands are separated in the same way, one on each side of the incision through the external oblique, that on the umbilical side being freed at the lower end of the wound while the other strand—on the side nearest the anterior superior iliac spine—is freed at the top end of the incision. The external oblique is then laced up from either end of the incision, the strands meeting and being tied in the middle. The skin may then be closed with an ordinary or with a wire subcutaneous suture. The advantages of the method are obvious. No foreign material need be introduced into the abdominal wall. Instead of irritating sutures in the sensitive muscles, living material is used which belongs to the part and will go on living. There is little danger of sepsis.

6. **Congenital Hypertrophic Stenosis of Pylorus.**—Nicoll holds that the appropriate treatment of hypertrophic stenosis of the pylorus is to "burst up" the thickened pyloric ring by forcible over-stretching from within, as one does in obstinate urethral stricture. He is decidedly in favor of a combination of Loretta's operation with gastroenterostomy. This has been completely successful in several cases. In one case, however, no relief was obtained, and the patient died six days after operation; in another case apparent cure was followed by a return of the vomiting at the end of two months. The operative procedure adopted by Nicoll may be stated thus: Open the stomach, within easy reach of the pylorus; pass the dressing forceps through the incision into the stomach, and gradually force them through the contracted pylorus; stretch the pylorus until the peritoneal coat slightly ruptures. Then decide the further course of the operation by the infant's general condition. If collapse be imminent, close the stomach and abdomen rapidly by suture, regarding the operation as a temporary measure merely. If, however, the child's condition permits, complete the operation by a gastroenterostomy, making use of the incision already made in the stomach wall. He believes that the thickness of the pyloric wall renders pyloroplasty unsuitable in this instance.

8. **Operations for Varicose Veins.**—The method employed by Kennedy in dealing with varicose veins of the leg is to remove in every case the internal saphena in the thigh up to a point within one and a half or two inches of its termination at the

saphenous opening, whether the vein in the thigh appears to be varicose or not. When the vein has been removed from the thigh its removal is continued downwards into the leg and the prominent varices are also removed as far down as they extend, together with any prominent tributary in the leg. The total length of vein removed varies from sixteen to twenty-one inches, so that the internal saphena is almost entirely removed. In no case does the slightest untoward result follow the operation; and with the exception of two cases, which had a history of syphilis, the long wounds all healed up perfectly by first intention. A reaction on the circulation of the leg need not be feared, for the vein which is removed lost its function of returning blood long before the operation was undertaken. The results in every instance have stood the test of time. Patients examined at the end of periods ranging up to five years were found to be not only free from symptoms, but also from any recurrence of dilated veins.

The Lancet, London.

October 23.

- 17 *Some Remarks on the Application of the Principles of Surgery to the Treatment of Injury and Acute Infection When Occurring Within the Abdomen. Charles A. Ballance.
- 18 The Problems of Cancer. J. Beard.
- 19 *The Wreck of the Australia. James W. Barrack and W. F. Orr.
- 20 *A Clinical Study of Actinomyces. Robert Knox.
- 21 Dental Disease and the Medical Profession. R. Denison Pedley.
- 22 A Case of Ulcerative Colitis with Multiple Perforations. A. Garrick Wilson.
- 23 A Case of Fibromyoma of the Fundus with Carcinoma of the Cervix Uteri. John Phillips.
- 24 The Problem of the Morally Defective. W. A. Potts.
- 25 *Streptococcal Infection and the Use of Antistreptococcal Serum. S. Anderson.
- 26 Notes of Midwifery Cases in Madagascar. C. F. A. Moss.

15. **Treatment of Injury and Acute Infection.**—The ideal treatment of general peritonitis, according to Ballance, is continuous irrigation, or the continuous bath treatment so successfully employed in acute suppuration in joints. He has twice endeavored to carry out this treatment with baths of normal saline solution, but, unfortunately, both cases were unsuccessful. One was a case of duodenal ulcer which had perforated two days before operation. The other was a case where general peritonitis had occurred from a first attack of appendicitis; the operation was not performed until the seventh day. Both patients lived forty-eight hours. In both, the intestines were allowed to float out through the single long incision into the bath of saline solution. So rapidly did the purulent matter escape into the bath that several assistants were required to keep the bath water even approximately clean. At the necropsies the abdominal cavities were absolutely clean. Ballance suggests that it would probably be better after dealing with the local cause of the peritonitis rapidly to insert three or four drainage tubes through reasonably small openings in various situations and then at once to commence the bath treatment. This would obviate manipulation of the intestine which causes so much shock.

17. **Wreck of the Australia.**—Incident to the investigations following the wreck of the steamer *Australia*, the following regulations were adopted by the marine board of Victoria for the visual requirements of those who propose to enter the pilot service: 1. Vision to be 6/6 in each eye without glasses. 2. The total error of refraction is not to exceed 1 D., and of this astigmatism is not to exceed 0.5 D. This estimate is to be made by retinoscopy with the eye under the influence of a mydriatic. 3. The pupillary reflexes are to be normal. The fundus to be free from disease, the visual fields to be normal and the balance of the ocular muscles is to be normal. A candidate is to possess binocular vision. 4. Color vision is to be normal, as tested by colored wools and colored discs. 5. If during the course of service the vision deteriorates, the pilot must retire from the service. 6. If the pilot should be concerned in any accident, he should at once undergo re-examination. 7. The pilots are to be examined annually and must retire at 60 years of age. (See item concerning Health of Pilots in THE JOURNAL, November 5, page 1357.)

18. **Clinical Study of Actinomyces.**—Knox reports three cases of actinomyces occurring in two boys and their sister

who had been in the habit of visiting in the country on a farm for several years in succession. The first patient developed her serious symptoms at the farm in the shape of an attack of pleurisy with high temperature. The two boys had adenoids for years. All three patients had had trouble with their teeth. They all suffered from colds in the head and congested throats at variable periods, and they all had some glandular trouble. In the case of the girl several of the swellings developed into abscesses, which contained the characteristic fungus. One boy improved after his faulty teeth were attended to and the adenoids removed. The other two patients responded to iodids and a marked improvement in health was noted. Knox concludes that the infection in these cases occurred through the mouth, probably through the carious teeth. An early examination of expectoration or pus is the only certain method of diagnosis; in fact, an early diagnosis can only be made by the aid of the microscope. Surgical measures should be instituted at once if the lesion is superficial. It is the most rational and effective treatment. Iodid of potassium appears to be a specific in early cases, but the remedy must be pushed to its extreme limit. It appears that patients suffering from actinomycosis are very tolerant to this drug. One of Knox's cases took, on an average, 103 grains daily without exhibiting any undue symptoms.

23. **Antistreptococcus Serum in Infection.**—Anderson has made use of antistreptococcus serum in two cases of streptococcal infection with good results. To achieve the best result the following factors seem necessary: 1. That where the infection is "single" and polyvalent serum is obtainable possessing the "immune" body, it should be applied as soon as the illness is recognized, the object being to inject before much toxin is formed. 2. That the serum should be as fresh as possible. 3. That in those cases in which the serum is doing good there is no danger in administering an excess, and that in those cases where there is no apparent benefit there is no evidence to show that it does harm. 4. That since the serum acts mainly by increasing phagocytosis and since, in certain cases, very little antidote is formed, the administration of the serum should be continued for some time after apparent recovery, until its action is quite complete.

Bulletin de l'Académie de Médecine, Paris.

Last indexed page 761.

- 25 (LXVIII, No. 31.) *De l'embolie et de la phlébite. P. Reynier.
26 Anoplisme et paludisme à Madagascar. Prophylaxie du paludisme. A. Laveran.

25. **Treatment of Embolism and Phlebitis.**—Reynier takes issue with Lucas-Championnière in regard to the treatment of phlebitis with exercise and massage. He reaffirms the necessity for repose and for even exaggerated prudence in the treatment of phlebitis, old or recent. Immobilization at first, and afterward careful refraining from any exaggerated fatigue, repose at the slightest suspicion of pain or edema—"these measures will protect better than massage or movement against embolism, the Damocles' sword always over our heads."

Revue de Chirurgie, Paris.

Last indexed page 178.

- 27 (XXIV, No. 10.) *Diverticules de l'appendice et appendicite diverticulaires. Lejars and Moutier.
28 Fracture de l'épiphyse inférieure du radius, causée par la manivelle de mise en marche des moteurs d'automobile. C. Ghillini.
29 *Les lipomes du sein et de la région mammaire. J. Delage and Massabiau.

27. **Diverticula of the Appendix.**—Lejars gives illustrations of the diseased appendix in a number of cases in which diverticula of varying shapes and sizes were discovered. They are probably the result of the formation of an abscess in the wall, the neck opening into the lumen of the appendix being comparatively narrow. When the abscess is evacuated the cavity persists, forming a recess liable to harbor microbes, the thinness of the walls inviting perforation. These diverticula may explain recurrences of appendicitis and the perforation in apparently mild cases. The frequent localization of these diverticula on the adherent margin of the appendix may explain likewise certain cases of subperitoneal iliac suppuration orig-

inating in the appendix. He has had occasion to operate in one case of deep phlegmon under the iliac peritoneum, combined with an intraperitoneal iliac phlegmon. The origin of the trouble may be ascribed to perforation of the meso-appendix consecutive to perforation of the adherent margin of the appendix, probably the result of suppuration in a diverticulum at this point.

29. **Lipoma of the Breast.**—Out of the 18 cases found in the literature 5 were men. The affection is essentially benign, and a single lipoma is readily shelled out. In case of multiple, deforming tumors, ablation of the breast may be necessary. In a personal case described the breast "resembled a bag full of oranges," and was excised. The other breast was entirely normal.

Semaine Médicale, Paris.

- 30 (XIV, No. 41.) *L'embolie graisseuse consécutive au redressement brusque des articulations ankylosées. F. de Quervain.
31 L'hospitalisation des aliénés dangereux et criminels dans les divers pays.
32 (No. 42.) La cérébro-sclérose lacunaire progressive d'origine artérielle. J. Grasset.
33 The French Laws in Regard to Foreign Physicians Attending a Patient in France.—Dans quelles conditions un médecin étranger qui vient soigner un malade en France commet-il le délit d'exercice illégal de la médecine?

30. **Fat Embolism After Forceful Straightening of a Stiff Joint.**—De Quervain has had a case of threatening fat embolism occur after forceful straightening of an ankylosed knee and ankle consecutive to osteomyelitis of the tibia. The straightening was done with the utmost care and the minimum of force, and yet, thirty-six hours later, symptoms developed suggesting fat embolism—bloody sputa, dyspnea, rapid pulse, temperature of 40 C. and frequent vomiting. A large amount of fat in the urine confirmed the diagnosis, but the case terminated in the recovery of the patient, a lad of 13. Search in the literature revealed 10 similar cases, all fatal. It is probable that fat embolism has occurred more frequently than these statistics would indicate, but has escaped attention in the cases with favorable outcome. The joint requiring straightening was always the knee or ankle in the cases on record. There is a specially large proportion of cancellous tissue in these joints, much more than in the wrist and elbow. They are further distinguished by the fact that the bone has to be compressed in straightening them, the more, the greater the deformity. In 7 out of the 11 cases several joints had been straightened at one time, both knees in 4 instances. The long immobility of the joint entails atrophy not only of the muscles but of the bone itself. The true bone substance becomes substituted by adipose tissue. This substitution of fatty marrow for the bone facilitates its compression during the maneuver, but also supplies an abnormal amount of fat. Compression of any bone long condemned to inactivity shows astonishing softness of the bone tissue while a reddish juice escapes, like an emulsion of blood and fat. In all the cases above mentioned the joint had been immovable for a year at least, with one exception, in which the ankylosis was only of five months' duration. He describes the three ways in which fat embolism might be induced by forceful straightening of an ankylosed joint, and adds certain points useful for prophylaxis. If the patient exhibits signs of the lymphatic diathesis which Payr regards as a factor, it is better to err from excess of caution rather than the reverse. The physician should refrain from straightening more than one joint at a time. He should bear in mind the possibility of osteoporosis resulting from the long inaction of the parts. A further important aid is afforded by radiography, comparing the stiff with the normal joint. If the bone is discovered to be abnormally porous it is better to abandon the idea of forceful straightening even of a single joint, and apply more gradual measures. They are liable to be more effectual the more pronounced the osteoporosis.

Archiv f. Gynäkologie, Berlin.

Last indexed page 576.

- 34 (LXXIII, No. 2.) *Ueber das Verhalten der Leukozyten bei Gynäkologischen Erkrankungen und während der Geburt. Pankow.
35 Beitrag zum Studium der Cysten an den breiten Mutterbändern (in broad ligaments). C. Gibelli.

- 36 Fall von Endotheloma lymphaticum ovarii. G. Heinrichs.
 37 Pure Septicæmia. O. Kneise.—Zur Kenntniss der reinen Sepsisklämme zugleich ein Vorschlag zu einheitlicher Einstichung und Benennung septischer Wundkrankungen.
 38 Zur Anatomie der Leuchtretina bei Leukæmie beim Weibe (in woman). J. Halban und J. Fandler.
 39 Klinisch-bacteriologische Untersuchungen über Icterus gravis bei einer Gravida. G. de Paoli und P. Giyelli.
 40 Negative Action of Castration on Phosphorus in Female Organism. F. Heymann.—Zur Einwirkung der Castration auf den Phosphorgehalt des weiblichen Organismus.
 42 Zur Etiologie des Prolapsus Uteri. O. Burger.
 43 Birth of a foetus. Uterus. E. M. Kurdinowsky.—Der Geburtsakt am isolierten Uterus beobachtet. Adrenalin als ein Gebärmuttermittel.

34. Blood Count in Gynecologic Affections.—Pankow relates the particulars of his study of the blood count in a large number of patients at the Jena gynecologic clinic. He has become convinced that repeated finding of more than 10,000 leucocytes always indicates a suppurative affection in the adnexa if other causes can be excluded.

37. Pure Septicæmia.—Kneise reports a case in which the heart, liver and kidneys were found studded with streptococci the fourteenth day after spontaneous delivery, but there had been no chills and no evidence of local reaction could be found anywhere in the tissues. He thinks that this kind of puerperal infection—general affection with dissemination by way of the blood—should be called pure septicæmia. The subject in this case was a woman of 32, a vii-paræ, who had been examined *in partu* fifteen times by the midwife.

43. Birth in Isolated Uterus.—Kurdinowsky nourished with Locke's fluid the isolated uterus of rabbits. He was able in this way to keep the uterus and its appendages "alive" for nearly fifty hours in one instance. Each contraction of the uterus was registered with a Ludwig kymograph. The phenomena observed establish that the uterus—entirely independent of the influences of the cerebrospinal nervous system—is capable of accomplishing the birth function. Another result of the research described is that adrenalin was found to exert a much more energetic action on the contractions of the uterus than any of the drugs supposed to be specific for this purpose. This fact suggests further study of adrenalin in this line.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed page 1316.

- 44 (LXXIV, No. 1.) *Aseptic Healing of Tissue Necrosis. Burkhardt.—Experimentelle Untersuchungen über die aseptische Einheilung direkt erzeugter Gewebeschwären.
 45 Die Behandlung der über-grossen Hernien. O. Maderlung.
 46 Ueber Ureteren und Blasen-Resektionen bei ausgedehnten Uterus-Carcinomen. A. Depage und L. Mayer.
 47 Die chronische Colitis und ihre Behandlung auf Grund chirurgischer Erfahrungen. E. v. Borchard.
 48 Ueber psychische Störungen bei einem Striknirn-Abszess (in frontal lobe). Borchard.
 49 *Intrahepatische Cholelithiasis. E. Beer.
 50 Einiges über Pankreas-Erkrankungen. Bardenheuer.
 51 Ueber Früh-Operation der Nieren-Tuberkulose (of kidney). H. Kümmler.
 52 Ueber Entstehung und Behandlung der Cong. Blasen-Divertikel und Doppelblasen (double bladder). E. Fagenstecher.
 53 Ueber die Catgut-Naht bei frischer und bei veralteter Patella-Fraktur. Riedel.
 54 (No. 2.) Zur pathologie und Therapie des Magen Volvulus (of stomach). M. Borchard.
 55 *Die Resektion des Nebenbodens bei der Tuberkulose (epididymis). W. Bogoljuboff.
 56 Welchen Rückschluss gestatten uns heute die klinischen Zeichen der Blinddarmentzündung auf den pathologischen Zustand des Darmfortsatzes und der Bauchhöhle? physical signs of cecitis as indications of condition of appendix, etc.). C. Lauenstein.
 57 *Uebertragung unsezierter Periost-Knochen-Lappen zur Heilung von Pfandwunden und Knochenhöhlen (unpunctuated flaps for bone cavities, etc.). F. v. Mangoldt.
 58 Ueber indurative Pankreatitis. Karth.
 59 Ueber Operationen an Hufeisenlähren (horse-shoe kidney). Ibid.
 60 Neue Beleuchtungs-vorrichtung für Operations Säle (new illuminator). Krönig und Siedentopf (Jena).
 61 Ueber spät rezidirende Carcinome (late recurrences). Jordan.
 62 Ueber Wundheilung mit Engurform (substitute for iodiform). J. Vanicky.
 63 Zur Frage der Röntgen-Therapie des Carcinoms. Perthes.
 64 Multiple Knochen-Sarkome mit Ostitis deformans. L. Rehn.
 65 Ueber Dermatitis der Hand nach Röntgenbestrahlung. R. Mihsam.
 66 Fall von subcutaner Ureter-Verletzung. Heilung durch Nieren-Exstirpation (ureter injury requiring extirpation of kidney). Heisch.
 67 Total Exstirpation der Scapula wegen Osteomyelitis. F. Hahn.
 68 Zur Behandlung der Luxatio patelle invertebra. E. Graser.
 69 Beiträge zu den plastischen Operationen. W. Kausch.
 70 Ueber traumatische Leber-Ruptur mit späterer Ausstossung grosser Leber-Senestor (of liver). E. Graser.

44. Aseptic Healing of Tissue Necrosis.—Burkhardt concludes from the experimental research described that tissue which becomes crushed or cauterized during an aseptic operation scarcely ever induces a suppurative exudation. This is more liable to follow cauterization. The suppuration is always benign and generally becomes spontaneously absorbed. Absorption of necrosed tissue the size of a bean required a few months before it was complete. The inflammatory exudation and deposit of fibrin that follow implantation of a crushed or cauterized scrap of muscle in the musculature of a healthy rabbit never progressed to an actual abscess in the absence of infection, but it produces a place of lesser resistance and may complicate and delay healing.

49. Intrahepatic Cholelithiasis.—Beer discovered stones in the liver in 6 out of 72 cadavers with evidences of cholelithiasis, noted during the examination of the liver from 250 cadavers. Intrahepatic concretions apparently require three factors for their production, stagnation of bile, cholangitis and a tendency to stone formation. It is possible that stones lurking in the liver may explain certain cases of supposed reformation of gallstones. The stone may induce inflammation in the liver or may pass into the gall bladder or bile duct and continue to increase in size. Consequently Kehr's plan of draining the hepaticus has, besides its other advantages, that of preventing trouble from this source. It should not be restricted to the severer cases, but should be applied in the mild ones, especially those with a history of occlusion of the bile duct and cholangitis. A stone in the liver may entail the most serious consequences and the formation of such a stone should be prevented at almost any cost. When lithiasis and cholangitis are once determined an operation before the second month would avert all danger from this source.

52. Treatment of "Double Bladder."—Fagenstecher mentions the various drawbacks to different modes of treating diverticula of the bladder, and describes his own technic. Extirpation of the diverticulum is the best means of relief, but it is always a difficult operation on account of the reimplantation of the ureter which is usually necessary. For this reason the sacral route is preferable. He cured a patient by this means, although a fistula into the bladder required some time before it spontaneously healed. His article is a comprehensive study of the cases on record of congenital diverticula of the bladder, vesica duplex and bipartita, and hour-glass bladder. His case is the first on record in which a large congenital diverticulum was successfully operated on by the sacral route.

55. Resection of Epididymis on Account of Tuberculosis.—To the 166 cases on record Bogoljuboff adds 12 from his own experience. The results of resection are better when it is total than partial. A large majority of the patients are permanently cured and recurrence in the testicles is rare. Resection of the epididymis, supplementing excision of a tuberculous focus in the testicle, is frequently successful. Potencia coeundi does not seem to be impaired by resection of the epididymis on one or both sides, and the testicle retains its normal functions. Resection of the epididymis on one or both sides may in some cases have a favorable influence on existing tuberculous processes in the prostate or seminal vesicles, leading to complete and permanent recovery. This occurred in 19 out of 45 cases. Lung processes were improved in 8 out of 32 cases. Tuberculosis of the testicles usually starts in the epididymis, where it remains circumscribed for a long time before it invades the testicle. The prognosis is equally good after resection of the epididymis and vas deferens and anastomosis. This was done in all but 2 of the personal cases described. The technic of this intervention was mentioned in THE JOURNAL, xlii, page 1455.

57. Implantation of Flaps to Fill Bone Cavities.—In 2 cases of osteomyelitis with extensive loss of substance, von Mangoldt induced regeneration of the bone by implantation of unpunctuated flaps of periosteum and bone taken from the tibia. A number of radiograms show the progressive growth of new bone. The subjects were boys of 8. The flap for one was 7.5 cm. long by 2 cm. wide, and for the other 10 cm. long.

60. **New Illuminator for Operating Rooms.**—To avoid the heat and the vitiation of the air from ordinary lights in an operating room Krönig and Siedentopf have devised an illuminator on the principle of the lantern used for throwing pictures on a screen. The lantern stands outside the room, and the shaft of light enters through an opening in the wall, strikes a mirror in the ceiling and is reflected down on the operating table. The intensity of the light can be regulated and it can be moved to various points as needed. The parts are illuminated with 20,000 candle power, a light so intense that for ordinary purposes it is shaded and the full strength is used only when inspecting cavities. The details of the illuminator can be easily understood from the illustrations. Some of them are reproduced in the last *Centralblatt f. Chirurgie*, No. 42.

65. **Roentgen Dermatitis.**—In the case described the findings indicated an obliterating endarteritis. The patient was a physician who had had occasion to work with the Roentgen rays for three years. A chronic ulceration developed at the base of one of the finger nails, and the pain became so severe that the finger was finally amputated two years after the ulceration developed. The history and the literature on x-ray burns are added.

Beiträge zur klin. Chirurgie, Tübingen.

Last indexed page 1367.

- 71 (XLIII, No. 1.) *Anatomische und klinische Untersuchungen über die Magen- und Darm-Carcinome (cancers in digestive tract). W. Petersen and F. Colmers.
 72 *Beiträge zur Rückenmarks-Chirurgie (of spine). F. Selberg.
 73 Ueber Schrotschussverletzungen bei Heeresangehörigen mit besonderer Berücksichtigung des Hinzutretens von Wundstarrkrampf (tetanus after shot wounds). G. Schmidt.
 74 Ueber die mit Gallensteinen verlaufende chronische Pancreatitis (4 cases with gallstone symptoms). L. Arnsperger.
 75 Ueber einen In Anschluss an einen Leber-Abszess entstandenen Fall von Lungen-Abszess. Ossig.

71. **Carcinomas in Digestive Tract.**—The material reviewed includes 66 cases of cancer in the stomach, 22 in the colon and 212 in the rectum. The malignancy of the various kinds of cancer differs widely, so that exploratory excision should always precede operation. The writers describe the unicentric growth, anatomic findings, etc., of the various forms, and remark that the mode of growth of cancers in the digestive tract excludes a parasitic etiology. It seems to be possible that non-cancerous cells may be deported from the cancerous organ. The article is illustrated with 16 plates and 117 cuts in the text. Gastric cancer spreads along the inner wall of the stomach; cancer in the colon remains limited to a circumscribed spot, while cancer in the rectum spreads little inside the rectum, but has a tendency to involve early the pararectal tissue.

72. **Surgery of Spine.**—One of the 4 cases described was an extradural lipoma causing compression of the spinal cord, one was a tuberculous meningitis, another spondylitis and another a sarcoma in the pia. The focus was freely exposed and excised and the patients with the lipoma and the tuberculous spondylitis were permanently cured. Every progressive tumor in the spine should be operated on, as the outcome is otherwise fatal, but the prospects of success are not always certain. Only a few tumors in the spine are capable of being radically removed. When the cord is involved the growth is inoperable. But when a lipoma, fibroma, psammoma, echinococcus or exostosis has developed and compresses, but does not encroach on, the cord, success may be counted on. Mere diagnosis of the segment affords no information as to this point. The first symptoms of a surgical spinal affection may be restricted to simple bladder disturbances. The pains are often taken to be sciatica or intercostal neuralgia.

Berliner klinische Wochenschrift.

- 76 (XLI, No. 41, Salkowski number.) *Recent Studies of Chemistry of Albumin. A. Kossel.—Neuere Ergebnisse der Eiweisschemie.
 77 *Action of Quinic Acid on Lime Metabolism. E. Oberndörffer.—Die Wirkung der Chinasaure auf den Kalkstoffwechsel des Menschen.
 78 New Staining Reactions of Sugar. A. Neumann.—Neue Farbenreaktionen der Zucker.

- 79 *Action of Lead on Uterus. L. Lewin.—Ueber die Wirkung des Bleis auf die Gebärmutter.
 80 *Diagnosis by "Test Diet." H. Strass.—Ueber Fortschritte der Darmdiagnostik durch die "Probediät."
 81 Carbohydrates During Autolysis. C. Nenberg.—Ueber das Verhalten der Kohlehydrate bei der Autolyse und zur Frage nach der Bindung der Kohlehydratgruppe in den Eiweisskörpern.
 82 *Elaboration of Glycuronic Acid. J. Wohlgenuth.—Ueber Glukuronsäurebildung beim Menschen.
 83 Studies of Pns. C. Posner.—Esterstudien.

76. **Chemistry of Albumin.**—We have learned that the albumin molecule is composed of a number of organic groups which can be easily separated, but which retain their separate identity. The albumin molecule is thus like a large vessel which contains various organic compounds resulting from the vital activity of the organism. The vessel contains sometimes more of certain of these compounds than of others. The proteids contain usually three times as many atom groups as the proteins and the latter are thus simpler in their composition and easier to study. They have been found hitherto only in the spermatozoa of fishes. The varying composition of the albumin molecule probably corresponds to varying physiologic purposes. Experiments on dogs showed that phosphorus intoxication causes chemical changes in the albumin bodies in the liver. Certain compounds in the albumin molecules diminish in quantity, while others increase. The large amount of nuclear substance in young, growing tissues is an important factor in these variations. Kossel long ago called attention to the genetic connection between nuclein and hypoxanthin and xanthin, adenin and guanin, and his later research has shown that uracil, thymine and cytosin belong in the same series of nuclein derivatives. The different arrangement of the carbon and nitrogen atoms in these and in arginin and the imidazol ring suggests that this grouping is a means or by-product in these synthetic processes.

77. **Action of Quinic Acid on Lime Metabolism.**—Oberndörffer has been studying on his own person the elimination of lime under the influence of ingested acid. He reviews the experiences of Rumpf and others which have established the possibility of thus influencing the output of lime, and gives the details of his own experiments. He preferred to use quinic acid, and found that the elimination of lime in both stools and urine far surpassed the amount of lime ingested. All but 4 per cent. was eliminated through the stools. The phenomena observed indicate that the quinic acid is eliminated in combination with the lime, and by way of the intestines. He has not attempted to apply to the sick the data thus learned from a healthy subject, but the results observed certainly encourage further research in this line of possible therapeutics for arteriosclerosis, etc.

79. **Action of Lead on Uterus.**—Lewin mentions that professional lead poisoning is more common among women than men. In Vienna 26.4 per cent. of the women, and only 6.9 per cent. of the male employes in the type foundries, and 80 per cent. of the women making lead foil capsules are victims of lead poisoning. He has been examining 81 such women, and found that out of 123 pregnancies there are only 14 living children. Lead poisoning in the father alone leads to equally direful consequences. In 7 such married couples, with 32 pregnancies, there was abortion in 11 cases, and only 5 of the children survived to the third year, and 3 of these died soon after. Lewin comments with approval on the regulations in France which exclude women from trades using phosphorus, arsenic, chromates, etc. He thinks that the state should interfere to prevent this wholesale slaughter of the innocents and inevitable decay of the worker.

80. **Test Diet in Diagnosis.**—Strauss regards the use of the Schmidt and Strassburger test diet as a great progress in the diagnosis of the intestinal functions. He uses a diet made up from the hospital kitchen: 1.5 liter milk, 80 gm. scraped meat, 200 gm. soft mashed potato, 2 eggs, 40 gm. butter, and soup made with 40 gm. oatmeal, .25 liter bouillon, and 6 zwieback, each 18 gm. The aspect and smell of the stools on this uniform test diet and the interval before they appear are important points for the diagnosis. When a healthy subject takes the

test diet, marked off with carmin, the first stained stools appear in about 15 to 25 hours. An interval of 10 to 15 hours was observed in his experience only in colitic processes, especially when the lower part of the colon was involved. An interval of 3 to 5 hours was noted only in conditions accompanied by excessive peristalsis. Study of the mucus content and of the reaction of the stool is more reliable than after a single test meal. A still further means by which the test diet can be utilized is for determination of the tolerance for certain articles of food. For this he repeats the test diet, marking it off with charcoal, giving twice or four times the amount of meat, potato or butter, or reducing them in like proportions. Careful study of the subjective findings at the same time will aid in selection of an elective diet. He prefers for the fermentation test a large, graduated reagent glass with a rubber cover allowing the passage of a U-shaped tube. This shows the intensity of the fermentation during given periods, and also the amount of carbonic acid generated. He gives the details of the standard technic he has adopted for this test. The microscope shows the amount of digestion of fat and utilization of starch, and the aloin test will reveal "occult" bleeding. He further ascertains the amount of indican. This differentiates a "putrid" from a "bland" diarrhea.

82. **Elaboration of Glycuronic Acid in Man.**—Wohlgemuth describes the case of a physician who swallowed by mistake .75 gm. of cocain and then took amyl nitrite, followed by nearly a pint of brandy. Artificial respiration was kept up for several hours with inhalation of oxygen, and camphor was given subcutaneously. In two weeks the patient was fully restored. The urine contained large proportions of grape sugar at first and later of glycuronic acid. These findings suggest that the cocain and alcohol had injured the organism to such an extent that its power of oxidation was temporarily reduced. It was incapable of oxidizing the sugar produced and also the glycuronic acid elaborated after the elimination of the cocain and camphor. Wohlgemuth thinks that this case supplies the missing link in the demonstration of the primary origin of glycuronic acid.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

- 84 (XXX, No. 42.) *Erfahrungen über die therapeutische Wirkung der Radium-Strahlen. R. Werner und G. Hirschel.
 85 Ultramikroskopische Untersuchungen. L. Michaels.
 86 Die Mollität des Magens bei Achylia gastrica. H. Elsner.
 87 Recent Progress in Treatment of Eclampsia. R. Glitsch. (Commenced in No. 41.) Summary of literature.
 88 Ueber die Verwendung der Vibrations-Massage zur Ausführung von Schmelkuren (for injections). R. Ledermann.
 89 Behandlung der Schenkelbrüche Neugeborenen durch permanente Extension (for fractures of femur in the newborn). E. Riese.
 90 Pertyphlitis simplex und Pertyphlitis virulenta. K. Lewin.
 91 Stimulation of Mysopia by Children. W. Felchenfeld.
 92 Report of Sixth International Congress of Physiology. (Commenced in No. 41.)
 93 *Die medicinische Publizistik. H. Kohn.

84. **Radium Treatment.**—Werner and Hirschel report the experiences at Czerny's clinic with 22 patients exposed to the action of 10 mg. of radium bromid. The cases included 5 of carcinoma, 1 of melanosarcoma, 2 of nevus, 5 of angioma, 7 of lupus, etc. The radium was always applied to the part in a capsule, fastened with adhesive plaster, from five to thirty minutes at a time. No effect was apparent in the malignant tumors, but in the benign and in the tuberculoides the results were extremely satisfactory, and no recurrence has been apparent five to ten months after treatment. In lupus the exposures were longer, to a maximum of three hours. After these long exposures it was noticed that the nodules showed a more marked specific reaction than the epidermis, while with fractioned exposures the skin reacted more. It proved possible to cure a nodule by a single long exposure, without necrosis of the skin in some instances. This and other facts which they cite seem to suggest that inadequate treatment does harm instead of good, and that the ideal results should be sought by longer, un-fractioned exposures. In malignant disease, especially, the rule should be to treat radically with the rays or not at all.

87. **Progress in Treatment of Eclampsia.**—Glitsch reviews 40 communications that have been published recently in regard

to the treatment of eclampsia. Chloral by rectal injections seems to be useful, as is also the rinsing out of the stomach to remove toxic substances eliminated by this route.

93. **Medical Publications.**—Kohn comments on the multiplicity of current medical periodicals, Germany alone possessing 240, with a constant influx of new ones. He says that writing and research are not at all in proportion, so that there is no reason for so many journals. Many issues can be laid aside unread without fear of having missed something that is new and of real interest. As soon as some one subject assumes more than usual prominence a journal is devoted to its exploitation. Ere long, without any actual need for it, other journals appear, devoting themselves to the same line of thought. Kohn mentions that there are in Germany to-day 7 journals on gynecology, 5 on ophthalmology, 6 on pediatrics and 3 taking up the subject of prevention of tuberculosis, when one journal in each of these special fields would be more than sufficient to chronicle actual advances. Why then, he asks, is the market flooded with so many journals which are bound to react unfavorably on the progress of medicine. He condemns simultaneous publication of an article in a number of journals; the desire to write when there is nothing to write about; re-writing, with slight changes, of the same article so as to have an excuse for its publication, and appending to an article a lengthy but useless bibliography, a custom much in vogue at the present time. Many journals are kept alive by the advertisements alone; others by the desire of young men to appear before the public in print; others by articles written to please the editor or for some other extraneous reason. The consequence of all this flood of "periodical literature is that readers, because of lack of time or for financial reasons, content themselves with the reading of abstracts and do not attempt to keep up with the endless procession of current literature. This is necessarily superficial, and leads to superficial reasoning, while an error in an abstract is perpetuated in other works based on it. As a remedy Kohn suggests that all teachers and research workers restrain their assistants and students from writing until they have a definite result to present, and to keep them from "padding" the articles, and physicians should not be ever ready to "favor" a young editor with an article just to help out, or to lend the weight of their name and authority to the exploitation of the journal.

Zeitschrift f. klinische Medizin, Berlin.

Last indexed page 291.

- 94 (LIII, Riesel Festschrift.) *Hyperacidie of Gastric Juice. C. v. Noorden.—Bemerkungen über Hyperacidität des Magens und ihre Behandlung.
 95 Ueber die cong. Dilatation und Hypertrophie des Dickdarms (Hirschsprung's disease). L. Kredel.
 96 Embolische Extremitäten-Gangrän nach Pneumonie. Ibd.
 97 Ueber essentielle Albuminurie. C. Posner.
 98 Neue Darstellung der Segment-Innervation des Menschlichen Körpers. L. Edinger.
 99 *Zur Behandlung der Hämorrhoiden. Proebsting.
 100 *Die Disinfektion der Gallenwege (biliary passages). F. Kuhn (Gassel).
 101 *Salzsäure-Hyperacidität im Beginn von Magenkrebs (gastric cancer). V. Ziegler.
 102 Ueber den Begriff der Anämie in klinischer Beziehung. E. Berruick.
 103 Fall von Allgemeinfektion durch Bacterium coli commune mit typhus-ähnlichem Verlauf und spätfolgender Hoden-Abscedierung (general infection and complications). W. Baumgarten.
 104 Die inspiratorische Verkleinerung des Pulses (sogen. Pulsus paradoxus). E. Reichmann.
 105 *Ueber "digestive" oder "alimentäre" Hypersecretion des Magens (nebst Bemerkungen über Atonia et Ptosis gastrica). H. Strauss.
 106 Zur Casuistik des menstruellen Icterus. L. Metzger. One case.
 107 Ueber homogen wachsende säurefeste Bacillen (cultivation of acid-fast and growing bacilli). F. Homburger.
 108 Zur Casuistik der Hämoglobinurie. E. Homburger.
 109 *Ueber Polymyositis. W. Streng.
 110 Bemerkungen zur Arbeitsbehandlung Nervenkranker (occupational treatment of nervous affections). M. Laehr.
 111 Ueber das pathologische Element in der Criminalität der Jugendlichen. F. Tuczek.
 112 Ueber Verdoppelung der Herzfrequenz nebst Bemerkungen zur Analyse des unregelmässigen Pulses (duplication of heartbeat). Hoffmann.
 113 Ueber unregelmässige Herzrhythmicität auf psychischer Grundlage (emotional cardiac irregularity). O. Reissner.
 114 *Property of Digitalin to Reduce Sensibility of Myocardium to Artificial Stimuli. K. Brandenburg.—Ueber die Eigenschaft des Digitalis, in nicht tödlicher Gabe die Ansprechbarkeit des Herzmuskels für künstliche Reize vorübergehend zu vermindern.
 115 Ueber Hämolyse durch Carcinom-Extrakte. Kullmann.

- 116 Zur Casuistik der Embolie und Thrombose der Mesenterial-Gefäße. K. Osswald. Two cases.
- 117 *Ueber seltene Complicationen der Ruhr (dysentery). B. Markwald.
- 118 Ueber die therapeutische Anwendung des Aderlasses (venesection). W. Bruner.
- 119 Casuistischer Beitrag zur Lehre von der motorischen Apraxie. Herzog.
- 120 Zur Frage der Resorption des Nervengewebes (from tissues). M. Künzler.
- 121 Zur Symptomatologie des Magenkrebses und zum Vorkommen der Tetanie bei Magenkrankheiten (gastric cancer). G. Heindelmann.
- 122 *Zur Lehre von der Tetanie bei Magenverweiterung (with dilatation of stomach). H. Richartz.
- 123 Die diätetische Behandlung der Epileptiker in Vergangenheit und Gegenwart. K. Alt.
- 124 Intake of Oxygen Through Skin. G. Zuelzer.—Die Sauerstoffaufnahme durch die Haut.
- 125 *Ueber den Einfluss gefäßerweiternder Massnahmen und geeigneter Muskelleistung bei chronischer, interstitieller Nephritis und ihre Bedeutung für die Therapie derselben (vasodilating measures in nephritis). P. Edel.
- 126 *Ueber das Vorkommen von langen, fadenförmigen (Boas-Oppler) Bacillen in Blutgerinnseln des Mageninhalts und deren Bedeutung für die Frühdiagnose des Magen-Carcinoms (gastric carcinoma). S. Heichelheim.
- 127 Limitation of Utilization of Albumin in Gastric Affections. v. Tabora.—Grenzwerte der Eiweissausnutzung bei Störungen der Magensaftsecretion.
- 128 Ueber ventrikuläre Bigemien ohne kompensatorische Pause durch rückläufige Herz-Contractionen (alternierende Tricuspidal-insufficienz, Pseudostyola alternans?). F. Volhard.

94. Treatment of Hyperacidity of Stomach.—Von Noorden has witnessed extremely favorable results from forced feeding supplementary to the ordinary measures, in cases of acid gastric catarrh and ulcer. In hyperacidity in poorly nourished subjects, he has also found forced feeding useful in conquering the existing hyperacidity. It sometimes cures without any other measures. In 3 cases of hyperacidity described there were no subjective disturbances. In 3 others the hyperacidity was accompanied by obstipation. The secreting processes were restored to normal in these cases by curing the obstipation, which was accomplished by laxative mineral waters and dieting. He regarded the hyperacidity as merely secondary, and the results of treatment on this basis confirmed its correctness. In case of gastric ulcer his measures are very strict for eight or ten days. He then rapidly pushes the nourishment, sometimes reaching 3,500 to 4,500 calories a day by the end of the second week, making extensive use of fats. He is convinced that this accomplishes as much as the Leube technic, while it has the advantage that it invigorates and restores the patient more effectually. As a rule, he gains 10 to 15 pounds on this treatment when previously reduced.

99. Treatment of Hemorrhoids.—Proebsting attributes the disturbances of hemorrhoids to retention of feces in and around the sphincter. He thinks that the best treatment is by cleansing rectal injections after defecation, preferably with cold water, although tepid water can be used if cold is not tolerated. He teaches his patients how to make "the toilette of the anus" with a small bulb syringe, and many have been entirely relieved of all hemorrhoidal disturbances by this simple measure.

100. Disinfection of Biliary Passages.—Kuhn's announcements in regard to the efficient sterilization of the biliary passages with the salicylates was summarized in these columns, page 1095.

101. Hyperacidity in Incipient Gastric Cancer.—Ziegler has observed 5 cases in which uncomplicated hyperchlorhydria with normal motor functions preceded the development of a cancer of the stomach. He is convinced that carcinoma should be suspected when hyperacidity exists rebelliously to all the usual measures, such as regulating the diet, lavage, bismuth, atropin, alkalies, etc. The diagnosis is almost certain when motor disturbances become superposed on the hyperchlorhydria. A repugnance to meat generally accompanies the hyperchlorhydria. The subjects are usually past the age when the latter is most common.

105. Digestive or Alimentary Hypersecretion in Stomach.—Strauss remarks that the determination of this condition requires consideration of a number of circumstances. There is evidently a close connection with hyperacidity and ulcer, and it seems to be more frequent in cases with dilatation of the

stomach than without. It has no direct connection with motor insufficiency, although it may outlast it, but in this case merely as an expression of the irritation of the mucosa from stagnating stomach contents. The etiology of the "digestive" hypersecretion is liable to be multiple, and removal of the cause is the first indication in treatment. When induced by gastropnoia, forced feeding may prove more useful than bandages, as it relieves the general asthenia and may restore normal conditions throughout. When dependent on a hernia, surgical treatment of the latter is indicated. Symptomatic treatment should be the same as for hyperacidity. Milk is useful, but a strict milk-vegetarian diet is required only when the manifestations of general neurasthenia or obstipation predominate in the clinical picture. Improving the intestinal functions frequently improves at the same time the hyperacidity or "digestive" hypersecretion. The Carlsbad cure is particularly useful for this purpose.

109. Polymyositis.—The postmortem findings in the case described showed numerous hemorrhages and interstitial inflammatory processes throughout the muscles involved. There were also inflammatory processes in certain joints. There was a history of preceding grippe.

114. Reduction of Sensibility of Myocardium by Digitalin.—Through all Brandenburg's experimental research one phenomenon was constantly observed, namely, that a small amount of digitalin injected under the skin temporarily diminished the response of the heart muscle to stimuli of various kinds, while it increased its contractility. He discusses the clinical significance of this fact. Among other points brought out is that digitalin is contraindicated in cases in which the irregularity of the pulse is due to morbidly increased automatic action of parts of the heart which normally do not develop movement stimulus. This class of cases includes certain forms of pulsus bigeminus in neurasthenic subjects. Digitalin in such a case would only exaggerate the morbid tendency of the heart muscle to independent action at the atrio-ventricular boundary.

117. Rare Complications of Dysentery.—The complications were urethritis, double conjunctivitis, rhinitis and severe iridocyclitis. The Shiga bacillus was agglutinated strongly even at 1 to 320.

122. Tetany with Dilatation of Stomach.—Only 42 cases are known of tetany in connection with dilatation of the stomach. Richartz describes another case. It was remarkable for the facts that the tetany developed after lavage of the extremely dilated stomach, and that it vanished completely after removal of a colloid carcinoma in the stomach. At the laparotomy several cherry stones were found in the stomach and 80 plum stones. The patient had not eaten any plums for a year or so, and asserted that it had been many years since she had been in the habit of occasionally swallowing a plum stone.

125. Vasodilating Measures in Chronic Nephritis.—Edel summarizes the aims of therapeutics in chronic interstitial nephritis as, 1, the reduction of the blood pressure by vasodilating measures, such as rest in bed, warm and carbonated baths, amyl nitrite and nitroglycerin; 2, permanent strengthening of the heart by suitable exercises, and, 3, systematic measures to restore tone to the nervous system. The albuminuria diminishes with decreasing blood pressure. Mountain climbing is particularly useful as an exercise to strengthen the heart, both by the muscular exercise and by the dilatation of the vessels in the muscles and skin, but high altitudes should be strictly avoided. Nervous influences, emotions, etc., affect the blood pressure by contracting the arteries. It is not improbable that the heart itself may suffer from this cause. These nervous influences should be counteracted by tranquilizing the patient, reassuring his alarm at the discovery of the albuminuria. Obesity should be reduced. Seven patients treated on these principles were much improved.

126. Boas-Oppler Bacilli as Sign of Cancer.—Heichelheim announces from an experience with 6 cases of gastric carcinoma that the long thread bacilli can be most easily discovered in the dark brown clots of blood in the stomach content. Re-

peated findings of blood clots in the stomach contents, with unusually large proportion of free HCl, speak for cancer, and the diagnosis is almost positive when the thread bacilli are very numerous. If they are scanty the diagnosis should be cautiously formulated.

Cronica Medica, Lima, Peru.

Last indexed XLII, page 138.

- 129 (XX, No. 355.) Enfermedades evitables (avoidable diseases). R. Eyzaguirre.
- 130 (No. 356.) Sobre la hematología de la enfermedad de Carrión. J. C. Gastalburu.
- 131 (No. 357.) La tuberculosis y la defensa antituberculosa. E. Escamol.
- 132 (No. 367.) La peste Bubónica en el Callao. A. Castaneda. (Commenced in No. 362.)
- 133 (No. 368.) *Ejecución de las penas en caso de enfermedad sobreviniente (execution of sentence in case of intercurrent disease). L. Avendano.
- 134 (No. 369.) Accidentes secundarios de la sífilis que simulan una infección septicémica de marcha subaguda. L. A. Lopez.
- 135 (No. 370.) Traumatismo del cráneo. Fractura de la bóveda; hernia cerebral. Intervención quirúrgica. Curaclon. E. A. Vigil.
- 136 (No. 372.) *Un procedimiento sencillo para determinar la coagulabilidad de la sangre (of the blood). U. Biffi.
- 137 (No. 374.) Caso de desprendimiento total de la placenta por traumatismo. J. A. San Bartholomé.
- 138 (No. 375.) Preparación de soluciones normales ácidas y alcalinas. A. C. García.
- 139 (No. 376.) Sobre los precipitados por congelación y sobre algunas propiedades del suero sanguíneo diluido (congelation and other properties of diluted serum). U. Biffi.

133. Intercurrent Diseases During Imprisonment.—Avendano presented this article at the last Latin-American Congress. He urged a conference to agree on uniform measures in case of intercurrent diseases affecting criminals undergoing sentence. Provision should be made, he thinks, for the execution of the sentence to be suspended during a serious intercurrent disease or insanity, until the subject has recovered under treatment in a hospital or other safe place. The time of the duration of the disease should be deducted from the period for which he was sentenced. His final plea is that small prisons should be erected at various points in each country, instead of large central prisons, in order that the prisoners may live in the climate to which they are accustomed.

136. Simple Mode to Determine the Coagulating Power of the Blood.—Biffi gives an illustration of a simple apparatus which consists of an ordinary test tube, about 20 to 25 cm. long and 4 cm. in diameter. The stopper of the tube has two openings, one holds a thermometer which projects nearly to the center of the tube. A glass rod passes through the other hole, just projecting into the tube, but carrying a platinum wire .5 mm. thick and 10 cm. long. This wire is bent into five small, round loops, each 3 to 4 mm. in diameter. This takes up the wire so that the lower end reaches downward only a little below the thermometer, each just above the middle of the tube, which is filled half full of water. A drop of blood is drawn from the finger, and each of the five loops is touched to the blood, which rapidly spreads out and fills each loop. The stopper is then replaced in the test tube and the time noted, the temperature of the tube being kept at 68 to 77 F. At certain intervals the glass rod is pushed downward through the stopper, just far enough to bring one of the loops under the surface of the water. If the blood has not coagulated it diffuses into the water. Again the rod is pushed down after a similar interval, and so on, until the blood has completely coagulated, when it no longer diffuses, but shows as a firm round disc in the loop below the surface of the water. In normal conditions coagulation is complete in seven to ten minutes. Biffi has compared the findings with those of the more complicated apparatus for determining the coagulability of the blood, and found that they paralleled each other with great precision. He calls the instrument the hemogelometer.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued

Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-graduate Medical School. Vol. VIII. Materia Medica and Therapeutics, Preventive Medicine, Bacteriology, Anatomy, Legal Medicine, Forensic Medicine. Edited by George F. Butler, Ph.D., M.D., Henry B. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Daniel H. Brower, M.D., Harold N. Moyer, M.D., July, 1904. Volume IX. Physiology, Pathology, Bacteriology, Anatomy, Legal Medicine. Edited by W. A. Evans, M.S., M.D., Adolph Gehrmann, M.D., William Healy, A.B., M.D. August, 1904. Vol. X. Skin and Venereal Diseases, Nervous and Mental Diseases. Edited by W. L. Baum, M.D., Hugh T. Patrick, M.D. September, 1904. Chicago: The Year Book Publishers.

THE MEDICAL NEWS VISITING LIST, 1905. Weekly (Dated for 30 Patients) Monthly (Undated for 120 Patients per Month); Perpetual (Undated, for 30 Patients Weekly per Year); 60-Patients (Undated, for 60 Patients Weekly per Year). The Weekly, Monthly and 30-Patient Perpetual Contain 32 Pages of Data and 100 Pages of Classified Blanks. The 60-Patient Perpetual Consists of 256 Pages of Blanks Alone. Each in One Wallet-shaped Book, Bound in Flexible Leather, with Flap and Pocket. Pencil and Rubber, and Calculator for Two Prices, \$1.25. Pamphlet Index, 25 cents extra. By mail, postpaid, to any address. Philadelphia and New York: Lea Brothers & Co.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS; with Especial Reference to the Application of Remedial Measures to Disease and Their Employment on a Rational Basis. By Hobart Amory Hare, M.D. Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. With Special Chapters by Drs. G. E. de Schweinitz, Edward Martin and Barton C. Hirst. New (10th) Edition, Much Enlarged, Thoroughly Revised and Largely Rewritten. With 113 Engravings and 4 Full-Page Colored Plates. Cloth. Pp. 908. Price, \$4.00 net. Philadelphia and New York: Lea Brothers & Co., 1904.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY. By Olof Hammarsten, Professor of Medical and Physiologic Chemistry in the University of Upsala. Authorized Translation from the Author's Enlarged and Revised Fifth German Edition. By John A. Muelcke, Sr., Professor of Chemistry and Physics and of Physiologic Chemistry in the New York University and Bellevue Hospital Medical College. Fourth Edition. Cloth. Pp. 703. Price, \$4.00. New York: John Wiley & Sons, 1904.

A TREATISE ON BRIGHT'S DISEASE AND DIABETES, with Especial Reference to Etiology and Therapeutics. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania. Second Edition, Illustrated. Including a Section on the Ocular Changes in Bright's Disease and in Diabetes. By George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. Cloth. Pp. 908. Price, \$4.00 net. Philadelphia: P. Blakiston's Son & Co., 1904.

A TEXT-BOOK OF QUANTITATIVE CHEMICAL ANALYSIS BY GRAVIMETRIC, ELECTROLYTIC, VOLUMETRIC AND GASOMETRIC METHODS. With Seventy-two Laboratory Exercises, Giving the Analysis of Pure Salts, Alloys, Minerals and Trades. By E. F. Johnson, Col. Olsen, M. M. B. L. Professor of Analytical Chemistry in the Polytechnic Institute of Brooklyn. Cloth. Pp. 513. Price, \$4.00 net. New York: D. Van Nostrand Co., 1904.

THE PRINCIPLES OF REFRACTION IN THE HUMAN EYE BASED ON THE LAWS OF CONJUGATE FOCI. By Swan M. Burnett, M.D., Ph.D., Professor of Ophthalmology and Otolaryngology in the Georgetown University Medical College. Illustrated with 25 Original Diagrams. By Charles F. Prentice, M.E. Cloth. Pp. 65. Price, \$1.00 net. Published by the Keystone, the Organ of the Jewelry and Optical Trades, Philadelphia, 1904.

THE ART OF COMPOUNDING. A Text-book for Students and a Reference Book for Pharmacists at the Prescription Counter. By Wilbur L. Scoville, Ph.G., Formerly Professor of Theory and Practice of Pharmacy in the Massachusetts College of Pharmacy. Third Edition, Revised and Enlarged. Cloth. Pp. 337. Price, \$2.50 net. Philadelphia: P. Blakiston's Son & Co., 1904.

ACCIDENTS AND EMERGENCIES. A Manual of the Treatment of Surgical and Medical Emergencies in the Absence of a Physician. By Charles W. Dulles, M.D., Fellow of the College of Physicians of Philadelphia. Sixth Edition, Thoroughly Revised and Enlarged. With New Illustrations. Cloth. Pp. 208. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co., 1904.

MULTIPLE PERSONALITY in Experimental Investigation Into the Nature of Human Individuality. By Boris Sidis, M.A., Ph.D. (Harvard). Author of the Psychology of Suggestion and Psyche pathologic Researches, and Simon P. Goodhart, Ph.B. (Yale). M.D. Cloth. Pp. 456. Price, \$2.50 net. New York: D. Appleton & Co., 1905.

A COMPEND OF MEDICAL LATIN. Designed Expressly for Elementary Training of Medical Students. By W. T. St. Clair, A.M., Professor of the Latin Language and Literature in the Male High School of Louisville, Ky. Second Edition, Revised. Cloth. Pp. 131. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co., 1904.

SURGICAL EMERGENCIES. THE SURGERY OF THE ABDOMEN. Part I. Appendicitis and Other Diseases About the Appendix. By Bayard Holmes, B.S., M.D., Professor of Surgery in the University of Illinois. Paper. Pp. 349. Price, \$2.00 net. New York: D. Appleton & Co., 1904.

TRANSACTIONS OF THE THIRTY-SEVENTH ANNUAL SESSION, WEST VIRGINIA STATE MEDICAL ASSOCIATION, Held at Fairmont, W. Va., May 10, 11 and 12, 1904. Instituted April 10, 1867. Paper. Pp. 300. Wheeling News Litho. Co., 1904.

PROCEEDINGS OF THE CONNECTICUT MEDICAL SOCIETY, 1904. One Hundred and Twelfth Annual Convention Held at New Haven, May 25 and 26. Published by the Society. Cloth. Pp. 676. 1904.

THE PRINCIPLES OF RELIEF. By Edward T. Devine, Ph.D., LL.D., Author of the Methods of Charity. Cloth. Ep. 485. New York: The Macmillan Co., 1904.

SPEMANN'S HISTORISCHER MEDICINAL-KALENDER. Bearbeiter von Prof. Dr. J. Pagel und Prof. Dr. J. Schwalbe, in Berlin. Paper. Pp. 153.

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Original Articles.

DRUGS IRRITANT TO THE KIDNEYS, AND HENCE TO BE AVOIDED IN IMPAIRED KIDNEY FUNCTION.*

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The title of this paper really covers two distinct subjects: the study of renal irritants, and the question whether the use of these should necessarily be condemned in the presence of nephritis. I shall reverse this order, and discuss in the first place the question:

Is the use of drugs which irritate the kidneys to be prohibited when the renal functions are impaired?

THE GENERAL PROBLEM.

This common opinion, that renal irritants should be avoided in renal diseases, seems to be based rather on *a priori* conceptions, than on direct experiments or observations. Basing ourselves on analogy, on the common experience of inflammatory processes in other regions which have been better studied, we are doubtless justified in accepting this as a general rule. If it causes us to err at all, the error is apt to be on the safer side. But, after all, may there not be important exceptions to this general rule? Have we not many instances in which an irritant agent acts favorably on an inflammatory process in other situations? Are we correct in assuming that this may not occur in the case of nephritis? Were this the case, and should it be proved that every renal irritant causes a further injury to the inflamed kidney tissue, it would not, even then, necessarily follow that every renal irritant should be proscribed. The injury to the kidney is not the direct source of danger in nephritis, but the immediate danger lies rather in the secondary results of this injury, viz., the retention of deleterious substances in the body. It is quite conceivable that a drug might be immensely useful by leading to the excretion of these substances, even if it did so at the expense of some further slight injury to the kidney. It need scarcely be said that its field of usefulness would be very limited; but were we to exclude irritants altogether from the treatment of inflamed conditions, we should have to dispense with all forms of stimulation. Is not rest the first desideratum in the treatment of inflammation, and is not every extra work thrown on the inflamed organ injurious to it, and therefore every stimulant contraindicated? Nevertheless, we often risk this lesser direct evil for the greater indirect benefit which experience has taught us to expect. And so, in

the case of the kidney, if we condemn on *a priori* grounds and without qualification every form of irritation, we must also condemn by the same reasoning every form of diuresis. On the other hand, we must not fall into the error of supposing that only those drugs are to be avoided in nephritis which irritate the kidneys, or which stimulate them to overwork. Dangers quite as grave may arise from the retention of deleterious substances introduced under the disguise of medicines. The danger of a constant administration of potassium salts, digitalis, etc., under conditions when they can not be excreted, lies even more in their general toxicity than in any direct effect on the kidneys. A recent work on the effect of salts in nephritis¹ also suggests that drugs which are indifferent to healthy kidneys may become irritant in nephritis. Finally we are confronted with the question: Are we justified in assuming without direct proof that the drugs which are capable of producing nephritis, are really renal irritants in the therapeutic doses? It is quite reasonable to suppose that doses which are indifferent to healthy kidneys may become irritant in nephritis; but there must evidently be a limit to this, and the question as to whether our therapeutic doses lie above or below this limit can only be answered by experiment.

SPECIFIC PROBLEMS FOR ANIMAL EXPERIMENTS.

It is evident, from these considerations, that the problem can only be solved when we are in possession of considerable experimental material—most of which is, unfortunately, still wanting. We should know in the first place whether a drug is capable of producing nephritis at all, and to what anatomic lesions it gives rise. This portion of the problem has been studied quite well. The next experimental question concerns the effect of these nephritic poisons on the composition of the urine, and here our knowledge is already very deficient. All the nephritic poisons give rise to urine which contains proteids, casts, renal epithelium and often leucocytes; in some cases blood or hemoglobin and its derivatives are excreted. The quantity of urine is increased by small doses and diminished by larger quantities—and there our information generally stops.

The effect of different doses on the constituents of the urine—which is most important from a therapeutic standpoint—has scarcely been studied except in the case of a few diuretics. It has been shown that glomerular nephritis (as produced by cantharis) greatly lessens the renal excretion of water, and diminishes or abolishes the diuretic effect of fluids, saline diuretics, caffeine and phlorrhizin,² and that the molecular concentration of the blood serum therefore tends to increase,³ whereas

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborn.

1. J. Castaigne and F. Rathery: *La Semaine Méd.*, 1903, p. 309.
2. Hellin and Spiro: *Arch. f. Exp. Path. u. Pharm.*, 1897, vol. xxxviii, p. 368.
3. Richter and Roth: *Berl. klin. Woch.*, 1899, vol. xxxvi, pp. 657, 683.

those nephritic poisons which act only on the tubular epithelium (chromate) have less effect. It has been shown by several investigators that all nephritic poisons and diuretics (except water) tend to break down the chlorid regulating mechanisms in the rabbit, but not in the dog. This is about the extent of our experimental knowledge of the subject. Evidently, there is a large field for pharmacologic investigation, which would necessarily have to be done on animals. Researches along this line could scarcely fail to yield important additions to our knowledge of the drugs, of nephritis and of the physiology of the kidney. These results, obtained with toxic doses on healthy kidneys, could not, however, be applied directly to the question of the effects of therapeutic doses on diseased kidneys.

CLINICAL INVESTIGATIONS.

For this purpose we must know the effect of therapeutic doses on metabolism, and on the excretion of the urinary constituents, both in healthy kidneys and in the various forms and stages of nephritis. We must also know, by direct experiment and not merely by *a priori* reasoning, the modifications which these therapeutic doses introduce into the nephritic process itself. As a preliminary to this, we also must have an accurate knowledge of the chemical data of the various forms of nephritis. We already know that there are considerable differences in the reaction of the various classes of animals to drugs—witness the different effect of caffeine on rabbits and dogs, the different behavior of the chlorid regulating mechanism in these animals toward nephritic agents. These facts indicate that experiments on the lower animals could not be applied directly to man, although they would be valuable for orientation, and as pharmacologic data. But direct experiments on healthy human subjects and on nephritic patients are the surest way to a successful solution of these problems. I would not be understood as advocating indiscriminate experimentation on patients. I am only pleading for the thorough scientific study of those instances in which drugs, such as calomel, digitalis, potassium and anesthetics would be conservatively administered in any case.

METHODS OF INVESTIGATION.

The methods of study are sufficiently indicated by the preceding considerations. They would comprise a thorough and accurate investigation of the constituents of the urine before, during and after the administration of the drug. This would bear in most cases particularly on the total quantity of urine, its molecular concentration, and the percentage and daily quantity of the nitrogen, chlorids, and proteid. The more factors are determined in a given case, the greater its value; but too great multiplicity of observations tends to inaccuracy; or at the best, restricts the number of cases which can be observed. For this reason further refinements, such as the separate determination of albumin and globulin, of the various nitrogenous metabolites and of the salts; also the effect on the excretion of salts and other drugs introduced into the body, would form proper subjects for later investigation.

The subject of the greatest immediate importance is, beyond doubt, the effect on the proteid of the urine; for this is the only quantitative index which we have of the course of the nephritis. The percentage of the proteid is especially important. Emerson⁴ has again shown the reliability of this factor. It need scarcely be mentioned that the general conditions, such as diet and salt in-

come, must be kept perfectly uniform. It may not be superfluous to dwell on the fact that these observations, to be of any value, must be made with chemic methods of sufficient accuracy. The so-called rapid clinical methods of quantitative estimation are generally worse than useless for scientific purposes. Results which are not reliable are necessarily misleading. I am well aware that investigations of this character consume time. Considering the many possible types of nephritis, it would probably be necessary to dispose of a considerable number of such studies before generalization would be safe. But from the great importance of the subject I feel convinced that the results would in the end justify all the cost.

SYNOPSIS OF LITERATURE.

It is therefore a source of astonishment to find how little work has been done in this direction. There is an excellent paper by Emerson⁴ which may well be taken as a general model for this work. This research, small as it is to the entire subject, already indicates that diuresis produced by the administration of water or diuretic does not increase the percentage of proteid in acute or chronic nephritis, and may even diminish it; it also demonstrates the value of a milk diet and rest in bed; and establishes some other valuable data, surely not an unpromising showing for a single and comparatively simple research.

Emerson's results agree very well with those obtained by me⁵ in a case of "physiologic" albuminuria. The subject had a persistent albuminuria, amounting to 0.32-1.19 gm. per liter, or 0.2-0.9 a day; without any other symptom of nephritis or abnormality whatsoever.* Various drugs were tried, in therapeutic doses; none of these produced changes exceeding the normal variations; the only positive result was obtained with a very large dose (31 gm.) of potassium acetate, which produced a free diuresis and lessened the per cent. of proteid, without altering its daily quantity. Smaller doses (4 and 11.7 gm.), as also therapeutic doses of potassium nitrate, 4 gm.; caffeine, 0.6 gm.; urea, 2.1 gm.; digitalis, 1 c.c. of tincture; nitroglycerin, 3.3 and 3.9 mg.; strychnin, 6.5 mg. and water had no certain effect on the albumin.

There are also a considerable number of observations on the effect of water and salts on the composition of the urine in health, and a few studies of their effects in nephritis. I shall only consider the latter. Kövesi and Röth-Schulz⁶ state that the administration of water, which ordinarily increases the quantity of urine and lessens its molecular concentration (depression or freezing point), does not have this effect in acute and sub-acute nephritis; the divergence from the normal result is less in cases of contracted kidneys. They propose this as a diagnostic test for kidney insufficiency. Koeppe⁷ arrives at the same result. It is also well known that a diseased kidney can not secrete urines with a molecular concentration much higher than that of the blood,⁸ especially when the tubular epithelium is involved. Some important contributions to this subject of the effects of salts and water on nephritis have appeared quite recently, stimulated by the observations of French clinicians on the effect of salt on nephritic edemas. Mohr and Dapper⁹ obtain the important result that a moderate

5. T. Sollmann and E. C. McComb: Jour. Exp. Med., 1895, vol. III, p. 137.

* Dr. McComb informs me that the albuminuria has now disappeared completely.

6. Kövesi and Röth-Schulz: Berl. klin. Woch., 1900, (quoted from Koeppe).

7. H. Koeppe: Deutsche med. Woch., 1903, vol. xxix, p. 817.

8. T. Sollmann: Amer. Med., 1902, vol. iv, pp. 656-661.

9. L. Mohr and Dapper: Zeits. klin. Med., vol. 1, p. 371.

4. C. P. Emerson: Johns Hopkins Hosp. Reports, 1902, vol. x, p. 323.

limitation of water (to 1½ liters per day) leads to a diminution of nephritic edema, without diminishing the excretion of metabolites (nitrogen and phosphates); but an excessive reduction, whilst it may lessen the edema, also impairs the excretion.

With chronic contracted kidney, the reduction of water causes generally a temporary increase of the albuminuria, but this soon returns to the previous degree. Mohr¹⁰ and von Kozięzkowsky¹¹ find that some cases of nephritis show a retention of chlorid, while others do not have this tendency.

I would also cite the studies of Castaigne and Rathery,¹ who cite numerous cases in which albuminuria was caused, in some, by administering sodium chlorid, in others by withholding this salt. They also found that doses of salt which did not cause albuminuria in normal rabbits, increased an already existing renal albuminuria.

While this list of investigations dealing with quantitative determinations of the effect of nephritic and diuretic drugs is perhaps not quite exhaustive, yet it is fairly so; and this illustrates the paucity of our positive knowledge of the subject, which I have emphasized earlier in this paper.

THE PHARMACOLOGY OF NEPHRITIC POISONS.

In the absence of these experimental data, it is not possible for me to treat of the subject as I would wish to do, i. e., from the standpoint of the effect of nephritic drugs in nephritis. I must content myself in presenting to you what is known concerning the effects of toxic doses. This study has more interest for the pharmacologist than for the practicing physician, but it is not devoid of importance to the latter, since it will serve to point out to him which drugs should be held in suspicion and which therefore require investigation.

A very large number of the most commonly used drugs must be placed in this class. Everyone is familiar with the fact that most substances act as irritants if they are brought in contact with tissues, in sufficient concentration. It is also well known that the conditions for irritation are peculiarly favorable in the kidney; partly because the concentration is increased during the excretion of the substance, and also because the renal cells are peculiarly delicate and subject to injury. To emphasize the latter fact, we need but recall the comparatively small variations from the normal which give rise to albuminuria; and that clamping the renal artery for a very short time causes a very persistent impairment of the renal functions.

A drug, to be classed as a nephritic poison, must possess the following qualities: 1. It must be capable of causing irritation. 2. It must be capable of being absorbed. 3. It must be capable of injuring the kidney in doses which are smaller than those which will produce acute death through its other actions. 4. In some cases the nephritis is not so much due to the direct effect of the drug on the kidney as to the breaking down of the blood-corpuses, and other tissue changes.

The more important nephritic poisons may be grouped as follows, according to the tissues which they may affect: 1. Tubular epithelium primarily; stroma secondarily; metals, aloin, coal tar products, alcohol and anesthetics, oxalates. 2. Glomeruli primarily; tubules only with larger doses; cantharidin, arsenic. 3. General irritants; essential oils. 4. Only irritant under special conditions; Caffein, neutral salts of alkalies.

5. Affecting kidney secondarily: Poisons destroying blood; chronic poisons (alcoholism, morphinism).

For convenience of study I have divided the nephritic drugs into several large classes, according to their chemical affinities.

GROUPS OF METALS.

All metals, so far as they have been studied¹² cause a nephritis when they are absorbed into the body in sufficient amount. This has been actually observed with the following: Aluminium, antimony, arsenic, beryllium, bismuth, cadmium, cerium, chromium, cobalt, copper, lead, manganese, mercury, nickel, phosphorus, platinum, silver, tungstan, uranium and zinc.

Owing to the emetic effects and the small absorbability of most metals, the nephritis results only when corrosive doses are taken, or if the salts are injected directly into the veins or subcutaneously. Mercury, arsenic and chromates are notable exceptions. Nephritis may also arise in the course of chronic poisoning by any metal.

The anatomic and functional effects are alike for all metals, with the few exceptions which will be noted presently. The finer details have only been studied on the more important metals; but there is every reason to suppose that the others conform to the same type.

Anatomic Changes.—The anatomic changes are at first confined to the epithelium of the convoluted tubules, which show cloudy swelling, disintegration of the nuclei and impaired staining qualities, and often fatty degeneration. If the dose is very large, and in chronic poisoning, the inflammation extends to the connective tissue, which shows round-cell infiltration, cirrhosis and other changes.

Urine.—The urine is moderately increased by very small doses; larger doses diminish its quantity to total suppression. It becomes albuminous and often bloody, and contains leucocytes, renal cells and numerous casts.

The clinical phenomena of this nephritis need not be discussed.

SPECIAL METALS.

Arsenic.—This produces a specific paralysis of capillaries, which is most pronounced in the glomeruli. Hellin and Spiro,² experimenting on rabbits, found the space of Bowman's capsule all but obliterated by the swollen capillaries. In addition to this, arsenic has the usual metal effect, the epithelium of the convoluted tubules being affected in various degrees, while the straight tubules escape almost unchanged. Albuminuria appeared within ten minutes after the hypodermic injection of 10 mg. per kilogram.

Phosphorus.—This causes the same fatty degeneration in the kidney which it produces in other organs.

Bismuth.—This is said by Langhans¹³ to act differently from other metals, and more like cantharidin; small doses causing a strong glomerular nephritis, with comparatively little change in the tubular epithelium. The stroma, however, is affected quite early.

Chromates and Bichromates.—These have been used extensively in experimental work, to produce an almost purely tubular nephritis.² The epithelium of the convoluted tubules may undergo total necrosis. The glomerular epithelium and the straight tubules are unaffected, or at most suffer very late. The urine becomes albuminous, scanty and contains numerous casts and

12. See especially R. Kobert, *Lehrbuch der Intoxicationen*; the following text-books have also been freely used in the compilation of this pharmacologic study: H. Klonka, *Grundriss Toxicologie*; O. Schmiedeberg, *Pharmakologie*; A. R. Cushman, *Pharmacology*; H. C. Wood, *Therapeutics*, and Sollmann, *Pharmacology*.

13. Langhans: Quoted by Müfser.

10. L. Mohr: *Ibid.*, 1904, vol. II, p. 331.

11. E. v. Kozięzkowsky: *Ibid.*, 1904, vol. II, p. 287.

sometimes blood. Very small doses cause a slight diuresis in rabbits.¹⁴ Chronic poisoning ends with extensive interstitial nephritis. (Rabbit, 30 mg. per kilogram, subcutaneous.)

Iron.—Tyson warns against the use of excessive doses of iron in chronic nephritis, but not apparently because of any action which it might have on the kidney. I could find no reports of nephritic phenomena referable to iron.

Mercury.—Kobert¹⁵ claims that large doses cause occlusion of the renal tubules by calcareous deposits. Otherwise the phenomena of large doses of mercury are those typical of all metals. Its principal interest lies in the effects of small doses, which have such a wide application in therapeutics.

CALOMEL DIURESIS.

A most important action in the present connection is the calomel diuresis. The diuretic effect of calomel in cardiac dropsy is said to have been well known to the physicians in the latter half of the eighteenth century, but it was forgotten, and practically rediscovered by Jendrassik in 1886.¹⁶ He found it effective mainly in cardiac dropsies, in which it produced results far greater than could be obtained with digitalis or caffeine. The urine was often increased to 7 or 8 liters a day. The absolute amount of urea and chlorids was also greatly increased. To obtain the best effects, 0.2 gm. was given from 4 to 5 times a day, until a slight mercurial stomatitis was produced. If this did not prove effective from the start, the remedy was discontinued; it also seems wise to intermit it occasionally. The bowels may be regulated by opium. Jendrassik remarks that the calomel appears relatively or quite ineffective when the heart disease is uncomplicated by dropsies; it was also ineffective in pleuritic exudates, in nephritic effusions, and in healthy individuals. This report gave rise to extensive trials of the drug. The results of these were summarized by Jendrassik in 1891,¹⁷ together with further observations and experiments of his own. His previous conclusions concerning the best method of administration, and the usefulness of calomel in cardiac dropsies seem to have been generally confirmed, as also the relative insufficiency in non-dropsical heart disease, in pleuritic exudates and in normal individuals. It seemed to be slightly diuretic in the latter, but the action can never compare with that seen in cardiac dropsies. It was often found effective in hepatic ascites, but failed frequently. It gave good results in some cases of nephritic edema, but in most instances gave no result; it seemed impossible to predict what it would do. Wood¹⁸ states that "in chronic parenchymatous nephritis with alarming decrease of urine, calomel is one of the most efficient diuretics known."¹⁹

The theoretical objections to the use of so powerful a renal irritant as mercury in nephritis, was early emphasized, especially by Cohn,¹⁹ and supported by some clinical observations. It was claimed that there is a very marked tendency to mercurial symptoms, and that the nephritis is often made worse. The greater number of observers, however, hold the opposite view, viz., that calomel does not render the nephritis worse, whether it has a diuretic action or not. This is defended by

Jendrassik, and by Henck.²⁰ Schild²¹ reports 3 cases, in which he claims that a diuretic effect was obtained, together with a lessened per cent. of albumin; the daily output of protein being unchanged.

Briefly, it seems certain that the doses of calomel which are advocated have never produced albuminuria in normal individuals, but the question of their effect on an existing nephritis is not sufficiently investigated to admit of a decisive answer. Great conservatism in its employment is therefore indicated.

MECHANISM OF THE CALOMEL DIURESIS.

Jendrassik showed that the effect is due to the mercury of the calomel, for other insoluble mercurials have a similar effect, although they are not so useful by reason of their side actions. He also tried to determine the mechanism of this mercury action by experimental means. He passes rather lightly over the opinion held by most of his contemporaries, that the calomel acts by irritating the renal epithelium. Perhaps his strongest argument is based on a few hemoglobin estimations; he argues, quite correctly, that a diuresis produced by renal irritation should concentrate the blood; direct observation showed that it was more dilute. This result, if correct, would indicate that the diuresis is merely the secondary result of an absorption of the exudate. In view of the importance of the subject, it is to be regretted that these hemoglobin estimations have not been repeated. The fact that calomel is only effective in edema, naturally favors the idea that it acts on the exudate, but the absence of effect with the exudates of pleurisy and hepatic cirrhosis speak even more strongly against it. Jendrassik himself points out that the effect is not obtained through change in the general circulation, so that this explanation for its selective effect in cardiac dropsy falls away.

The subject was in this unsatisfactory condition when Cohnstein²² undertook its investigation. He experimented on rabbits, by the hypodermic injection of solutions of calomel in hyposulphites of sodium, and of silver and platinum. A very moderate diuresis occurred with small doses, but this failed to set in if the animals were deeply chloralized. (It will be recalled that caffeine gives a good diuresis under these conditions.) This result brought him to the conclusion that the calomel diuresis is caused by a vasomotor action, originating in the medulla.

The question seems to have been abandoned until Vejux-Tyrode and Nelson²³ in 1903 repeated Cohnstein's work, with very different results. They attribute the difference to the hyposulphite used by Cohnstein. The experimental data in the paper are so scanty that it is not possible to form an independent opinion as to whether this is the most likely explanation or whether the dosage and other conditions could not have influenced the result. They employed the caseinate of mercury; intravenous injections sometimes gave a slight and very short diuresis, but more often none. Subcutaneous administration was more often successful; deep anesthesia did not alter the result, as claimed by Cohnstein. When an artificial ascites was produced by the injection of saline solution into the peritoneal cavity the calomel often caused a greater diuresis.

They arrive at the conclusion that the mechanism of

14. Rutschhaupt: Pfäfiger's Archiv, 1902, vol. xci, p. 558.
15. Kobert cites a compilation of the literature by Weichselbaum, *Centrif. f. Pathol.*, 1891, No. 1.

16. Jendrassik: *Deut. Arch. klin. Med.*, 1886, vol. xxxviii, p. 499.
17. Jendrassik: *Ibid.*, 1891, vol. xlvii, p. 226.

18. H. C. Wood: *Therapeutics*, 11th ed., 1902, p. 670.

19. M. Cohn: *Dissertation*, Berlin, 1887.

20. Henck: *Dissertation*, Heidelberg, 1889.

21. W. Schild: *Dissertation*, Halle, 1892.

22. Cohnstein: *Arch. f. Exp. Path. u. Pharm.*, vol. xxx, p. 126, 1892.

23. M. Vejux-Tyrode and Nelson: *Jour. Med. Res.*, 1903, vol. x, p. 132.

the calomel diuresis is too complicated to be explained by the known data—a conclusion in which we must concur, unsatisfactory as it is.

SERIES OF BENZOL DERIVATIVES.

We are probably safe in assuming that all coal tar products are capable of producing nephritis. This has been demonstrated in the case of phenol, cresol, creosote, salicylates, salol, resorcin, pyrogallol, anilin and the dyes (methylene blue), picric acid, antipyrin and saccharin; and doubtless of many others. With the greater number, albuminuria occurs only with very large doses, quite beyond the therapeutic limits. Smaller doses cause a diuresis without albumin. It may be doubted whether the coal tar products, in therapeutic doses, need be counted among the possible nephritic poisons; but some suspicion is justified. Acutely toxic amounts produce a diminished and albuminous urine, with casts, and often with blood or hemoglobin and methemoglobin. The anatomic findings consist in a profound degeneration of the tubular epithelium. This is well illustrated by Hesselbach.²⁴ The changes become interstitial in chronic poisoning.

VOLATILE OILS.

There can be no doubt that all essential oils and the substances containing them, may irritate the kidneys, in part directly in the course of their excretion and, in part also, by producing a hyperemia of the pelvic viscera. All these substances are diuretic in therapeutic doses, and the diuresis is attributed to their irritant action. Even these doses must therefore be regarded with suspicion, especially in acute nephritis. Larger doses result in diminished and albuminous urine. This has been observed in the case of turpentine, juniper, cubeb and thymol. Savin, and probably the other ebolic oils, produce in addition a hemorrhagic condition.

DIGITALIS GROUP.

All the members of this group (the digitalis principles, strophanthus and squills) in therapeutic doses, cause a diuresis, especially in cardiac disease. LeNoir and Camus²⁵ have shown that the main effect is on the water and chlorids, that the action appears on the day following the administration and persists for some time. Overdoses, on the other hand, diminish the urine and render it albuminous and often bloody.

In view of the known irritant action of these drugs, their effect on the urine has also been referred to a varying degree of irritation of the renal cells. This has never been proved, and it seems more likely that the effects are mainly secondary to the circulatory changes; the diuresis to an improvement of the renal circulation and to the hydremia following the absorption of edemas; the anuria from overdoses being referred to tetanic contracture of the renal arterioles. It remains to investigate whether the ordinary doses are at all irritant in nephritis.

CANTHARIDIN.

This poison is one of the most powerful and one of the most selective of the renal irritants, a fact which makes it especially interesting to the pharmacologist, and especially useful for experimental purposes.

Richter and Roth³ have shown that even a moderate degree of cantharidin nephritis prevents the compensating action of the remaining kidney when the other has been excised and that it lessens the excretion of organic metabolites, and therefore raises the molecular

concentration of the blood. Hellin and Spiro² also show that it prevents caffeine and phlorrhizin diuresis completely. Cantharis should always be avoided in renal disease, at least until further investigations have been made. Its therapeutic indications are, however, so limited that the occasion for its use in nephritis rarely arises. The anatomic lesions produced by cantharidin have been quite thoroughly investigated. The earlier literature (from 1880 to 1882) is quoted by Mürset.²⁶ This has been confirmed in every point by Hellin and Spiro and Richter and Róth: Small doses act entirely on the glomeruli, which are enormously dilated; numerous leucocytes are found in Bowman's capsule. The urine becomes albuminous within half an hour after subcutaneous injection. The smallest doses increase its amount, while larger doses diminish it. The epithelium of the convoluted tubules is only affected by larger doses, and rather late in the course of the poisoning. The interstitial tissue escapes entirely in the acute intoxication, and is but slightly changed even in the subacute form.

ALOIN.

This has also a purely experimental importance. Cushny states, without citation of his source, that it does not irritate the kidneys in man, nor in the dog or cat. The anatomic lesions in rabbits have been investigated especially by Mürset;²⁶ they are practically the same in acute and chronic poisoning, and consist mainly in degeneration of the epithelium of the convoluted tubules. This loses its striations and staining qualities, and the nuclei disappear. The glomerular epithelium is but slightly altered, and the glomerular vessels show no lesions. These observations are confirmed by Hellin and Spiro.² The urine may be increased or diminished and contains proteids, leucocytes, casts, crystals and blood.

PHLORRHIZIN.

The importance of this glucosid is also mainly experimental, but it has some practical significance from its use as a diagnostic test of kidney insufficiency. Its administration leads to glycosuria and diuresis. There can be no doubt that the glycosuria is of renal origin; there are as yet, however, no facts to show what influence its renal action has on the course of nephritis.

Of the anthelmintics, both santonin and male fern are capable of producing parenchymatous nephritis: santonin also causes hematuria.

CATHARTIC PRINCIPLES.

The irritant cathartics may be supposed to act on the kidneys directly by their irritant action, and indirectly by the pelvic hyperemia. The cathartic resins have sometimes given rise to nephritic phenomena. I have found no reports of nephritis from rhubarb, senna, cascara, and other emodin containing drugs. From their relation to aloin, they are open to suspicion. I have also failed to find reports of renal irritation from croton oil.

ALCOHOL.

The irritant effects of large doses of alcohol on the kidney are too well known to require discussion. They rarely lead to an acute albuminuria in healthy subjects, but even moderate doses may occasionally be unfavorable in an existing nephritis. The fatty degeneration and cirrhosis which chronic alcoholism produces in the kidneys need not be considered in this place.

²⁴. Hesselbach in Kobert's Lehrbuch, p. 230.

²⁵. Le Noir and Camus: Jour. de Physiol., 1903, vol. v. p. 117.

²⁶. Mürset: Arch. f. Exp. Path. und Pharm., 1885, vol. xix, p. 310.

CHLOROFORM AND ETHER.

These drugs have a peculiar importance, since their administration as anesthetics is often urgently indicated during the course of nephritis. There can be no doubt that overdoses produce acute parenchymatous nephritis and that even the amounts which are required in the course of a short operation may be very distinctly unfavorable to nephritic patients. There are innumerable observations bearing on this point, but very few possess the required degree of scientific accuracy. The urine is rarely examined for a sufficient period before and after the operation, and even the proteid estimation is usually not quantitative, or is made by inaccurate clinical methods. We are therefore unable to estimate the dangers of an ordinary anesthesia. (The recent studies of Munro²⁷ seem to indicate that they have been exaggerated). Nor is it possible to give a decisive opinion as to the relative danger of chloroform and ether. This would seem to be an urgent problem for clinical experimental investigation.

Chronic chloroform poisoning leads to the same changes as chronic alcoholism. The other inhalation anesthetics, as also the hydrocarbon hypnotics (chloral, urethane, hedonal, etc.), may be supposed to produce analogous effects, although there has not been opportunity for actual observations with all of these drugs. Sulfonyl is especially apt to cause nephritis, with extensive necrosis of the tubular epithelium.

IODOFORM AND UROTROPIN.

Iodoform is also capable of producing albuminuria and hematuria. Even its local use on large open surfaces has been known to produce these phenomena of renal irritation.

Urotropin is another substance which has caused nephritis through changes in the tubular epithelium. The urine is apt to contain blood cells as well as the serum proteids. Formaldehyd would probably produce similar effects.

ALKALOIDS.

The majority of alkaloids are so slightly irritant and are used in doses so small that there can be little question of nephritic action. The albuminurias which are seen late in the course of the various drug habits are doubtless secondary phenomena, and not due to direct irritation. The only alkaloids which could be suspected of acting directly on the kidney are those which are markedly irritant, like veratrin, or which are given in very large doses, as quinin. There seem to be no reliable observations on the renal effects of veratrin. The data as to quinin are also scanty. According to Kobert, instances of hemoglobinuria and persistent albuminuria have been observed after large doses of this drug. The caffeine group (including caffeine, theobromin and theophyllin) occupies a peculiar position among the diuretics, in that these drugs appear to stimulate the renal epithelium without any of the usual phenomena of irritation. Although the investigations into the mechanism of their action are not closed, the known facts are all in favor of the view that the diuresis results from a direct stimulation of the cells, mainly or solely those of the convoluted tubules and that any action which they may have on the general and renal circulation is inconstant, and therefore of secondary importance. The evidence is equally clear that they do not irritate the kidneys.

Pouchet and Chevalier²⁸ have indeed made the statement that theocin (theophyllin) in large doses injures the epithelium of the convoluted tubules and glomeruli. This, however, relates merely to theocin, and needs confirmation. The only other fact in favor of an injurious action is that caffeine, like all other diuretics, breaks down the chlorid-regulating mechanism in rabbits. Even this phenomenon is absent in dogs and in man.²⁹

The changes which caffeine produce in the urine have been extensively studied. It increases not only the excretion of water, but also that of all the solids, and particularly of urea; the percentage of the latter remaining practically unchanged, notwithstanding the diuresis.³⁰ Caffein or theobromin would, therefore, seem especially to be indicated to secure the excretion of metabolites when this is deficient in nephritis. The only danger would lie in the increased work which they must necessarily put on the kidneys. The observations of Emerson⁴ and of Sollmann and McComb⁵ show that the percentage of albumin is not increased, and that, therefore, no injury was caused in these cases. On the other hand, the usefulness of these drugs is lessened by the fact that they can not act if the tubular epithelium is greatly changed² and their action does not seem to be sustained well on continuous administration.²⁵

OTHER PURIN BODIES.

Clinical observations seem to indicate that other purin bodies—such as are formed in the course of metabolism, or which exist in the extractives of meat—do not share the harmlessness of caffeine. The experimental data are still too scanty to make their discussion profitable.

NEUTRAL SALTS OF ALKALIES.

The chlorid and acetate of sodium or potassium, as also glucose and urea, secure a diuresis, in which the absolute amount of metabolites and salts is increased, while their concentrations in the urine is diminished—excepting the salt which has been administered. Similar results are secured by drinking water copiously. The mechanism of this action is not yet completely elucidated, but I incline to the opinion that the diuresis is mainly the result of physical causes, such as the increased quantity and the dilution of the blood, changes in its molecular concentration, and the different resorbability of the various ions. It would take us too far to enter deeply into this subject; but I believe that we may assume that the vital stimulation plays but a subordinate rôle in the process, and that irritation does not occur at all under ordinary conditions. Much interest has been aroused recently by the statement—made especially by French clinicians—that the withholding of sodium chlorid results often in the disappearance of nephritic edema. It would seem that this requires further confirmation and study. It is quite conceivable that this supposed deleterious action of salt does not depend on its direct action on the kidney, but that the withdrawal of the salt leads indirectly to the absorption of the effusions since they can not exist in the absence of salt. Were this the case, the result of salt-withdrawal would be mainly symptomatic. The experiments of Castaigne and Rathery¹ seem to indicate, however, that salts may have an irritant action. The entire subject demands further investigation. In the meantime there can be little doubt that these diuretics may be extremely

28. Pouchet and Chevalier: Quoted from *Biochem. Centbl.* 1903, vol. 31, p. 174.

29. H. D. Haslkins: *Amer. Jour. Physiol.*, 1904, vol. x, p. 362.

30. Anten: *Arch. Internat. d. Pharmacodyn.*, 1901, vol. viii, p. 455.

27. J. C. Munro: Quoted in *THE JOURNAL A. M. A.*, 1903, vol. xiii, p. 176.

useful by removing metabolic poisons. Their efficiency in the removal of poisons introduced from without has been abundantly confirmed, and they must have a similar usefulness for removing toxic substances produced within the body. It is almost superfluous to emphasize that substances which are themselves toxic (such as lithium or potassium) should not be administered in nephritis; so that the choice is practically restricted to sodium chlorid and acetate. The useful eliminative effect of the former was shown very strikingly in experiments on the salt-poor milk diet of typhoid fever.³¹ The salts incidentally cause an increased formation of metabolites, but this is more than counterbalanced by their increased excretion.

IONS WITH SPECIFIC ACTIONS.

A few ions have specific actions and must be considered separately:

Nitrates.—It has always been held that potassium nitrate is especially diuretic, and that the greater diuresis is based on a specific irritation of the renal cells. This opinion needs further proof. The evidence of deleterious action is more positive in the case of acids, large doses of which have given rise to albumin, and even to blood in the urine.

Chlorates.—These are also strong irritants, the urine becoming charged with casts, hemoglobin and methemoglobin. It is not known how far this action is direct and how much is due to the changes in the blood.

Oxalates.—The oxalates occupy a peculiar position. They form insoluble crystals in the course of their excretion, and these block up the renal tubules of the cortex. They also have a direct irritant action on the epithelium,²⁷ producing a vacuolar degeneration in the convoluted tubules. The glomeruli are but little affected. The stroma shows a slight focal round-cell infiltration. The urine becomes diminished in amount and contains a small amount of proteid, some renal epithelium and casts, and quantities of crystals of oxalate. The nephritic changes seem to occur only with very large doses, and it is doubtful whether they have any therapeutic importance.

Fluorids.—These have been but little studied. J. B. MacCallum³² has recently shown that the injection of calcium salts causes serious interference with the secretion of urine. But it is questionable whether this ion can be absorbed sufficiently to produce this action from the alimentary canal.

THE ETIOLOGY AND PATHOLOGY OF GOUT.*

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THE ETIOLOGY OF GOUT.

In a consideration of the etiology of gout we must group the causative factors under two headings—(1) the predisposing etiologic factors, and (2) the actual disturbances of metabolism causing the disease.

During the fifteen years since the opening of the Johns Hopkins Hospital, from May 15, 1889, to May 15, 1904, there have been 54 cases of gout admitted to Dr. Osler's wards. These were out of a total of 17,100 medical admissions, or 0.31 per cent. Occasional reference to

these cases will be made in the following discussion of the etiology and pathology of the disease.

I. THE PREDISPOSING ETIOLOGIC FACTORS.

(a) *Heredity.*—There is no doubt but that hereditary predisposition plays a very important part. Scudamore states that out of 523 gouty patients 309, or 59 per cent., gave a history of the disease in the parents or grandparents. Garrod found that the predisposition was inherited in 50 per cent. of his hospital patients. Among his private cases, however, he believed that the tendency was inherited in 75 per cent. In our series there were only 7 cases, or 12.9 per cent., in which a definite history of gout having existed in the parents or grandparents was obtained. In addition to these, 10 patients gave a history of "rheumatism" in their ancestors. In contrast to the rich, poor patients rather resent the implication that their parents or grandparents had gout, preferring to call the arthritic manifestations rheumatism. Fifty of our 54 cases belonged to the poorer classes and were admitted to the public wards, only 4 patients being treated in the private ward. There is a strong probability that in most, if not all, of the 10 cases giving a history of "rheumatism" in the ancestors, the arthritic disease was actually gout. Putting the most liberal interpretation on these cases and considering them all instances of gout, it would make a total of 17 cases with gouty ancestors, or only 31 per cent. It would appear, therefore, judging from this series, that gout in this country in the majority of cases is acquired or "freehold" and not inherited or "copyhold." to use the classification of old Sir William Browne. Although it is of rare occurrence, infants at the breast have been known to suffer from gout.

(b) *Age, Sex and Race.*—Gout is rare in infancy and childhood. This is illustrated by Scudamore's statistics of 515 cases. Only 4 occurred before the age of 17, the youngest being 8 years old. There were but 13 in the first two decades. When gout appears in very young individuals it is nearly always inherited. In our series the ages of the patients on first admission to the hospital, according to decades, were as follows: 1 to 10 years, no cases; 11 to 20, 2 cases; 21 to 30, 3 cases; 31 to 40, 11 cases; 41 to 50, 15 cases; 51 to 60, 15 cases; 61 to 70, 6 cases; 71 to 80, 2 cases. The largest number of cases occurred in the fifth and sixth decades, each decade having the same number of cases; that is, there were 15 cases between 41 and 50 years and the same number between 51 and 60. The youngest patient was a boy of 17 years, and the oldest a man of 76. The initial attack in the latter case occurred at the age of 48. General statistics show that the initial attack makes its appearance most frequently in the fourth decade, that is, between the ages of 30 and 40.

Males are more liable to the disease than females. Women appear to possess a relative immunity. Of 80 cases collected by a special commission of the French Academy, 78 were in males and 2 in females. In the medical wards of St. Bartholomew's Hospital there were 124 cases of gout admitted in 14 years, and, of these, 100 cases were males and 24 females. In the Johns Hopkins series there were only 2 females out of the 54. When gout occurs in the female it is nearly always inherited. In the two cases in women in our series there was a definite history of inherited gout in both instances. The relative infrequency of gout in the female is undoubtedly due in large part to the fact that they are much less liable to be exposed to the contributory etiologic factors to be mentioned later.

31. R. A. Hatcher and T. Sollmann: Amer. Jour. Physiol., 1902, vol. viii, p. 139.

32. J. B. MacCallum: Univ. Cal. Publ. Physiol., 1904, vol. i, p. 51.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Entler, Solomon Solis-Cohen and O. T. Osborne.

The disease is relatively much more frequent in the white than in the colored race. It occurred in two negroes in our series. The diagnosis which was made clinically was substantiated postmortem by finding sodium biurate deposits in the cartilages of the big toe joints, scrapings from which showed the characteristic needle-shaped crystals of sodium biurate.

(c) *Alcohol.*—Alcohol has always been considered a most potent etiologic factor in gout. In fact, it probably ranks at the head of the list in importance among the predisposing causes. Fermented liquors, such as wine, particularly port and sherry, beer, ale and porter are much more injurious than the distilled liquors—whisky, brandy, rum and gin. Some other factor must play a part other than the quantity of alcohol itself. In Scotland, where whisky is drunk, gout is very much less prevalent than in Southern England, where beer is the chief beverage. It has not been shown that the greater acidity of the fermented beverages, nor the contained sugars and saline matters are responsible for their greater potency in causing gout. The use of fermented beverages, particularly beer, appears to be the chief etiologic factor in the production of this disease in the United States as elsewhere. The lighter beers of this country are considered less potent than the heavier beers of England and Germany. Fifty-two of our 54 cases used alcohol. Concerning the other two there were no data as to their alcoholic habits. Three of the 52 cases used whisky alone. Forty-nine had been beer drinkers for years. Most of these had also used whisky in moderation or to excess. Only two gave a history of the use of wine.

(d) *Food and Exercise.*—The food undoubtedly plays a large part in the production of gout. We have long been taught that meats, and particularly the red meats, are especially to blame, and are most injurious to the gouty individual once the disease is established. This statement must be accepted with some reservation. Sydenham stated the case clearly when he said: "Great eaters are liable to gout, and of these the ostive more especially. Eating as they used to eat when in full exercise, their digestion is naturally impaired. Even in these cases, simple gluttony and the free use of food, although common incentives, by no means so frequently pave the way for gout as reckless and inordinate drinking." From the food standpoint it is the over-eating, combined with the taking of insufficient exercise, that does most harm. Neither the quality of the food nor its quantity does so much harm as the fact that it is "unearned by muscular exertion," as Ewart puts it. Gout is not confined to the rich, however. Dr. Osler says: "In England the combination of poor food, defective hygiene, and an excessive consumption of malt liquors makes 'the poor man's gout' a common affection." These were the conditions which largely prevailed in our series, as 50 of the 54 cases belonged to the laboring classes.

(e) *Effect of Lead Poisoning.*—Musgrave, Huxham and Falconer (1772) had previously called attention to the association between lead poisoning and gout, but it remained for Garrod to show the importance of lead as an etiologic factor. He found that one in four, or 25 per cent. of the gout cases that came under his care in hospital practice, had at some period of their lives been affected with lead, and for the most part had followed the occupations of plumbers or painters. Garrod's percentages have in general been confirmed by the observations of others. Of our 54 cases there were only 2 patients who presented definite evidences of lead intoxication. One was admitted for

an acute attack of lead colic. The other was a young man, aged 28, who was admitted during an attack of arthritis of the left knee, and it was found that he had a definite "blue line" at the margin of the gums. It is of interest that this patient stated that his father died of "painter's colic." Both of these cases of lead gout were in painters. It would seem that undoubted saturnine gout cases are less frequent in this country than in England. Although there were only two cases of gout where it could be positively stated that lead poisoning co-existed, yet there were in all nine patients whose occupations exposed them to possible lead infection. Six of these were painters and three were tinnners. Thus in 9, or 16.6 per cent. of the cases, lead was probably an important etiologic factor.

How lead acts in predisposing to the development of gout is still an open question. Garrod showed that the blood of patients suffering from lead poisoning contains an excess of uric acid. He pointed out that they were also especially liable to develop chronic nephritis, and drew the conclusion that the increased amount of uric acid in the blood and the frequency of gouty manifestations were caused by the lowered power of the diseased kidney to excrete uric acid. The majority of subsequent observers have supported this view. Sir Dyce Duckworth and Lancereaux both held that the lead acts injuriously through its effects produced on the nervous centers, Duckworth asserting that "this malign influence evoking such trophical changes in the entire vascular system and in the kidneys, as are prone to be produced by the morbid condition which we recognize as gout in its most comprehensive aspect."

(f) *Occupation.*—The workers in lead, painters, plumbers and tinnners, are particularly liable to the disease. Six of our series were painters and three were tinnners. There were three bartenders. The opportunity for free indulgence in malt liquors by the latter renders them especially prone to gout.

II. THE ACTUAL DISTURBANCES OF METABOLISM CAUSING GOUT.

With the possible exception of diabetes mellitus, the metabolism of no disease has so frequently been the subject of research, notwithstanding which there is still the greatest possible difference of opinion as to the actual chemical disturbances causing the disease. It seems safe to say that gout is due to defective metabolism of the nitrogenous foodstuffs ingested and of the nitrogenous products of tissue change. Defective oxidation is probably in part responsible for these metabolic disturbances.

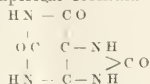
For decades, nearly all students of gout have held that the disease is due to disturbances in the formation or elimination of uric acid. In recent years evidence has been accumulating to show that the manifestations of gout are not entirely due to disturbances in uric acid metabolism, but possibly also to the toxic effects of certain closely allied nitrogenous compounds. Until further evidence is brought forward, however, we are forced to conclude that uric acid is, in large part, either directly or indirectly responsible for the gouty manifestations, and it is this organic compound which must chiefly occupy our attention in a consideration of the etiology of the disease.

(A.) URIC-ACID METABOLISM UNDER NORMAL CONDITIONS

To appreciate the metabolic disturbances in gout it is important that we should fully understand the physiology of uric acid and its closely allied compounds. Such a consideration will also enable us to familiarize our-

selves with the names of various nitrogenous compounds frequently used in gout discussions, the number of which is unfortunately being gradually added to.

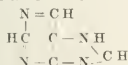
Uric acid has the empirical formula $C_5H_4N_4O_3$ and the structural formula



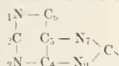
It is not necessary for our purpose to consider the various views that have been held regarding the formation of uric acid in man. To avoid prolonging the discussion unnecessarily, it is sufficient to say that the generally accepted view at the present time is that uric acid is derived from the nuclein resulting from nuclear destruction. At least four other nitrogenous compounds are known to be derived from nuclein. These are xanthin, hypoxanthin, adenin and guanin, and they constitute the so-called nuclein bases. These, with uric acid, are derived from the nuclei of the leucocytes and from the nuclei of the tissue cells throughout the body; also from the nuclear material of the ingested food. In addition to these there are several other compounds which are closely related in structure. They all contain carbon, hydrogen and nitrogen, and in most cases also oxygen. These closely related nitrogenous compounds, with their formulæ, are as follows:

- | | |
|-----------------------|-------------------|
| 1. Uric acid..... | $C_5H_4N_4O_3$ |
| 2. Xanthin..... | $C_5H_6N_4O_2$ |
| 3. Hypoxanthin..... | $C_5H_6N_4O$ |
| 4. Guanin..... | $C_5H_7N_5O$ |
| 5. Adenin..... | $C_5H_7N_5$ |
| 6. Heteroxanthin..... | $C_6H_6N_4O_2$ |
| 7. Paraxanthin..... | $C_7H_8N_4O_5$ |
| 8. Episarxin..... | $C_7H_8N_4O_5(?)$ |
| 9. Carnin..... | $C_8H_9N_5O_3$ |
| 10. Epiguanin..... | $C_8H_9N_5O$ |

These ten compounds collectively were given the name alloxuric bodies by Kossel and Krüger, whereas the last nine constitute the alloxuric bases. The term "alloxuric" was applied to them because each is made of an alloxan and a urea nucleus. Emil Fischer¹ has shown in many ways that there is a close relationship between uric acid and the various other members of this group. He has further demonstrated that it is possible to prepare a number of them synthetically, one of the most remarkable discoveries in physiologic chemistry in recent years. He finds that they are all derived from a combination $C_5H_4N_4$, called "purin," having a carbon-nitrogen nucleus, the "purin nucleus" as basis. Purin, according to Fischer, has the formula



and the different purin bodies are derived therefrom by the substitution of the various hydrogen atoms of byhydroxyl, amid or alkyl groups. In order to signify the different positions of substitution Fischer has proposed to number the nine members of the purin nucleus in the following way:

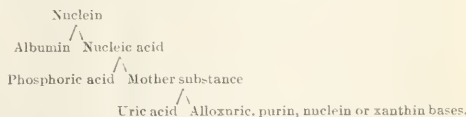


In observing the structural formula of uric acid given above it will therefore be seen that uric acid is 2, 6, 8 trioxypurin. Xanthin, accordingly, is 2, 6 dioxypurin; hypoxanthin is 6, oxypurin; adenin is 6, amidopurin, and guanin is 2 amido—6, oxypurin, etc., etc.

In order to make clear certain terms frequently used to designate the ten nitrogenous compounds tabulated above it may be said that they are collectively called the alloxuric or purin bodies; whereas, those from 2 to 10

inclusive are termed the alloxuric, purin, nuclein or xanthin bases. Hence it will be seen that the alloxuric or purin bodies comprise uric acid together with the alloxuric, purin, nuclein or xanthin bases.

The close relation between uric acid and the xanthin or nuclein bases and their common derivation from nuclein is shown by the following scheme:



Experimentally this has been clearly shown by Horbaczewski. This observer found that by adding some oxidizing substance, such as fresh blood, to spleen pulp or spleen nuclein, and then keeping the whole at a constant temperature of 45 C. for several hours, he obtained a certain amount of uric acid. If, on the other hand, no oxidizing agent were added and only heat applied, he was unable to obtain any uric acid, but secured an identical amount of nuclein or xanthin bases as indicated by the nitrogen contained in each. He believes that the uric acid is not formed from the alloxuric bases as an intermediate step, but that all alloxuric bodies are derived from the nucleins—the uric acid when cleavage precedes an oxidation, and the alloxuric bases with cleavage without oxidation.

The feeding of nuclein to man and dogs is followed by a marked increase in the excretion of uric acid. Horbaczewski, who advanced the theory that uric acid was derived mainly from the nuclein of the leucocytes, thinks that the increase in the uric acid after nuclein ingestion is not due to the nuclein directly, but to the nuclein derived from the increased number of leucocytes produced by the nuclein. An amount of proteid not containing any purin or nuclein bases but containing the identical quantity of nitrogen does not produce a similar rise in the excretion of uric acid, as has been demonstrated by Schmoll and Kaufmann.

The purin bodies from which uric acid is mainly derived come from two sources, and for this reason Burian and Schur have termed them the "endogenous" and "exogenous" purins. The "endogenous" purins are those derived from the nucleins of the body, whereas the "exogenous" purins are those introduced with the ingested food. So also we speak of "endogenous" and "exogenous" uric acid when it is derived from these respective sources. By use of a diet free from purin bodies (such as milk, eggs, butter, cheese, white bread, rice, sago and fruits) it has been possible to estimate the quantity of nuclein derivatives or purin bodies which arise solely as a result of cellular processes. The results of various investigators show that the endogenous purins excreted in the urine in twenty-four hours varies from 0.10 to 0.20 grams expressed in terms of nitrogen. The quantity of endogenous purin which appears in the urine only represents a certain percentage of the whole amount of nuclein decomposed in the body. The remainder is transformed by the liver cells and excreted as urea or as bodies intermediate between purin bases on the one hand, and uric acid and urea on the other. Allantoin constitutes one of these intermediate bodies. Of the total purin bodies of the urine, nine-tenths are present as uric acid and one-tenth as xanthin or purin bases.

According to Hammarsten we can not say anything positive in regard to the organ or organs in which uric acid is normally formed. The liberation of the purin

1. E. Fischer: Berichte d. deutsch. chem. Gesellsch., vol. xxx.

bodies from the cells in the case of the endogenous purins and the absorption from the intestinal tract in that of the exogenous purins lead to their presence in the lymph and ultimately in the blood stream. In the tissue spaces it is probable that the purin bodies are to a slight extent oxidized into uric acid, but the liver is in all likelihood the organ in which these waste products are eliminated. The purin bodies leave the liver in some form of uric-acid organic combination or as intermediate bodies between uric acid and urea. Burian and Schur have shown that the uric acid resultant from the intake of exogenous oxypurins varies from 40 to 60 per cent. of their total purin content. In the cat and dog, however, the percentages are considerably lessened, and allantoin is met with in large quantities. Allantoin results from a further decomposition of uric acid. Sir Alfred Garrod, Luff and Latham hold that the final formation of uric acid takes place in the kidneys. Zaleski after extirpating the kidneys of snakes and v. Schröder after extirpating these organs in birds have shown that there is an accumulation of uric acid in their blood and tissue. These experiments show that the kidneys of birds and snakes are not the only organs producing uric acid, and Hammarsten states that no direct proof of the formation of uric acid in the kidneys has up to the present been demonstrated.

Form in Which Uric Acid Circulates in the Blood.—There is still considerable difference of opinion as to the form in which uric acid circulates in the blood under normal conditions. Uric acid is a dibasic acid, and as such may be represented by the formula $H_2(C_5H_2N_4O_6)$. It thus has two atoms of replaceable hydrogen. According to Bence-Jones and Sir William Roberts, it forms three groups of salts and for the purpose of illustration sodium may be indicated as the replacing metal. The salts are as follows: (1) Neutral sodium urate, $Na_2C_5H_2N_4O_6$. (2) Biurates or acid sodium urate or sodium biurate, $NaHC_5H_2N_4O_6$. (3) The quadriurates in which a metal takes the place of one-fourth of the displaceable hydrogen of two molecules of uric acid loosely combined, such as $NaHC_5H_2N_4O_6$, $H_2C_5H_2N_4O_6$, the sodium quadriurate.

The neutral urates are purely laboratory compounds, and under no circumstances occur in the human economy. The biurates do not occur physiologically. It is important to remember, however, that this is the form in which uric acid is deposited about the joints and in tophi in gout. Free uncombined uric acid never occurs in the tissues or blood, either under physiologic or pathologic conditions. Sir William Roberts holds that the uric acid circulates in the blood as the loosely combined, readily soluble quadriurate and in this view he has had many supporters. The general view at present is that uric acid or its combinations cannot be demonstrated in the circulating blood of normal individuals by the methods now available, although Abeles claims to have found traces in human blood under normal conditions. The inability to demonstrate uric acid in normal blood is believed to be due to its being in loose organic combination with some other purin product which consequently prevents its precipitation by the usual reagents. Minkowski holds that the uric acid is in combination with the purin base, nucleotin-phosphoric acid, and that it is in this form that it circulates in the blood. This side of the subject still requires investigation.

Daily Excretion of Uric Acid.—The amount of uric acid eliminated in the urine daily by a healthy adult of average weight, and on a mixed diet, may be said to

range between 0.4 and 1.0 grams. Hammarsten gives 0.7 gram as the average daily excretion in the urine. It may be repeated here that of the total purin or alloxuric bodies eliminated in the urine, nine-tenths are present as uric acid and one-tenth as purin, alloxuric, xanthin or nuclein bases. The ratio of uric acid to urea varies considerably with a mixed diet, but is on an average 1 to 50 to 1 to 70. The exact form in which uric acid is eliminated in the urine has not been definitely ascertained, but Bunge and later Rüdel suggested that it is here also excreted in loose combination with some other organic substance. They hold that this combination is easily broken up and the uric acid is then set free. It may then either remain free or enter into combination with the sodium, potassium or ammonium contained in the urine.

(To be continued.)

EDITOR'S NOTE: The remainder of the paper of Dr. Fletcher will appear next week with the paper of Dr. Hutchinson and the discussion.

THE RATIONAL APPLICATION AND VALUE OF SPECIFIC TREATMENT FOR TUBERCULOSIS.*

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Tuberculin and antitoxic serum are, strictly speaking, the only real specifics related to tuberculosis. I shall, therefore, restrict my observations to these and endeavor to present some thoughts on their rational use, limitations and value in the light of our present knowledge of their effects. I must state at the outset that my personal experience with these methods is for the most part confined to laboratory and experimental observations. Whatever may be thought by some of the value of such observations, it must be remembered that man has not been found an exception among animals in the application of the general principles worked out by animal experimentation.

In order to formulate some ideas about the propriety of employing tuberculin as a treatment, one should first consent to an unprejudiced investigation of its utility and danger. Ignorant haste, both in its use and condemnation, characterizes the history of tuberculin treatment, for it is only since the problems of immunity in general have been successfully studied that we have had other than empirical ideas about its action. Even now the local reaction is not fully explained, though this was recognized from the first as most peculiar, and to it Koch attributed its healing properties. More recently the immunization of the patient has been an object in view in addition to the healing of ulcerations, both of which have proved to be possible by experimental investigation. The principles involved in this immunization are the same as those now known and used for many other purposes where the injection of a foreign substance excites the tissues or cells of an animal to produce a specific antagonism to it. In the case of tuberculin it is now known that this acquired antagonism or tolerance may be expressed by the production of an agglutinating or coagulating substance in the serum which acts on the bacilli by clumping them or on solutions of tuberculin by forming a precipitate. In this way an explanation

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Sells-Cohen and O. T. Osborne.

is given of the gradual diminution of the local and general reaction when tolerance is acquired to tuberculin by all the tissues, for we may understand that it becomes bound or combined before reaching the general circulation or periphery of the tubercles where the cells appear to be especially sensitive to its presence.

In fact, v. Behring's¹ recently expressed opinion as to the cause of the local reaction is in line with this explanation. He thinks that the smallest blood vessels around the tubercles secrete coagulating or agglutinating antibodies, which act on the soluble substances derived from the tubercle bacilli. Thus there follows the intravascular coagulation, capillary engorgement and extravasation of red and white blood cells which characterize a typical local tuberculin reaction. This theory is the more plausible because quite marked febrile reaction may occur in tuberculous subjects from other causes without typical local congestion about the periphery of the tubercles, such as are produced by tuberculin. This I believe to be an important distinction between true tubercula reactions and those so-called reactions produced by other substances. The independence of a fever reaction from a local one is thus possible in so far as that fever may occur without the usual signs of hyperemia about tuberculous foci, though the reverse is not generally true. It is well known that under certain conditions a hyperemia produced intermittently about tuberculous and other ulcerations favors cicatrization. Whether or not mild temperature or local reactions are necessary, they seem to hasten the healing according to most observations. We therefore have two possible ends of importance attainable by tuberculin. We may succeed in fortifying the patient artificially against the specific poison and at the same time under this stimulus aid in healing an otherwise sluggish tuberculous ulcer.

During the process of immunization against tuberculin a certain degree of immunity is obtained against the disease, but after the injections have reached a maximum dose, beyond which there is no local reaction and no increase of agglutinative power in the blood, it is useless and generally harmful to proceed further. This biologic law of maximum cell stimulation is a more or less general one, and it has been found that two or three months is the period within which this occurs. This is confirmed by clinical experience with tuberculin treatment. It is decidedly more rational to give several courses of treatment, with intervals, as recommended by Petruschky,² should one not be sufficient for healing. Experience has shown that a high agglutinating power in the blood is generally coincident with heightened resistance to the disease, but not invariably so, and, after the cessation of the injections, the specific resistance both to the poison and to the disease is gradually lost. The condition of the individual undergoing an immunization against tuberculin should obviously be such that his cells are not already overburdened by the effects of the disease, for to add to this would simply mean more poisoning, an irrational and inexcusable thing. This fact precludes the safe treatment of most of the advanced and progressive cases of pulmonary tuberculosis, though not necessarily excluding certain chronic cases in good nutritive condition.

During a tuberculin reaction, and for a time afterward, the so-called serum complement is found to increase, and leucocytosis also is present. Their exact relation to tuberculosis may be regarded by analogy as favorable, though not understood in many respects.

Concerning the danger that the bacilli may be scattered during the local reaction, much has been asserted, but little proved. In fact, except when first given in doses that were reckless in the extreme and to patients with progressive disease, I know of no reliable evidence that this result actually occurs. Even the oft-quoted opinion of the late Professor Virchow during the first tuberculin craze was said to have been greatly modified by its author in later years. The isolated instances in which the disease is alleged to have been lighted up into activity by tuberculin, used either for diagnosis or for treatment, always lack complete proof that these relapses would not have occurred without tuberculin. The question is thus reduced to a matter of opinion. Nevertheless, it must be remembered that the conditions are such during a violent local tuberculin reaction as to favor the scattering of tubercle bacilli, because the blood and lymph streams are then much more active about the tubercles. It would seem reasonable that considerable danger of spreading the infection with the formation of few foci would exist at such times. The experimental evidence and the clinical experience of those who have had most opportunity to form unbiased opinions are, however, decidedly against this view. Moreover, it would seem that even if bacilli were set free by the reaction they must quickly die and disappear without producing new foci of disease. Otherwise a prolonged fever reaction and other indications of fresh disease would be common. The actual effect of tuberculin in suitable cases is distinctly favorable, judging from the absence of fever after the reaction, lessened expectoration, and cicatrization of ulcers.

Having mentioned the chief points concerning the physiologic action and dangers from the use of tuberculin, we may be able to form some rules for its clinical application. It should be evident at once that all forms of acute tuberculosis are to be excluded from this treatment both on account of the danger of increasing the load for the already poisoned cells, and of the possible extension of the disease either from the increased inflammation or from the decreased resistance. For similar reasons patients with extensive or advanced lesions complicated with other infections, renal or intestinal disease, are to be excluded. There would then remain as suitable for treatment only early, localized, apyretic cases, with some arrested or quiescent ones of longer standing which have good nutrition. Some more advanced or chronic cases which still have good resisting powers have been very successfully treated by tuberculin in spite of some fever. As a rule, however, it can not be recommended on rational grounds for such cases.

The form of its administration has been the subject of various modifications, but at present, with the object of immunization in view, the most rational preparation would seem to be the emulsions of the entire substance of the bacillus unaltered by heat. It must be said that these emulsions are more difficult of absorption, and may not be entirely sterile without the addition of some chemical germicide, if not heated. The various extracts of tubercle bacilli in use all produce the specific local reactions, and possibly some increased resistance to the disease, although there is reason to think that the poison is somewhat altered by heat in its preparation. It is, after all, difficult to say that one preparation has any superiority over another from clinical results thus far obtained. The dosage, intervals between the injections and careful observations of temperature and other symptoms require so much care that its use is practically confined to institutions, while the restrictions under which it seems safe

1. Deutsch. med. Woch., Sept. 24, 1903.

2. Berlin. klin. Woch., Dec. 18-25, 1899.

to give it are so many that its value is thereby considerably limited.

The active immunity or heightened specific resistance to be obtained by tuberculin, however short in duration, is an ideal object in the therapy of tuberculosis, for it might tide the patient over a sufficient time to complete the healing of an open tuberculous ulceration, which is a menace of reinfection or mixed infection so long as it remains open.

The results in simple sanatorium régime are so good in patients who are favorable from the beginning that I should question the wisdom or desirability of tuberculin treatment for a routine in such cases, although there is evidence that relapses are somewhat less common after its use. Whether this is due to any prolonged immunity is doubtful, judging from the return of tuberculin susceptibility after cessation of treatment. I am more inclined to the idea that the cicatrix may be somewhat stronger after tuberculin.

When a patient fails to recover under the usual hygienic-dietetic treatment after a reasonable time—for example, in six months or a year, according to the amount of ulceration—there is great danger that the disease will be chronic in spite of otherwise favorable factors, such as a normal, or practically normal, temperature and general health. I think physicians who have much experience in health resorts and sanatoriums recognize what may be described as arrested and uncompleted cases, whose physical signs do not indicate extensive ulceration, yet continue to have expectoration with bacilli as practically their only symptom. It is in these cases that the use of tuberculin seems to me most rational and safe. They have much to gain if the ulcer can be healed, and, if one may judge from the statistics that have gradually been accumulating, more persons may be healed with its aid than without it.

It is not too much to hope that the future may bring us further improvement in the application of an immunizing therapy for tuberculosis.

In many papers that have appeared in this country the terms "tuberculin" and "serum" treatment seem to mean one and the same thing to the writers. Since antitoxic serum is generally intended in "serum" treatment, it should be so stated. When serum is assumed to have active immunizing properties, of course the synonymous meaning given would be correct.

Antitoxic serums for tuberculosis were much vaunted several years ago, and the good effects obtained in this treatment were ascribed to the direct neutralization of the tuberculous poisons. Some experimental evidence was produced which led to this belief, but it rested solely on the fact that a minimum reacting dose of tuberculin could be inhibited by serum from an animal immunized against tuberculin in its various forms. No clinical proof of such effects in lowering a pure tuberculous fever has been given that is at all satisfactory nor does experiment indicate that serums neutralize the poisonous effects of the disease in the animal. A possible explanation of the antagonism to tuberculin when an anti-tuberculous serum is mixed with it before the injection is that a precipitation may take place which prevents the absorption of the tuberculin. This has been demonstrated to be possible in some of my own experiments, but by no means constitutes proof of antitoxic power comparable to that of diphtheria antitoxin. On the whole, one is led to think that the good results reported in sero-therapy for tuberculosis are due neither to a direct nor indirect antitoxic power. Indirect production of antitoxin implies a specific stimulus from the serum acting on the cells of the

patient under treatment; in other words, either tuberculin in the serum or a hypothetical bactericidal power, neither of which is thus far proved. If there is any other manifestation of antitoxic activity that does not exhibit itself by reducing the temperature, I am confident that it must be very weak. A critical estimate of the clinical results of anti-tuberculous serum treatment produces the impression that the favorable results may be accounted for by the non-specific stimulus given to the tissues, which may aid nutrition. Moreover, two reasons appear to me obstacles to any successful serum therapy in tuberculosis: First, the difficulty of its reaching the seat of the poison, which is in the bacillus itself, lodged in caseated tubercles, and for the most part exerting its effects locally. Second, the serum injections excite antibodies against themselves when repeatedly administered even in small amounts, as will any serum alien to the animal injected.

While we ought to be alert for any addition to the therapy of tuberculosis, it is too often forgotten that the maintenance of a high nutritive condition in the patient is a prerequisite for their usefulness, and in the final analysis most of the benefit derived from them will depend on this factor.

DISCUSSION.

DR. V. Y. BOWDITCH, Boston, said that when tuberculin first appeared he used it in several cases, including cutaneous and pulmonary tuberculosis. The results were *nil*. He then decided to wait for further instruction from Koch before experimenting further, but, yielding to the opinion of those whose judgment he respects, he has used it several times at the Sharon and the Rutland sanatoria, but never in private practice. He has always felt uncertain as to the results. In most of these cases he has used it where he had a suspicion of tuberculosis in order to confirm the diagnosis, chiefly to satisfy the "doubting Thomases" who would perhaps challenge the results. He had two cases in which 10 mg. failed to give any reaction, but in which blood spitting occurred later, whether due to the use of tuberculin or not he was unable to say. In other cases there was no reaction to 10 mg., yet tubercle bacilli were found in sputum ejected just before the injection was given. He has had one or two cases that have seemed to make a decided improvement after a diagnostic dose was given, but whether this improvement was *post hoc* or *propter hoc* it would be impossible to say; he regards it simply as a coincidence. As to the number of relapses in cases where the disease has become arrested, he forms his opinion largely on what Dr. Trudeau said to him at one time, that the number of patients who relapsed after the use of tuberculin is slightly less than in those in whom it had not been used. If there had been any decided effect from its use, it seems that the number of the former should be very much less in order to carry much weight. Dr. Bowditch agrees with Dr. Baldwin in regard to the necessity of carrying on these clinical observations in institutions. There seems to be much uncertainty about the observations made by physicians in this matter, especially in dispensary practice. Patients who have gone away and come back with a history of headache, malaise, etc., after the use of tuberculin have been recorded as having had a reaction, a conclusion which seems quite unwarranted and not scientific. In reports of cases which have been using certain vaunted methods of treatment it frequently happens that the value of improved hygienic surroundings alone has been scarcely taken into account. In his opinion no special method of treatment can be fairly tried until after hygienic methods have been fully tested first and found wanting. Dr. Bowditch said he had only used one serum, and in that case the results were absolutely negative. He could not see what good it would do to give patients hypodermic doses of tuberculin before they leave an institution to see that they do not react, because specific resistance to the tuberculin has, after a time, become weakened or lost.

Dr. J. W. Foss, Phoenix, Ariz., stated that he had had considerable experience with advanced cases of pulmonary infection which had been considered hopeless. In this class of cases there is usually a mixed infection. In the cases showing streptococci infection in the lungs he has used streptolytic serum for the past two years with most satisfactory results. One of his earliest cases was a physician whose case was considered absolutely hopeless. He had a well-marked mixed infection of the lungs, consisting of streptococci pyogenes, staphylococci, tubercle bacilli and pneumococci. He was given the serum and in three months had gained 28 pounds. This was over two years ago. He is still living and attending to his duties as railroad surgeon, and considers himself well. It is the opinion of Dr. Foss that this treatment is very valuable in a large percentage of cases in mixed infection of the lungs which have hitherto been looked on as hopeless. In his examination he always looks for the streptococcus pyogenes, and if his patient is not doing well he uses this treatment. He has observed that when there is a persistent excess of amorphous urates in the urine that the case usually terminates fatally. He has had cases of well-marked mixed infection showing a rapid progress of the disease in the lungs. After giving the serum, expectoration and cough entirely ceased within a few months. He usually gives 20 c.c. at the first dose, followed by 10 c.c. daily, injected subcutaneously in the back or abdomen, never in the limbs. His cases have required from 140 to 320 c.c. of the serum. All cases have a reaction more or less severe, consisting of urticaria, edema, pain in the joints and a small percentage of the cases have had cyanosis. He has never had any serious results from the use of the serum.

Dr. EDWARD O. OTIS, Boston, asked Dr. Foss if he referred to the use of antistreptococcal serum in these cases of mixed infection, and if he made any difference between the treatment of those with streptococci and those with both streptococci and staphylococci, and whether he does not find both of these organisms in the advanced cases along with tubercle bacillus. Dr. Otis said that he had had but little experience with antistreptococcal serum, and then with no results, but he has used tuberculin in over 150 cases for purposes of diagnosis, without any bad results. After remarking that pulmonary tuberculosis was treated either principally by drugs, by a combined drug and outdoor treatment, principally outdoor, and by treatment with the various antitubercle sera, he said that by the latter alone we have not as yet been able to eliminate or obtain immunity from the bacilli. He thinks that for the present the best treatment is the hygienic and dietetic treatment, with very few drugs. His own experience leads him to place very little confidence in any drug whatever. He has used large amounts of creosote, for example, and is convinced that it has very little effect except possibly on the digestive organs. The results are best when we rely on the dietetic and hygienic treatment. When such good results are obtained by it as we find at Rutland, we should be encouraged, especially as the climate of Rutland, Mass., is not an especially good one.

Dr. R. C. NEWTON, Montclair, N. J., called attention to work done by the New York Board of Health. Dr. Herrold of this board, guided by the fact that the antitoxic serum from horses that have been immunized from diphtheria will cure diphtheria, concluded that horses that had been immunized by injections of cultures of the toxins derived from cases of tuberculosis and mixed infections, would furnish a serum that could be used against human tuberculosis. The experiments with this serum have thus far given promising results. One case is now practically well and another case is doing very well. The cases are, so far, too few from which to draw any positive conclusions. Dr. Herrold's idea is that it is the effect of the mixed poisons, and not that of the tubercular infection alone that is to be overcome by the serum, and that every tubercular patient should receive the serum in repeated injections from a healthy immunized horse. He gets the horse to the point where it will no longer react, and then he begins injecting the serum into the patient. Dr. Newton said that we are in duty bound to thoroughly test any plan of treatment which may by

any possibility prove to be valuable in the treatment of this disease.

Dr. JOHN H. LOWMAN, Cleveland, said that those who have reported the best results from tuberculin are those who have used it in the very smallest doses. It is claimed that the smallest number of relapses and the highest percentage of cures are obtained in Silesia, and that he was very much interested, in making a tour of these institutions in Germany, to find that those who used the tuberculin treatment were those who had graduated in Koch's laboratory. Dr. Lowman said that the cases in Cleveland have been advanced cases. In diagnostic cases the serum treatment has been satisfactory. It has been used in bone cases, in Pott's disease, in chronic pleurisy. He has used it in several cases to detect the character of the pleurisy. He has not been able to completely satisfy himself as to the real value of this substance, even from the diagnostic standpoint.

Dr. LAWRASON BROWN, Saranac Lake, N. Y., said that, at the Adirondack Cottage Sanitarium tuberculin has been used since 1890, when Koch first announced his discovery. In all, about 160 cases have received it. One of the immediate results of tuberculin treatment is that the percentage of patients who have lost their bacilli is greater than the percentage of such in the total number of cases (1,500). The ultimate results show that the tuberculin treated cases have fewer relapses. These results may be criticised because many of the cases were carefully selected, and many who received tuberculin remained a much longer time under hygienic-dietetic treatment. At first the old tuberculin of Koch was used in selected cases, but lately the bacilli have been used in emulsion containing the entire substance of the pulverized tubercle bacilli. The whole question of secondary infection is one much involved at present. It is difficult to determine from the sputum whether or not secondary infection is present.

Dr. J. H. ELLIOTT, Gravenhurst, Canada, stated that in his sanitarium experience most of the cases admitted have been advanced cases, and for this reason he has not used tuberculin for diagnostic purposes, because the diagnosis has been only too evident. In one or two cases lately, however, it has been used and with good results. He has afterward found tubercle bacilli in the sputum of some patients, and has wondered whether or not the appearance of the tubercle bacilli might have been the result of the tuberculin injection. But as they disappeared in a short time under treatment, the patients were not injured by it. All who are engaged in sanitarium work find a class of cases where after marked improvement the patient remains stationary. The bacilli remain and the case does not further improve. He has used the antistreptococcal serum in a small number of cases with sufficient results to encourage its further use. The examination of the sputum in this respect seems rather faulty. A streptococcus serum is used, but we can not say whether or not the serum is from the same variety of streptococcus as that in the patient. In some cases it has been necessary to discontinue the use of the serum on account of a rash, or severe joint pains. One case of pelvic suppuration with multiple abscesses and alarming symptoms yielded very rapidly to antistreptococcal serum injections.

Dr. J. W. Foss said in reply to Dr. Otis that he has found staphylococci in the sputum in many cases associated with streptococci. They usually disappear after treatment with the serum. It is his opinion that the improved condition of the patient after the elimination of the streptococci may be responsible for this result.

Dr. EDWARD R. BALDWIN said that at the present day we know that laboratory methods in diagnosis are somewhat overrated. For instance, Widal's test, when it was first introduced, was thought to be decisive, but now it is mixed up with paratyphoid and other diseases, and requires much laboratory experience in order to interpret the results. While the diagnosis of tuberculosis by the use of tuberculin is of great value, there is frequently some idiosyncrasy which impairs the value of the result, and the best estimate as to its value places it at about 75 per cent. There are also a certain number of cases which will not react. If persons react to minute doses of tu-

tuberculin, it is probable, in more than 75 per cent. of cases, that they have tuberculosis in some part of their body. Such large doses as were given by Koch's directions (up to 10 mgr.) are rarely required in the diagnosis of pulmonary tuberculosis. Dr. Baldwin thinks that the whole condition of the patient should be taken into consideration in the matter of diagnosis. If tuberculin is given it should only be in the most minute dosage. It should not be given on any consideration to a patient whose temperature at night is 99.5 nor to one who has not been under observation for some weeks. Therefore its field in diagnosis is very narrow. It is a very unpleasant experience to have a bad result attributed to the use of tuberculin. The best method, in his opinion, is the diagnosis by exclusion. He is quite certain that the tuberculin reaction can be obtained in healed tuberculosis except in those cases where the tubercles are wholly fibrous or calcified. In other words, in the greater number of persons who have had tuberculosis, this reaction may be obtained. He mentioned a patient who took tuberculin as a treatment until he no longer reacted to large doses, and was healed. That was six years ago. Recently tuberculin was again administered and a reaction occurred. Therefore, in Dr. Baldwin's opinion absence of reaction is no sign of a cure, because the susceptibility gradually returns. He has known unfavorable symptoms to occur after treatment with antidiphtheritic serum, antitetanic serum, and other kinds. These symptoms are very alarming and are liable to deter a physician from any kind of serum treatment. They may be explained on the ground that they are due to thrombosis in the minute capillary vessels and not to any specific ingredients in the serums. Dr. Baldwin agreed with Dr. Lowman that there is a great deal of what might be called the personal element with regard to the tuberculin treatment in Germany. Professor Koch has a great many critics and a great many enemies in his own country. The Berlin and Vienna schools are not always harmonious. We can not but admire the absolute thoroughness with which the Germans do their work; but we can not admire the personalities they indulge in, which are condemned by the scientific world, in Germany and in this country alike. With regard to the Adirondack Sanitarium cases and the results from tuberculin treatment, they can be criticised on account of the early character of the cases. Of course it would be of more convincing value if tuberculin should not be used in the treatment of pulmonary tuberculosis, until other methods have been given a fair trial.

INJURIES TO THE RECTUM CAUSED BY GYNECOLOGIC EXAMINATIONS.*

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Unfortunately, all risk to our patients is not incurred solely in the course of our aggressive modern methods of operating, as experience shows that the preliminary examination itself may even be a source of danger. The injury done by a gynecologic examination may fall on the structure which is being examined, or on the enveloping structures which constitute the wall of separation between the object and the examining fingers, occasioned by the effort on the part of the examiner to overcome the resistance offered by the barrier to palpation and the sense of touch.

The injury thus incurred may be due either to the delicate nature of the tissues examined, rendering them liable to damage from the slightest violence, or to an unduly rough examination such as we too often witness, or to both of these factors combined. The examiner may in this way rupture, intra-abdominally, a thin-walled papillary ovarian cyst, and so become respon-

sible for the dissemination of its contents over the previously sound peritoneum. He may rupture, as I have seen done, a vascular cystic sarcoma of the ovary in which the malignant elements had hitherto remained confined within the cyst walls.

I have seen an extrauterine pregnancy ruptured by an examination, and I have heard of one ruptured in this way, from which the patient died. Pelvic abscesses, too, are not infrequently spread abroad by unwise handling in the effort to make an accurate diagnosis; operators of large experience in diseases of the vermiform appendix have observed the disappearance of a well-defined collection of pus immediately after an unduly zealous palpation. In the hospital in which I was a resident twenty-two years ago, one of the attending physicians ruptured a liver abscess in this way, and distributed its contents through the abdomen, with a fatal result.

Lesser injuries, such as the rupture of the thin-walled large graafian cystic follicles, by the operator or by his assistants, in the course of an examination made just before an operation, have doubtless repeatedly been noted and verified within a few minutes at the operation by other operators as well as by myself.

These injuries, however, are all intra-abdominal and confined to collections of fluid within more or less thin-walled cysts or limiting membranes; injuries to the intervening structures, which separate the examining fingers from the object of the examination, are far less common.

The enveloping walls which are subjected to pressure in the course of a gynecologic examination are the strong musculotendinous and cutaneous walls of the abdomen, the tough musculomembranous vagina, and the more delicate musculomucosa of the rectum.

The only injuries I have ever seen sustained by the abdominal wall have been done to the capillaries, as evidenced by little effusions of blood under the skin, which subsequently pass through the characteristic color changes. I have never seen a distinct hematoma, or an abscess produced in this way. Sometimes the too long finger nails abrade the skin, and these lesions might easily become avenues of infection.

I have not yet seen any injury done the vagina by the examining fingers, although I have witnessed many cases of perforation of the uterus by a sound, and in one instance perforation and death by a dilator loaned to a physician; it is not my purpose, however, to dwell on injuries due to instrumentation.

Of all the avenues of investigation of the pelvis, it is the rectum which is the most delicate, and, I believe, the most liable to serious injury. I desire to report briefly four cases in which the coats of the bowel were actually perforated by the examining finger, which was thrust through the rectum and into the peritoneal cavity. All of these injuries have occurred in my own personal experience in my hospital practice within the past fifteen years, not in the hands of inexperienced students, but in the course of an examination made by a competent assistant, and once my own finger was responsible.

CASE 1.—Mrs. J. S., a married white woman, 52 years old, was etherized for dilatation and curettage for an excessive menstrual flow. During an examination of the pelvis by the rectum, the finger was pushed through the bowel into the abdominal cavity.

An incision was at once made posterior to the cervix in the vaginal vault, through which a vertical rent was found in the rectum 4 cm. above the cervix and 13 cm. from the vaginal ori-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

fice; this was closed with fine black silk sutures, and recovery followed without any ill effects.

CASE 2.—Mrs. E. W., a married white woman, 63 years of age, who had a cystitis. At an ether examination made in order to determine the condition of the pelvic organs, which were found normal, the finger was pushed through the rectum into Douglas' cul-de-sac. The opening into the peritoneal cavity was at once exposed by an incision in the vaginal vault back of the cervix, and repaired with fine silk sutures. An iodoform gauze drain was brought out through the vagina. Recovery followed, complicated by a fecal fistula, which closed spontaneously.

CASE 3.—Mrs. C. J., white, aged 58, had a large left ovarian cyst, widely adherent to the intestines and omentum, weighing, with the contents, 15,000 grams. During the rectal examination, which I made before the anesthetic was given, my finger was pushed through the rectum into the peritoneal cavity. As the abdomen was about to be opened and the rent was sufficiently plugged by the tumor filling the pelvis, I made the abdominal incision and removed the tumor, and so exposed the rectal tear, which was closed with fine silk sutures. There was no soiling of the peritoneum apparent, and no drainage was used. She made an uneventful recovery.

CASE 4.—Mrs. L. L., white, aged 28, suffering from excessive menstruation, was anesthetized August 25 for curettage and diagnosis. In the course of the rectal examination the index finger was pushed through in the peritoneal cavity. A piece of gauze was passed through the opening in the rectum and brought out at the anus, but as there was a manifest peritonitis coming on the next day, the abdomen was opened and the rectum closed with fine silk sutures and the pelvis drained. She made a slow recovery, leaving the hospital forty-five days later.

I think the cause of these injuries lies in the age of the patients (in three averaging about 57 years) and the weakened muscular tone of the bowel. In one it is significantly noted that the patient was very stout. In such cases not only is a greater effort made to reach the deeper seated structures in an examination, but the tissues are far more friable.

I believe the proper treatment is, in all cases, to open the peritoneum at once and carefully suture the rent from the peritoneal side. It would be better to use two layers of fine silk sutures rather than one. A washed-out iodoform gauze (Saenger) drain should be inserted through the vaginal vault. If the opening is accessible, the posterior vaginal cul-de-sac is the most convenient avenue by which to reach the tear, unless the abdomen is about to be opened, as in my case of ovarian tumor. If, however, the perineum and vagina are rigid and contracted, and the rent awkward to reach, it would be wiser to make an abdominal incision and sew it up in that way through the superior strait; in either case the operator must be skillful in sewing at a distance with long instruments. It is of the utmost importance that the sutures should be well placed, penetrating the thick coats of the bowel as far as the mucosa and securing accurate apposition. After such an operation the patient ought, as a rule, to receive no other food than albumin water for from five to seven days. The anal orifice should be thoroughly dilated, and if a rectal tube is tolerated it will serve to carry off gases and keep the parts at rest.

In order to avoid such injuries in the future, I would suggest that the rectal examination be made with the utmost gentleness, constantly bearing in mind the possibility of a rupture of the bowel, especially in stout elderly women. It is well to empty the bowel before the examination, and if the patient is then placed in the knee-breast posture and a speculum introduced, so as to secure a maximum air distension, on returning her to the dorsal position the rectum will be found expanded and holding a much wider and closer relation to the structures in the posterior pelvis.

An important point, not sufficiently emphasized, is that the examiner should avoid the natural impulse to invaginate the wall of the rectal ampulla on the end of the finger, pushing it to a point higher up in the pelvis. This error will not occur if, after introducing the finger into the ampulla, the next step made is that of seeking out the so-called "third sphincter"—that is to say, the rectal valves behind the cervix. The finger ought to be introduced between these distinct anatomic structures and then up into the pelvis, where the bowel lies in its natural relation in contact with the posterior surface of the uterus and the left broad ligament.

It is important, too, that the wrist and the fingers should be at ease and flexible during the examination. If the whole arm is made rigid in the effort to push in the perineum in order to gain a few centimeters in finger length, the hand also is apt to become rigid and the tactile sense impaired, and the movements less under control. I avoid this rigidity of the arm by resting my elbow against my hip and pushing the arm in from the hip and so setting it at ease. I trust this brief presentation of these few cases will serve the more important purpose of eliciting the experiences of many of the gynecologists who are here, as I feel sure an important new chapter will be written concerning the injuries produced in the course of gynecologic examinations when all the facts are known.

DISCUSSION.

DR. THOMAS S. CULLEN, Baltimore, mentioned two cases of injury to abdominal structures resulting from a vaginal examination. In one case there was a myomatous uterus, two of the nodules were sessile and one pedunculated. On opening the abdomen, after several students had examined the patient, he found about 200 c.c. of free blood in the abdomen. The pedunculated myoma had been partially torn from its uterine attachment and there was free oozing. Such an accident is liable to happen even when the utmost care is used. The slightest traction during operation is liable to partially separate a myoma from the uterus. As the abdomen was opened immediately after the examination the slight hemorrhage was of little consequence. Had there been merely an ether examination without operation the bleeding might in a short time have produced alarming symptoms or possibly have occasioned death. Several years ago Dr. J. W. Williams told Dr. Cullen of a case in which he made a vaginal examination and found pus tubes. Four or five hours afterward the temperature rose to 105 F. and the pulse became rapid. On opening the abdomen he found that one of the pus tubes had collapsed. The pelvis was full of free pus and acute peritonitis had already commenced. After removal of the tubes the patient made an excellent recovery.

DR. F. F. LAWRENCE, Columbus, Ohio, said that this paper emphasizes two points: first, that palpation, to be of value, must be light; second, to be other than that means great danger to the patient and great anxiety to the surgeon, not only in the cases mentioned, but in others. He has twice seen most disastrous results follow unnecessarily vigorous examination in strangulated hernia. In one case the manipulation resulted in perforation of the bowel above the neck of the sac intraperitoneally, with the escape of a large amount of the intestinal contents into the free peritoneal cavity. The result was fatal. Dr. Lawrence recently saw a case of extra-uterine pregnancy in which an unruptured tubal pregnancy was diagnosed. A relative of the patient was anxious to satisfy himself that an operation was justified and made a rather vigorous examination. In two hours the pulse went up to 140. The abdomen was found to be full of blood, and only the most vigorous efforts saved the patient's life. Injury to tissues other than the rectum are also to be considered. A rectal examination must be made even more delicately than a vaginal examination.

DR. GEORGE EREY SHOEMAKER, Philadelphia, said that he could add one case of rupture of an appendiceal abscess by the hydrostatic pressure of an enema. The woman was in collapse when he arrived. Her physician had attempted to move the bowels. The nurse had placed the bag at least four feet above the level of the patient. The patient gave a sudden outcry and went almost immediately into collapse. Her condition being absolutely hopeless, he declined to operate. No postmortem was allowed, but undoubtedly the pelvis was full of pus because of rupture of the abscess into the peritoneal cavity.

DR. H. G. WETHERILL, Denver, said that there is another way in which injuries to the rectum may occur, incident to obstetric operations; as the head is descending and receding rather rapidly, he has seen the second finger thrust into the rectum and recession prevented in that way. This is a practice which should not be sanctioned under ordinary circumstances, not only on account of the risk of injury to the rectum, but because of the danger of infection.

DR. CHARLES P. NOBLE, Philadelphia, reported a case of rupture of a cyst of a graafian follicle on the examining table. This was followed by syncope, but no other ill results. He has had a number of similar cases, both in the office and in the operating room. The only serious case occurred in his clinic recently. The diagnosis was in question, whether a suppurating ovarian tumor, or a tumor, plus a pelvic abscess. One of the assistants, a very competent and careful man, made an examination and ruptured the abscess, a very serious situation, as the patient was profoundly prostrated at the time. Immediate celiotomy was performed with a fatal result.

DR. SAMUEL M. BRICKNER, New York City, asked Dr. Kelly whether he obtains as good results from a rectal examination by placing the patient in the dorsal position, after first placing her in the knee-chest position, as on the side. Dr. Brickner also has had a case of ruptured graafian follicle cyst. He examined by vagina and found a very small cyst. He asked one of his assistants to examine her. The young woman had been married recently and there were a number of raw edges on the vagina, which were painful, so he asked him to examine by the rectum, which he did. He made hard pressure over the abdomen, but said that he could not feel the tumor. Dr. Brickner examined, but failed to find it again. She had severe pain in the abdomen, so he operated at once and found that the cyst had been ruptured. The patient recovered.

DR. H. A. KELLY said that the treatment of such an injury is an important matter. A patient in one of our inland towns who had a rent in the rectum caused by a proctoscope died. The best plan is to open the posterior cul-de-sac, sew up the rent and put a small drain into the peritoneum. If the physician is about to perform an intra-abdominal operation at once the wound may be closed through the superior strait and then drained below, but in all cases it is well to put in a drain.

THE TREATMENT OF OTITIC SEPTICEMIA.*

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The distinction which has been made between perforative and non-perforative inflammation of the middle ear or between its purulent and its catarrhal form is usually well grounded, and coincides with the differences of septic or non-septic involvement. Like all rules, however, this has its exceptions, and cases lacking all evidence of purulency can go on to the most serious results in a way that justifies us in urging that every case of middle ear inflammation shall at first be dealt with as though the outlook was serious in the extreme. Several of the most important deaths which have oc-

curred in my experience have been in cases where tympanic symptoms were moderate, trivial or even apparently absent, yet meningitis or intracranial purulency developed with fatal results. This question, therefore, of the septic character of a tympanic involvement must at times be inferred, in spite of the symptoms, rather than by their aid, and in all cases there is reason that we should adopt, beside the local treatment, general measures looking to a forestalling of such dire possibilities.

GENERAL TREATMENT.

Rest in bed, with protection by compress and bandage of the whole aural region, bloodletting, purgatives, restricted diet, and heat or cold externally, are generally insisted on, and their value is well known to all who have employed them. In spite of all these and the free drainage by incision of the suspicious drumhead and of the edematous upper back wall of the canal—"internal Wilde's incision," which has rationally displaced almost entirely the older cut through the mastoid periosteum—we may have vague yet disquieting symptoms of variable fever, pain, headache, nausea, and possibly twitchings verging on convulsions. Of course, it is easy to be radical, and, if permitted, to chisel the mastoid and even explore the intracranial cavity or the cerebrum itself; but the rational demands for this are often lacking. The conservative man can not feel justified in urging this against opposition, especially if he has employed it vainly in a previous series of cases, in which the absence of findings to justify the exploration has left him of the opinion that recovery, if achieved, has been in spite of his intervention rather than because of it.

The absence of localizing symptoms may be such as to leave the steps of intervention utterly indeterminate. Evidence of sepsis may be present in the steeped temperature-chart, and yet the signs of even phlebitis of the jugular or lateral sinus may be lacking, or the irritative symptoms of meningeal involvement may leave us in doubt as to whether anything more than irritation is present. In such cases radical intervention will not always be accepted, even if the aural surgeon feels impelled to offer it. It is here that we may still hope for benefit from medicinal means, and mercurials, salines and sweatings may do much to eliminate the toxic materials from the system and to prevent the occurrence of the serious lesions which threaten.

Hypodermoclysis.—In addition to these, the latter days have given us great help in the employment of hypodermoclysis or enteroclysis. The value of the first of these is too well assured to need much urging, especially with any one who has employed it. Yet those who have not employed it will look with some hesitation to its demand for strict asepsis, and will regard it as a surgical procedure which few physicians, fewer trained nurses and no others can possibly undertake, while patients or friends will refuse it on the score of its painfulness and its unknown possibilities of evil. Yet it should be feasible to sterilize a fountain syringe by boiling and a large hypodermic needle by alcohol and to boil the water and its due proportion of salt, permitting the giving of such injections at any bedside without risk and with minimum trouble.

Enteroclysis.—The enteroclysis, on the other hand, is a familiar matter to every household, and will be readily accepted in many cases where the other might be absolutely rejected. Its value may be less, as its action is certainly slower and less striking; but it is so

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

easy of performance that the patient will rarely make the least objection, and it can be repeated with most gratifying results again and again in cases where the occurrence of high fever has marked some complication, but study fails to indicate the seat of the trouble. It has seemed fair to assume in such instances that the condition is as yet a mere toxemia, whether by absorption from the ear, the intestines or some other part; and vigorous use of the high saline enema has been followed by prompt fall of temperature and disappearance of all disquieting symptoms.

Lumbar Puncture.—In the severer cases where meningeitic symptoms are present but without localization, and operative opening of the skull seems premature and haphazard from lack of localizing indications, there is great aid to be gained from lumbar puncture. This does not mean that the milder measures with free catharsis and all medicinal aids should be neglected. These should be freely employed; but in addition to these puncture of the lumbar canal, if done with fair anatomic knowledge and a clean needle, should be harmless, yet frequently valuable. This value is not merely in the diagnostic aid afforded by the study of the fluid drawn off—its therapeutic value is equally great, although often overlooked. Marked convulsive attacks may cease wholly under its relief of tension, stupor and other evidences of brain pressure may lighten and pass away, and the main credit for the gain will properly belong, in many of the cases, to the lumbar puncture. Its real therapeutic rather than merely diagnostic value points to its repeated employment, many times a day if urgent symptoms demand; and it is this rather than other points as to its use on which I feel that I can insist. The antitoxic effect of quinia, permanganate of potash and other drugs is probable but not proved; and the antistreptococcal serum seems to work in other hands, if we may believe reports, but it is apt to prove barren in our own hands.

Glycogen, either by the mouth or hypodermically, has claims made for it equal to those which can be urged for the most potent remedies, but it remains to be proven how often it will equal or approach such expectations. It has seemed valuable in my hands, and I can commend its further employment.

CONCLUSION.

I especially wish to urge the frequent and full employment of enteroclysis in these cases of otitic toxemia as a remedy potent and general in its effect, while almost ridiculously simple in its employment. The temperature may be warm, medium or cold, as the inclination or condition of the patient dictates. The amount must vary from two or three ounces in the infant to a pint in some adults, in accordance with the capacity of the bowel. The introduction must be slow with slight pressure—a foot of elevation of the reservoir is enough—and the perineum may need to be supported for many minutes after the withdrawal of the tube if retention is to be secured. Even if much of the fluid is lost, its flushing of the lower intestinal tract is of great importance, and the amount of absorption is generally greater than might appear. Quinia and other medicaments may be added to it, or the nutritive materials if other means of feeding are unsatisfactory. But with all this simplicity, it is probably as efficacious as most of our possible interventions; and in the vague, indeterminate cases, where surgery must wait for clearer indications, it may often forestall serious complications and prove the means, not brilliant but real, of saving life.

PLASTIC OPERATIONS FOR THE CLOSURE OF POSTAURAL OPENINGS FOLLOWING RADICAL AND MASTOID OPERATIONS.*

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It occasionally happens that after either a simple mastoid operation or after the radical operation for the relief of chronic suppurative otitis media, that an opening of considerable size remains behind the ear. Some operators advocate that such an opening be left in the majority of cases of radical operation for the relief of chronic suppurative otitis media, in order that all parts of the middle ear may be freely open to inspection. As the radical operation is now performed, however, most surgeons prefer to close the posterior wound completely, and to secure all subsequent drainage through a sufficiently patent external meatus. It also occasionally happens that a permanent opening remains behind the ear in cases operated on for acute mastoiditis. This occurs only in those cases where the destruction of bone has been very extensive, and usually where, after the operation, large sequestra have been exfoliated. When these openings occur, either by accident or design, the surgeon is frequently called on at a subsequent period to operate for the relief of the deformity.

Quite a number of cases of this character have presented themselves to me for operation. As no two cases exactly resemble each other, it is almost impossible to lay down any definite line of procedure which is applicable to every case.

The simplest procedure is that of Trautmann, who advises circumscribing the entire fistula by means of an incision through the soft parts. The integument is then dissected up along this circular line of incision on all sides, so as to form two semicircular flaps which are folded inward into the opening. The raw edges of these flaps come together, the cutaneous surfaces of the flaps meeting in the external auditory canal. The raw edges of the flaps are united by means of fine catgut sutures. Occasionally silk sutures are used, and in this event they are introduced so that the knots will lie in the lumen of the meatus. This procedure closes the opening, and the next step is to undermine the skin for a considerable distance, starting from the margins of the circular incision. The skin being undermined in every direction, this circular incision is completely closed by means of sutures, and is thus converted into a linear wound. The posterior opening is thus entirely obliterated.

This procedure answers very well for openings of small size. For the larger openings, however, the Mosevig-Moerhof operation is the one ordinarily chosen. In this operation the margins of the opening are freshened, and the anterior and posterior margins of the wound split into two flaps, the lower or interior flap having its cutaneous surface directed inward toward the meatus, while the outer or external flap has its cutaneous surface presenting outward. A tongue-shaped flap is then dissected up from the skin of the neck, sufficient in size to completely fill the posterior opening. This flap is dissected from below upward, its pedicle representing the lower margin of the opening it is desired to close. This tongue of skin is then folded upward

* Read at the Fifth-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Maknen, George L. Richards and John F. Barnhill.

on itself and secured to the internal flap made by splitting the margins of the opening, by means of fine catgut sutures. The skin is then extensively undermined along the lines of incision made in cutting the tongue-shaped flap, and also along the lines of the original opening, the anterior and posterior margins of which were split. This undermining of the skin enables the surgeon to completely cover and bury the tongue-shaped flap which is fitted into the posterior opening, and to convert the entire wound into a linear wound, easily closed by interrupted sutures. Both these procedures are simple enough in a typical case. Unfortunately, these cases are, as before stated, atypical.

In a case that came under my observation a large permanent opening had been left after a radical operation had been performed. The result of this operation had not been entirely satisfactory, as there was still some offensive discharge from the middle ear. I was called on to relieve the suppuration which still remained in the tympanic cavity, and also to close the posterior opening so as to remove the unsightly deformity. The case was operated on twice, the first operation having for its purpose the relief of the suppuration. I simply repeated the radical operation already performed, removing what carious bone remained, and lining the entire tympanic cavity by means of skin grafts.

Ten days after this operation I closed the fistula in the following manner: The external auditory meatus had been much contracted as the result of the first radical operation. This was, therefore, enlarged in the usual manner, by cutting a large, tongue-shaped flap from the concha, dissecting out the cartilage, turning the tongue of integument secured from the concha upward and backward into the posterior opening, and securing it in place by sutures. An incision was then made from the upper margin of the posterior opening, just behind the line of auricular attachment. This incision extended down to the periosteum, but not through it. The integument was then dissected up from the underlying soft tissues, forward over the posterior surface of the auricle and backward over the skull for a considerable distance, throughout the entire extent of the opening which it was desired to close. The margins of this opening were then pared so as to present a raw surface. From the lower border of the original postaural fistula two slightly divergent incisions were made down the neck, mapping out a tongue-shaped flap of sufficient size to be folded upward, and to completely fill the opening behind the ear. The pedicle of this flap was placed at the lower margin of the opening which it was to close; the flap was turned upward into the wound, and held in position by catgut sutures. Anteriorly, this flap was attached to the tegumentary tongue, which had been turned backward into the wound from the concha. Posteriorly, the flap was attached to the periosteum which had been dissected up from the superficial portion of the bony cavity of the mastoid. After this flap had been secured in position, the margins of the wound in the neck, left after dissecting up the tongue-shaped flap, were undermined, both anteriorly and posteriorly. It was then found possible to draw the soft structures together so as to completely close the wound, and to bury the tongue-shaped flap which had been inserted into the opening behind the ear. The raw surface of this flap, therefore, lay in contact with the raw surface made by drawing the tegumentary edges of the wound together, while the cutaneous surface of the tongue-shaped flap formed a portion of the lining of the external audi-

tory meatus. The wound healed throughout by first intention, and the result was perfect.

In a second case, in which a radical operation had been done, together with excision of the internal jugular vein and exploration of the cerebellum, I was able to close the large opening without taking the tongue-shaped flap from the neck. This case presented many difficulties, as the original wound had healed by granulation, and over the region where the cerebellum had been exposed, the resulting cicatricial tissue was very thin. The external auditory meatus was first enlarged by a plastic operation, performed in the usual way, a tongue-shaped flap being cut from the auricle, the cartilage being dissected out and the flap turned upward and backward so as to enlarge the meatus. An incision was then made upward from the upper margin of the opening which I desired to close, for a distance of about an inch in the line of auricular attachment. A similar incision was made in the line of auricular attachment downward from the lower margin of this opening. The anterior margin of the opening was then freshened by means of scalpel and scissors, and the integument dissected up from the posterior surface of the auricle. This undermining of the integument was also continued anteriorly throughout the extent of the two incisions first described. An incision was now made about the posterior margin of the opening. Great care was necessary in making this incision in order to avoid opening the dura. The dura was avoided by making the incision well inside of the opening, so that the knife came in contact with the bony wall. By means of a periosteum elevator and with the scalpel, the soft structures surrounding this opening posteriorly were dissected up. Of course, they could not be undermined for any distance backward for fear of opening the dura. By careful dissection, however, I was able to get a short flap of cicatricial tissue. The anterior flap had been so thoroughly undermined that it could be sutured to this short posterior flap without any tension, thus closing completely the posterior opening. The result, in this case, was excellent; the wound healed perfectly by primary union, and there is now scarcely any scar.

It is worth while to remember, in speaking of these plastic operations, that when the skin covering the posterior surface of the auricle is undermined, it can be pulled backward for a considerable distance. I have been surprised, in all of these cases, at the amount of skin that could be obtained from the posterior surface of the auricle. In this last case, no one who saw the operation believed that primary union would occur on account of the cicatricial character of the tissue of the posterior flap; there was not even a stitch abscess, however.

In another case a large permanent opening was left after an ordinary mastoid operation. The greater portion of the posterior wall of the external auditory meatus had been removed at the time of operation, and the drum membrane could be seen in position through the large posterior opening. In this case I simply circumscribed the opening by an incision through the soft parts. With a small periosteum elevator, the lining of the bony cavity was carefully dissected up, above, behind and below. The tissue was very thin, but fairly well nourished. This lining of the bony cavity was then gently lifted out, carried forward and attached to the freshened margins of the meatus. The skin of the posterior surface of the auricle was undermined and the skin adjacent to the posterior margin of the wound

was treated in the same way. The wound was then completely closed by sutures. The result in this case was entirely satisfactory, the wound healing by first intention throughout.

In still another instance a small fistula remained behind the ear after a radical operation, and suppuration from the tympanum had not been entirely relieved by the previous procedure. The discharge seemed to come from a small spot in the region of the eustachian tube where cicatrization had been imperfect. In this case, prior to closing the posterior opening, I curetted out the deepest part of the tympanic cavity through the enlarged external auditory meatus, but found very little softened bone. I therefore inserted a skin graft over the area which had been denuded by the sharp spoon, and held it in place by cotton pledgets. The posterior opening was then closed by undermining the skin in front and behind the fistula after the edges of this had been thoroughly freshened. The wound behind the ear was closed by mattress sutures, so as to bring large raw surfaces in contact. The healing was by first intention, and the discharge from the ear absolutely cured.

I would also call attention to the fact that in cases of a large permanent posterior opening, following either the radical or the mastoid operation, the normal entrance to the meatus usually becomes very much contracted. In one case recently seen, the fibrous canal was absolutely obliterated by cicatricial tissue. In these cases it is necessary to enlarge the meatus considerably by means of a plastic operation—the one which I prefer being that usually employed in the performance of the radical operation—that is, the cutting of a tongue-shaped flap from the concha, dissecting out the cartilage and turning the tegumentary conchal flap upward and backward on itself, so as to secure a very patent meatal orifice. Where the formation of this flap leaves a raw conchal margin of any extent, healing is much facilitated and subsequent contraction of the meatus hindered by covering the cut margin with a Thiersch graft. Even where a very large meatus has been formed at the time of operation, the subsequent cicatricial contraction will narrow this considerably. It is always well, therefore, to make the meatus very patent at first, in order to allow for this subsequent contraction.

CONCLUSIONS.

It is always difficult to describe a plastic operation, and I am afraid that the descriptions in the above cases have not been very clear. Cases which apply for relief of such conditions as those above described are frequently met with in a large operative practice, and I have reported the cases in detail because for some time I was rather skeptical as to the advisability of attempting to close these openings, and was uncertain as to what the results would be. The outcome, however, in these cases has been so satisfactory that I think the surgeon should always urge operative interference for the relief of these deformities, as the results obtained seem almost invariably to be satisfactory. In only two instances, one of which is reported above, have I been obliged to use the tongue-shaped flap from the neck. In all the other cases the opening behind the ear was satisfactorily closed by dissecting up the skin from the posterior surface of the auricle. As the operation is much simpler where the tongue-shaped flap is not used, and can be performed much more rapidly, this procedure should always be preferred to the more extensive one.

DISCUSSION

ON PAPERS OF DRs. RANDALL AND DENCH.

DR. NORVAL H. PIERCE, Chicago—We must always remember that, no matter what general treatment we pursue, the object aimed at is the evacuation of the toxic foci about the ear. It is true that in cases which we see almost constantly there is great difficulty in differentiating between toxemia, septicemia and pyemia. If we were able to differentiate between septicemia and pyemia in aural disease it would be of great aid to us in operation, because in the majority of instances pyemia is the accompaniment of thrombosis of the larger blood vessels. There is not very much doubt that pyemia can occur from thrombosis of the veins within the mastoid process itself. There is postmortem evidence of this fact, and it is in these cases that we can do most in external medication, and it occurs mostly in children whose bones are highly vascular. I am sure Dr. Randall would never advise in any case where there is fever and other accompaniments of pyemia, to rest entirely on external medication; it is at the beginning of this process that you have the best chance. As to lumbar puncture, if Dr. Randall meant to say that his canula remains in the spinal canal for an hour, the spinal fluid must run very slowly in Philadelphia. It does very little good in septic meningitis, but is followed by brilliant results in serous meningitis, but that is not a septic condition *per se*. Whenever we get pus in the spinal fluid by puncture, it is a strong contraindication to operation. When mercurials help, it is not because of relief of the local symptoms, but because the intestinal canal is relieved of its toxic contents. Antistreptococcal serum in my hands has invariably been followed by disappointment. I have never seen a case followed by good results in any way. In the winter of 1902 I subjected ten cases of mastoid inflammation in the very first stage to high saline injections. This was retained and the method given a thorough test. All these came to operation except one. Pus was found on operation, and this method abandoned. Dr. Dench has been very fortunate in having his patients recover so nicely. I have had cases where I found postauricular openings a year afterward. It is a question which cases should be closed and which should not.

DR. S. MACCUEEN SMITH, Philadelphia—Our idea in the early operation is to prevent septicemia, which is more important than treatment by any method. Last December I presented a paper before the Aural Section of the Academy of Medicine of New York City, in which I reported two cases of metastatic abscess of the liver following suppurative disease of the middle ear. In these cases the Austrisch serum was of no use at all. I believe that those of us in the past who have waited for the external classical symptoms before operation were justified; but in recent years, since the advent of epidemics of gripe, those who wait for the classical symptoms before opening the mastoid will lose many of their patients. When acute otitis media continues for some days with a discharge, and especially if there is swelling over the posterior and superior wall, and these symptoms do not rapidly improve, the only rational procedure is the mastoid operation. In more than sixty cases operated on in a period of about thirty days, in not one was the diagnosis wrong. Some of the cases with the least symptoms showed the greatest amount of decay of the mastoid.

DR. W. SOHIER BRYANT, New York City—I think lumbar puncture is used altogether too seldom in these cases.

DR. D. MCAULIFFE, New York City—This class of cases was alluded to some years ago by Koenig, and his views were disputed by Jansen. They are too rarely looked for where a thrombosis is not suspected. In the last few months I have had two cases of this type of pyemia. One had symptoms of meningitis at the first visit and was put on the table pulseless; I punctured the cerebrum and cerebellum, but found no pus. I saw nothing to indicate meningitis, but found fluid in the lateral sinus and the jugular collapsed. This was practically a moribund collapse, but that was the only thing to prove a jugular bulb thrombosis. The patient died. Another case developed temperature and showed symptoms of sinus thrombosis,

but exploration gave no evidence. This patient also developed pyemia and died. In these cases I think the infection was carried to the jugular bulb.

DR. H. O. REIK, Baltimore—When we more commonly employ the proper measures for carefully studying the pathologic condition of the blood we shall probably classify these cases better and succeed in reducing the mortality. Careful and frequent blood counts and bacteriologic investigations will help us very materially. I am very sorry to hear the antistreptococcal serum so strongly condemned, and that without a word of reservation. I remember that Dr. Welch of the Johns Hopkins University, in the early days of these serums, called attention to the fact that we used the word streptococcus too broadly, and that it really covered not one but a variety of organisms. The serum from any one of these streptococci may counteract the effect of that organism, but not the effect of other streptococci, and so, if we can succeed in distinctly classifying the varieties of this organism, we may hope that in the future we may secure an antitoxin for each, if not one of a general form. In the line of treatment, and as having some bearing on the question of hypodermoclysis, I wish to mention briefly some work which has been recently done in Baltimore. A furor was created a year or two ago by the reports of the employment of formalin intravenously in septicemia, and know that the further use of it was not very encouraging. Dr. Joseph Hume of Baltimore was at that time experimenting in the same line with nitrate of silver. His first case was one of general septicemia following an operation for appendicitis, and after the case had been abandoned as hopeless he succeeded in saving the patient's life by the intravenous injections of silver nitrate, using it, I believe, in the strength of 1/5,000 and injecting from 300 to 700 c.c. at a time. His work has not yet been published, but I know of a number of cases in which he has used it with excellent results. This is still in the experimental stage, and its dangers are fully recognized, but his work is very encouraging.

DR. G. L. RICHARDS, Fall River, Mass.—We sometimes get a little too radical. Now and then we may possibly reinfect a case and intensify the danger of a fatal result. A certain degree of surgical conservatism may be proper at times. I do not think Dr. McAllister's first case was helped by the very extensive operation he did.

DR. J. A. STUCKY, Lexington, Ky.—In what class of cases are we justified in doing exploration? I would like to emphasize the importance of early operation in doubtful cases.

DR. G. HUDSON MAKUN, Philadelphia—I would like to report a case of deformity in which there had been no mastoid operation, a deformity of the external auditory canal. The posterior walls of both canals and the auricles have fallen downward and forward so that, instead of canals, there are only slight slits on either side. The deafness, I think, was due in part to this collapse of the walls. During conversation the man takes hold of the auricle and pulls it upward and outward, and thus increases his hearing powers. Has any operation been devised for the relief of this condition? The man is 45 years old.

DR. E. B. DENCH, New York City—We all meet cases of otitic pyemia, and any contribution from a man like Dr. Randall is of great value. There seems to be one point to which the discussion leads: Let us not have aural suppuration to treat, but let us eliminate it. More and more do I find my views becoming radical in this direction. An ear which is the seat of chronic suppuration is as dangerous as an appendix which is the subject of recurrent attacks. Unless there is some contra-indication, I would advise that all chronic suppurating ears be treated by radical operation to prevent later septic developments, which may be insidious, as in the case reported. I think most of you will bear me out in the statement that, with an acute inflammation of the middle ear, when seen early, we seldom get systemic infection. What we must do in order to cut these cases out is to treat cases of chronic suppuration by radical operation during the interval period. I have never used saline injections, but for a short period they may be of value in stimulating the heart and flushing the kidneys. The dorsal cavity should be washed out, just as the peritoneal cavity is

washed out. But no method of that kind will enable us to treat septic meningitis. I do not regard lumbar puncture as of any value in purulent meningitis.

DR. J. HOLLNER, Chicago—Accurate indications are most important for surgical procedures. The tendency in otology at present is to operate too much. In operating we destroy the cellular structure of the mastoid process, and whether that has no influence on the hearing is a question about which I want to see some carefully prepared statistics extending over many years before I consider it settled. Four patients were in my care a short time ago on whom immediate operation was urged by well-known colleagues, yet every one was cured by from three to ten treatments without operation. As to the question whether or not to close the retro-auricular opening in radical operations, I have one experience which teaches me that we can not make rules which apply to all cases. A boy had to be operated on a second time because in one cell which was too far back to be reached from the meatus, cholesteatomatous material had gathered; had there been a retro-auricular opening this would not have occurred.

DR. R. C. MYLES, New York City—The percentage of cases in which operation is indicated has not been determined, and it is generally admitted that in every ten cases nine did not require operation, but the tenth needed it so badly that it was better to operate on the other nine rather than to have missed the tenth. In any given case operation may be refused, brain abscess results and the patient dies. On the other hand, it must be admitted that many of the cases operated on will end fatally. Accidents must, therefore, always be taken into consideration. These are the two sides of the question, and what we now desire is the statistics of the cases in which operation is indicated—what percentage come to operation and what proportion get well without it.

DR. A. B. RANDALL—I would warn the gentlemen listening to the results obtained by a skillful operator that they must not expect to obtain equal results often. A man sometimes does his work too well, if he makes success seem too easy. The matter of closing these posterior wounds is of the utmost difficulty and extreme care must be used. I am sorry that the cerebrospinal fluid moves so slowly in Philadelphia, but where I have used lumbar puncture in serous meningitis I have continued it so long as I could get drippings of the fluid. Just as in brain abscess, it makes a difference if we spend even an hour in evacuating the fluid from the cranium. This little irrigating spatula is used in that class of cases needing heroic help, where there is pus in the fluid when drawn by lumbar puncture. The only thing, then, to be done is free irrigation by opening the cranial cavity and the dura and thus giving them the only chance they have for life. As to the lungs, I did not think it was necessary to say to this Section that they must retain their medical perceptions and training. Dr. William F. Norris, in the days of my training, used to make us look at the medical aspect of every case when we were studying eyes. I constantly have cases referred to me for operation where with suppuration of the ear, symptoms point to deeper trouble. Recently a child brought after the mastoid trouble had healed, with mild meningitic symptoms, following a reduction of his renewed suppuration, showed only a manifest pneumonia of one lung, with empyema following. As the genuine Credé salve sometimes has a heavy coat of mold on it when imported, I have hesitated to use it. To those of you who are acquainted with my hospital work when I send a patient in and ask that he be ready for operation in thirty minutes, the expectation that I wait long for an operation will seem rather surprising. I pass in Philadelphia as rather a bloodthirsty man, not being very hard on the trigger as to operation when I see the necessity for it, or think there is greater danger in waiting than in going ahead. Where the patient is well studied as to blood count, condition of the lungs and every medical aspect, with evidence of a toxic condition, intestinal perhaps, yet not clear, we must do something to relieve while awaiting developments as to what and where any intervention is to be done. It is under such circumstances that I urge the value of saline injections and at times lumbar puncture.

DR. E. B. DENCH—Replying to Dr. Makuen's question, I do not know that any operation has been devised for correcting a sinking posterior wall, but such an operation would seem very easy. Operation on a drooping ear has frequently been done, and a modification of that could be devised that would lead to a patulous canal, and I would advise it. It would not injure the drum membrane. In the matter of closing these posterior openings, I always have the external canal sufficiently open so that I can inspect the entire interior, and the patient is in no danger whatever from absorption of the products.

THE PALLIATIVE TREATMENT OF ACUTE MASTOIDITIS AND ITS LIMITATIONS.*

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The appropriate treatment for the inflamed mastoid is a vexed question, occupying much the same position with reference to otology at the present time that the treatment of the inflamed appendix held in abdominal surgery a few years ago.

Aurists differ but little as to the treatment of the acute abscess formation in the middle ear, but when it becomes apparent that the mastoid process is involved the greatest diversity of opinion exists as to the method of procedure which shall be employed.

A few years ago conservatism in the treatment of mastoiditis was absolute, and the operation of perforating the cortex rare. During the past decade great changes have taken place in our attitude toward this disease, until to-day the tendency is almost toward the opposite extreme.

I am well aware that much has been written of recent years on the subject of treatment of acute mastoiditis versus operation, still the presentation of actual results must always be of value.

The present paper embodies conclusions obtained from a study of 50 consecutive cases taken from hospital record during a period extending over six months, and sufficiently remote to insure against the possibility of subsequent relapse and operation on the cases reported as cured by treatment.

Although these cases were taken in order of sequence, none was considered where the conditions were such that immediate operation was performed, nor, on the other hand, were there any simple acute inflammations of the middle ear without mastoid complication, as all were admitted to the hospital with the distinct diagnosis of acute mastoiditis.

Immediately on entering the hospital free incision of the drum was made in all cases where there was not already a sufficiently good opening. This was usually carried out under the influence of a general anesthetic, nitrous oxid gas being preferred. Rest in bed for the first day or so, the continuous use of the Leiter coil, cleansing of the auditory canal and attention to the alimentary tract comprised the treatment following the paracentesis.

Of the cases subjected to this treatment, 30 resulted in recovery with disappearance of mastoid symptoms; 17 came to operation during the stay in the hospital, and 3 patients who were discharged apparently relieved subsequently returned for operation.

Inquiry showed that three cases had had previous at-

tacks of acute suppuration; the aural history in the other cases was negative. The duration of the acute inflammation previous to admission to the hospital varied from one day to one month, the average length of time being about six days. All but six of the cases had discharge from the ear on entering, either from spontaneous perforation or following paracentesis. Three of the six patients with intact drums came to mastoid operation.

Mastoid tenderness in some degree was present in all but three of the cases. Some were very tender throughout the whole mastoid, while some exhibited simply localized tenderness on very firm pressure over the antrum or tip of the process. Swelling and edema of the canal wall was noticed in 19 of the 50 cases, and was followed by operation in 10.

The average length of time the continuous cold coil was worn was slightly over forty-eight hours, the shortest period being twelve hours and the longest seventy-two hours.

The chief factors taken into account in deciding to operate were a continuance of purulent discharge from the ear, with tenderness or swelling, or both, of the mastoid tissues, lasting for some days in spite of the treatment.

In several of the cases where there was persistent tenderness of the mastoid the appearance of a slight swelling in the canal was the signal for operation, and in one case there was apparently a slight beginning facial paralysis at the time of intervention.

Acute purulent infection of the bone was found in all the cases on which operation was performed, accompanied by granulation formation, and generally by softening of the bone. In four cases there was absorption of the inner table of the skull, with the purulent contents of the mastoid lying in contact with the lateral sinus, and in one there was an extradural abscess.

CASES WITHOUT MASTOID TENDERNES.

It is interesting to note that of the three cases without mastoid tenderness two came to operation. One had had several attacks of earache with apparent recovery during the preceding three months. The drum was intact, red and bulging; there was no swelling of the canal, or over the mastoid, but there was intense pain. Paracentesis was followed by a week of relief, but at the end of that time there was a return of the pain, with swelling over the mastoid. Operation showed diseased bone, with extradural abscess from streptococcus infection. The other had an acute earache of only five days' duration. After nine days in the hospital the symptoms subsided and the patient went home. Three weeks later he returned with profuse discharge from the ear and slight edema over the mastoid. Operation showed extensive destruction of the cortex, large pneumatic cells filled with pus and granulations, and pus lying free on the surface of the lateral sinus.

The comparatively large number of recoveries (60 per cent.) following the treatment is also interesting. As contributing causes to this we must reckon, first, on the admission to the hospital at the earliest possible moment after establishing the diagnosis, although there were many cases which applied for relief after the disease was well established; in the second place, to the free tympanic drainage insisted on in all cases.

DRAINAGE THROUGH THE DRUM MEMBRANE.

Spontaneous perforation of the drum rarely furnishes an adequate opening for drainage, and often leads to a false sense of security, for many times examination shows that the discharge comes from a bulla which has

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ruptured, leaving the membranum tympani intact. This objection of insufficient opening also applies often to the small punctured wounds of the drum. The operation of incising the drum, although slight, is very painful, and unless performed under the influence of an anesthetic is necessarily hurried and more or less incomplete.

The method of providing for the escape of secretion from the ear following the evacuation of the tympanic cavity also merits attention. When the drum is opened early the discharge is largely serous and readily drains through an aseptic wick, which not only serves to perform this function, but also acts as a safeguard against the introduction of infective material through the external canal. It is only when the discharge becomes so thick that it will not readily pass through such a wick that syringing should be employed.

There is a noticeable absence of fatality in these cases, notwithstanding that five had penetration of pus to the surface of the dura. In none of these latter cases was there any particular elevation of temperature, nor did any of them have chills. The only indication of the seriousness of the process was the existence of unquestioned mastoid disease, continuing for days without improvement.

The presence of edema of the posterior canal wall is one of the best guides to the condition of affairs within the bone, even in the absence of mastoid tenderness. Patients who are apparently convalescing from an acute inflammation of the middle ear should be closely observed for the appearance of this sign. It is the one symptom which is in no way masked by the use of the ice coil, and as such is of the utmost importance.

THE USE OF THE LEITER COIL AND ICE-BAG.

Coming to the use of the coil, it would seem that we have in it an appliance of the greatest value in conjunction with other forms of treatment. In default of the coil, the ice-bag devised by Dr. Sprague has given good results, and is often better adapted to use in private practice.

Considerable difference of opinion exists as to the length of time during which cold applications may be made to the mastoid, and apparently no rule can be formulated that will fit all cases. The local tenderness of the bone may disappear within a few hours under the cold treatment, or it may exist for days, gradually diminishing. Persistence of mastoid tenderness, with a serous or mucous discharge from the canal, does not necessarily call for interference, as under such circumstances an expectant policy may be pursued with safety. With steady decrease in the amount of tenderness, and no swelling of the canal or severe pain, we may place reliance in the use of the coil for a period even longer than the maximum reported in these cases. The patient should be under competent supervision, however, so that the slightest change in the physical conditions may be detected immediately.

USE OF LEECHES.

One method of treatment formerly much in vogue consisted in the use of leeches, and without doubt they are of value in properly selected cases. With marked tenderness of the mastoid due to intense congestion of the bone, and where the inflammation has not yet advanced to the stage of pus formation, three or more leeches applied to the surface of the mastoid may afford almost immediate relief. Objections to their use are the uncleanliness of the method and the masking of the tenderness, as the leech bites may be sensitive for some days.

THE BEST TIME FOR SURGICAL INTERVENTION.

The question of the most appropriate time for surgical intervention is one in which experience must play a large part. Undoubtedly many of the cases which eventually recover when left to themselves contain pus, but this by no means should establish a precedent for allowing cases to go on without operation. Where tenderness of the mastoid exists for days, even in slight degree, with abundant purulent discharge from the ear, or where after once subsiding, the tenderness returns, operation is undoubtedly expedient, even if not absolutely necessary.

Under no circumstances should attempts at prevention of operation be continued where edema has already appeared in the region of the mastoid, as with this condition the amount of damage inside the bone may be merely conjectured, and surgical interference becomes imperative.

DISCUSSION.

DR. R. W. SEISS, Philadelphia—I think we often lose sight of a very important fact in mastoid disease. Every pathologist of note will agree that every case of sharply acute purulent middle ear disease is a case of mastoid disease. We know that most of them get well without difficulty under a little treatment. Out of 600 cases I have had 35 operations, and there were but 5 deaths. Two of those I operated on died; another was transferred to a colleague and died; two others were transferred to general surgeons. None of the patients not operated on died. I doubt very much if quite as many mastoid cases did not get well a century ago as recover under advanced modern surgery.

DR. E. B. DENCH, New York City—My house surgeon found out by investigations two years ago that about 90 per cent. of cases of staphylococcus infection got well without operation. I am sorry to register myself as a radical man, but I am more and more inclined to operate early in mastoid disease than I was in the early days. I believe suspicious cases do better if operated on. I have given up the use of ice, and do not think I shall use it again, for I have seen a number of cases in which the superficial tenderness improved and subsequently the cases came to operation, and I found very extensive involvement, such as extradural abscess, brain abscess, etc. It seems to me it is dangerous, because it masks the symptoms. I fully agree as to the importance of the symptom of the sinking of the canal wall; also that tenderness is misleading in many cases. It depends on the temperament of the patient. What does Dr. Hammond mean when he says the wick drain guards against infection of the secretion from without? It seems to me it would favor this.

DR. KASPAR PISCHEL, San Francisco—I am delighted to hear a man of Dr. Dench's experience speak against the ice-coil. Hot applications relieve the patient just as much without masking the symptoms. Besides, heat will help absorption if that is still possible, or hasten outward perforation if the mastoiditis is advanced beyond the possibility of absorption.

DR. G. L. RICHARDS, Fall River, Mass.—In the last two or three years the class of preparations consisting mainly of glycerin and clay have come up, and, if you take many of these mastoid cases and put on a thick covering of such a preparation and cover it with absorbent cotton, it will take up and remove a lot of the serum and it does not mask the symptoms. It will not take away the continuous pain, so it has advantages over the ice-coil. You can put one of these applications on in any family or tenement and leave it on for from twelve to twenty-four hours. Its use should be accompanied by a free incision of the drum membrane. I have had good results from their use, especially in the first stages. With reference to Dr. Dench's question about the wick, at the New Orleans session last year a paper was read on this subject. The wick is put in at the moment of the incision of the drum and maintained there until it shows signs of being purulent. It prevents the germs from entering because on the outside is a pledget of absorbent cotton, which is removed as often as it becomes moist.

DR. S. H. LARGE, Cleveland, Ohio.—I recently used the ice-coil on a patient with mastoiditis, accompanied by considerable pain. After twenty-four hours the pain had entirely disappeared, even pain on pressure, but forty-eight hours later he developed cerebral symptoms. The mastoid cells and antrum were opened and pus was found in large quantities. In this case the ice-bag certainly masked the symptoms and came near causing a fatal result to the patient.

DR. C. H. BAKER, Bay City, Mich.—Dr. Seiss mentioned one important point, namely, the fact that the mastoid is involved in every case of middle ear inflammation with extensive discharge; therefore, I think the statistics of recovery hinge not only on cases classed as mastoid but on cases of middle ear inflammation as well. The percentage of five deaths in 600 cases would be perhaps nearer the truth than five in thirty-five. The difficulty which most often prevents success consists in getting the patients and their families to consent to what we think is the right thing to be done. We can not always control them and are not allowed to do what we know is the proper thing, and must, therefore, resort to the measure which is next best. I have adopted hot irrigations in great quantities where I can not operate when I think the patient needs it. That means not the use of water a little warm, but water as hot as the skin will bear it and from two to four gallons of it. This is repeated every hour or two and has prevented a number of cases from coming to operation.

DR. S. F. SNOW, Syracuse, N. Y.—The limitations in acute mastoiditis are not always well marked, for in uncomplicated cases we can often give considerable latitude. We must be limited in conservatism when handling subacute or chronic cases because we can not then depend on free intercommunication from cell to cell. A point to be insisted on is free tympanic drainage if we are to rely on conservative methods. Free tympanic drainage is, to my mind, an all-important matter. I never feel safe in applying cold unless the drainage is free. I think the incision should begin at the bottom of the drum and go upward, cutting through to the bone, as the knife comes out along the superior wall of the external canal.

DR. D. McAULIFFE, New York City.—I think the retrogression of symptoms in mastoid disease depends largely on the stenosis. If it extends long enough to allow the septic process to penetrate the cells the case is one for operation. The application of ice is known to diminish the temperature of bone at least five degrees. If maintained longer than twenty-four hours it diminishes tissue resistance. Where the condition began as catarrhal mastoiditis, the application of ice would have an important influence. We can not draw the line sharply between catarrhal and infected mastoiditis, and time is necessary for the development of bacterial infection.

DR. PHILIP HAMMOND—I do not wish to appear as the champion of conservatism, and fully agree that the palliative treatment of acute mastoiditis is of no value where the disease has penetrated to the stellate cells of the mastoid. It seemed to me it would be of importance to tabulate a group of cases which were not selected, and I chose hospital cases for that purpose. Just how many cases were operated on during the time these cases were accumulating I do not know. More than 300 mastoid operations were done within three months' time. I believe that in many acute cases the patients die, though possibly I may be wrong in saying "many." I saw one within the past few months with acute suppuration of the middle ear of ten days' duration, with no mastoid tenderness, but with swelling of the canal and great pain, and just before I was called he passed into coma. In this case the cortex of the mastoid was tremendously thickened, and the only symptoms pointing to mastoid disease were the intense pain, and the edema of the canal. It seems to me this swelling of the canal wall should be recognized as early as possible and early operation advised. At the present time we are not taking cultures in all cases, but four or five years ago records were made of all acute cases, and the results bore out Dr. Dench's statement. Dr. Richards has ably answered the question as to the dangers and advantages of the wick in drainage. The results achieved at the infirmary are confirmatory of the value

of this method. Some cases treated in this way healed without going on to suppuration. We use carbolyzed glycerin in the treatment of various affections of the external canal, but never to put in the wick for drainage purposes.

A CASE OF BILATERAL TUBERCULOSIS OF THE MIDDLE EAR IN AN INFANT.*

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ATLANTA, GA.

Whether the case here reported is one of primary or secondary tuberculosis of the middle ear must be left as an open question, just as it has been done in the few cases of this nature previously reported. In studying the history of this case, however, I feel just as warranted in calling it one of primary as I would one of secondary tuberculosis, chiefly on account of the age of the patient and the early manifestation of the middle ear trouble before any other physical signs of involvement.

The statement of Friedrich contains a great deal of truth when he says: "It is difficult, if not impossible, from the clinical point of view, to decide whether one has to deal with primary tuberculosis of the bone with secondary involvement of the tympanic cavity, or with the opposite condition."

Patient.—Baby C., 6 months old, was brought to me from a nearby town on Nov. 15, 1903, suffering with a discharge from both ears. The parents appeared healthy, this being their first child.

Family History.—The father's side gave an excellent family history, while that of the mother showed a tuberculous line of antecedents. A brother and sister had died of pulmonary tuberculosis, and a brother was at present afflicted with the same malady.

Present Illness.—The birth of the child was normal, and there was no trouble manifested until six weeks previously, when the left ear began to discharge. This was treated by the family physician without any result, and two weeks ago the right ear began to discharge. The little patient had also had considerable cough and apparently breathed through the nose with difficulty. There was absolutely no history of syphilis.

Examination.—Left ear: There is absolutely no swelling over the mastoid or around the ear. Considerable purulent discharge from the auditory meatus, and very offensive in odor. This was thoroughly cleansed away, when two-thirds of the canal was seen filled with granulation tissue, which bled freely if touched with any force. No necrosed bone could be felt, although there was every evidence of its existence. The canal was at no point swollen.

Right ear: Discharge slight but purulent. Very little odor. The same granulation tissue was encountered, but less in amount. No necrosis discoverable. The baby was exceedingly fretful.

The nasopharynx was explored with the finger, but very little adenoid tissue was found. No abnormality in the nasal cavities could be seen to account for the difficulty in breathing. There was slight signs of a facial paralysis on the left side. Temperature was normal. The baby nursed without difficulty, but slept only at intervals. While the patient was in my office some of the deep secretions and granulation tissue were taken by Dr. Claude Smith, pathologist, and the examination showed a large number of tubercle bacilli. An examination of the chest disclosed numerous râles indicative of a bronchitis.

Treatment and Result.—The treatment at the beginning was expectant and tentative. The canals were kept cleansed, and

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otolaryngology, and approved for publication by the Executive Committee: Drs. G. H. Henson Maknen, George L. Richards and John F. Barnhill.

with the nasal punch forceps as much of the granulation tissue as possible was removed each day, followed with applications of guaiacol in alcohol. Syrup of the iodid of iron was administered internally, and the chest rubbed nightly with terebene in olive oil. Two days after the beginning of the treatment the patient seemed to rest easier at night and was less fretful. The discharge, however, did not cease, and the granulations seemed to sprout daily. On November 20, five days after the beginning of the treatment, the patient appeared brighter than usual and the facial paresis less marked. The next day, the weather being bad, the father reported that the baby appeared drowsy and that the eyes had a peculiar look.

On the following day, November 22, in consultation with two other physicians, the following condition was noted: No change in the objective appearances of the ears. The baby appeared drowsy and took absolutely no notice of anything around. Both eyes were turned in, and the pupils were contracted. No difficulty with the respiration, and the baby nursed from the mother as usual. The temperature was rather subnormal. There were no signs of a spasm. A radical operation was discussed, but considered inadvisable on account of the lack of any focal lesion, and the fact of an evident tubercular bronchitis. The baby gradually grew weaker and died four days later. The temperature never went above 101 F., and there were two spasms during the last hours, but limited to no portion of the body. Unfortunately, a postmortem could not be obtained.

This case presents many interesting features. The age of the patient and the bilateral involvement of the ears with the same clinical features was certainly a remarkable condition. Repeated examinations showed unmistakably the tuberculous nature of the process, and I do not think that we could differentiate the primary source of infection. To me the line of treatment most proper to pursue afforded the chief point of interest. I considered from the very beginning the question of a radical operation through the mastoid. On the other hand, this latter had never shown the slightest signs of involvement, which in infants is very easy of occurrence because of the anatomic structures. The operation was discussed with the parents, but they were unwilling to submit the baby to the same unless I could assure them of its success. They clung to the idea that it was only a discharge from the ear and would get well of itself. Such a promise as that I, of course, could not make, so adopted the next best plan, and that was to clean out the tympanic cavity as best I could through the auditory canal. This proved a failure, just as I had anticipated, and it only proved to me the futility of any such an operative procedure. Nor did I think that much could be accomplished by a radical operation, for the patient was evidently marked with disseminated tuberculosis.

I have been unable to find just such a similar case on record, and for this reason I feel that the detailed description of the above case is not without interest.

Quite a little has been written on tuberculosis of the middle ear, but nearly all of this has been confined to cases of adults who were at the time suffering most usually with the pulmonary form. Such patients, suffering with suppuration of the middle ear, would naturally be suspected of having a localized tubercular process of this organ. However, there is a marked lack of unanimity among otologists as to the frequency of this condition, due largely to the uncertainty of their methods of diagnosis.

One naturally supposes that a tubercular condition would be diagnosed by the presence of tubercle bacilli in the secretions or in the surrounding tissues, yet we find close observers like Bezold and Hegetschweiler who "depend on the macroscopic appearances of the clinical picture and neglect bacteriologic examinations."

It is a well-known fact that to find tubercle bacilli in a discharge from the middle ear it is always best to take some of the granulation tissue deep in from the focus of suppuration, and for this reason many observers have often failed to find tubercle bacilli because they have examined only the superficial secretions.

In looking up the literature on tuberculosis of the middle ear I find that there is a great difference of opinion both as to its frequency, its objective and subjective symptoms. For instance, Friedrich says: "It would appear that tuberculosis in the ear is usually secondary. The few cases so far recorded as primary are open to criticism, and for the present we have no proof of a primary tubercular osteomyelitis of the mastoid process."

Grimmer, in writing on this subject, says that probably 65 or 70 per cent. of cases of suppurative otitis media with neighboring bone lesion, in children under 5 years, are tuberculous; in older persons not more than 16 per cent. of similar cases are tuberculous. My own observations do not agree with this percentage, for tuberculosis in any part of the body is certainly a more serious condition than the above statement would admit. The usually good results obtained in the treatment of suppurative otitis media in children is an argument also against this statement.

Milligan also states in an article on this subject that "primary tuberculous disease in and around the middle ear is of rather frequent occurrence." I can not believe that there are many otologists who will agree with this statement.

MODE OF INFECTION.

As to the mode of infection in these cases, it is generally agreed that the infection takes place by one of the following three ways: 1, the eustachian tube, from the nasopharynx and its mucous membrane wall; 2, the blood or lymphatic system; 3, externally through a perforation in the drum membrane.

PREDISPOSITION.

Experience and observation lead me to believe in an inherited predisposition on the part of the patient for the development of tuberculosis in any part of the body, and more especially in the tympanic cavity. If there should be this "inherited predisposition" and the ear should become inflamed, then the localized lowered vitality will afford an excellent ground for the growth of a tuberculous process. The fact that E. Fränkel states that the danger of infection from the post-nasal space is not very great is certainly significant, for among fifty autopsies on tuberculous patients he found tuberculosis of the postnasal space ten times, and yet in none of these was the middle ear involved. That an infection may take place, however, as the result of the presence of the tubercle bacilli without this inherited predisposition, I do not deny, but I must confess that I am a weak believer in this mode of infection.

CLINICAL MANIFESTATIONS.

Writers vary as to the clinical symptoms of this disease, but nearly all agree as to the absence of pain as one of the most common. In chronic middle ear suppuration of all kinds this symptom is also present, hence it is by no means peculiar to tubercular ulceration.

Grimmer, in his excellent article referred to, gives the following symptoms as characteristic of tuberculous otitis: 1, painless onset of the discharge from the ear; 2, two or more perforations of the drum membrane; the presence of pale edematous granulations; 3, creamy pus discharge; 4, facial paralysis coming on at a very early

stage; 5. bare bone which may be felt through the meatus.

Friedrich says that "granulations and polypi are not present as a rule," and yet in my own case I have never met with such exuberant granulations as those which filled the auditory canal. Bone necrosis and rapid exfoliation of the same are held as prominent symptoms of this condition, but these also show variations.

After all, I think we must agree with Milligan, who says: "The best and most reliable means of establishing the tubercular nature of the disease is by means of properly conducted inoculation experiments."

The all-important point of this paper is to elicit a free discussion as to the proper line of treatment after a certain diagnosis has been made. If the tympanic cavity is involved, and secondarily or even primarily the mastoid also as evidenced by necrosis or fistulae, then the proper surgical procedure is clear.

On the other hand, if only the tympanic cavity is involved and granulations exist in the cavity, extending also freely into the auditory canal, if there is no other discomfort beyond a discharge from the canal, if the case is in no wise chronic in character, shall we treat the condition through the auditory canal or shall we make the radical operation through the mastoid immediately?

CONCLUSIONS.

My own experience leads me to the following conclusions:

1. If there is free drainage of the tympanic cavity through the auditory canal: if there are no granulations present and no symptoms of facial nerve paralysis; if the mastoid does not show, and has never shown any signs of involvement, and if there are no extensive areas of necrosis, I would treat the condition expectantly through the auditory canal.

2. If there is facial paralysis and extensive granulations extending out into the canal; if the mastoid shows or has shown involvement, whether tubercular or not, and the patient shows vitality enough to stand the anesthetic, I should propose the radical operation immediately.

During the last four years I have had three cases where there were extensive granulations springing from the middle ear and sides of the auditory canal and which almost entirely filled this latter. There was absolutely no history of involvement of the mastoid. In all of these I undertook to remove the granulations through the canal much to my regret, and they taught me the important lesson that the radical operation was the only one to be considered. The man who undertakes to treat profuse granulation tissue through the auditory canal will come to grief, and I am firmly convinced that the radical operation will prove to be the most conservative.

DISCUSSION.

Dr. C. M. COBB, Boston—So far as my experience goes, when the infection of tuberculosis gets in the lymph current it goes with the current and not against it. The infection from the tonsil goes down through the neck and not up through the face. The lymph glands evidently stop some of the infection or they would not become inflamed. If it is absolutely certain that we can remove every particle of diseased tissue and all the bacilli, the operation is justifiable; but the patient is much more rapidly infected through the blood current than through the lymph current. The condition will become rapidly worse with a raw surface. My experience in operating on tubercular meningitis has been pretty bad. This result has been so invariable that I generally refuse to help operate on such cases. The patients apparently do not live as long as

they would if left alone. What can be accomplished is through the treatment with iodoform. I do not think it is safe to use the curette for the granulations unless the patient is having symptoms of retention of pus.

Dr. B. A. RANDALL, Philadelphia—The cases in which we can prove the tubercular character of inflammation of the middle ear are rare. I have placed a number of specimens in the hands of our best investigators and they were unable to prove the presence of tuberculosis from cultures from the tissue; yet from the clinical standpoint it was unmistakable. I have had some very good results in cases where I was sure of the condition. While operating on a child six months of age for removal of polypoid tissue from the auditory canal, I found a tiny piece of loose bone in the upper back part of the tympanum. I caught it with the forceps and when withdrawn discovered that it was half of the stapes, which had been exfoliated. There was slowness of the movement of the face on that side, but not full paresis. The glands were much involved and I urged their enucleation, although the child was not of known tubercular history on either side. It was the only child and it was very important not to imperil life. On these grounds, radical intervention was refused and I curetted the tympanic cavities and from time to time twenty-seven glands and left the family physician three or four others to treat in this manner. The adenoid tissue in the pharynx was slight. A few weeks ago he walked into my office, a hearty little chap of 8, and when I saw him I felt glad I had done as I did. It was a cure, but whether of a tubercular process or not I can not say. The cultures were negative. All possible of the infected tissue in these cases must be eliminated. If we have in the middle ear, and especially in the mastoid, evidence of tubercular involvement, we must deal with it radically. With a family history of tuberculosis and typical appearance of the child, I have had good results, though I have not followed them for many years to confirm the outcome. I believe it is our duty to do radical work on these cases.

Dr. DUNBAR ROY—It was an interesting and important case to me, because of its being the only child. The question of doing the radical operation was discussed and the opinion of another excellent aurist was obtained. He suggested doing a double operation on both mastoids immediately, but the child being almost moribund, this was abandoned. My experience in dealing with these cases through the auditory canal has been very unsatisfactory. However, I would not again treat granulations through the auditory canal, but would go into the mastoid immediately and do a radical operation.

THE NEW OPHTHALMOLOGY

AND ITS RELATION TO GENERAL MEDICINE, BIOLOGY AND SOCIOLOGY.

GEORGE M. GOULD, M.D.
PHILADELPHIA.

(Concluded from page 1549.)

Again the critic may justly ask: "Have none, then, recognized and spoken out this much unrecognized truth?" Oh, yes, many and good men have done so. There is a vast quantity of literature produced by clinicians of the best character and professional standing, and it is astonishingly convincing and cogent. It is unfortunately scattered, and hence, in part ignored by too many physicians. The last weighty utterances are Dr. Zimmerman's study,⁶ and especially since they are from England, the excellent reports of Dr. Snell,⁷ and Dr. Pronger.⁸ Hundreds of others might be cited, the testimonies, *e. g.*, of such good professional journals as the *Cleveland Medical Journal*, the *St. Paul Medical Journal*, the *Lancet*, the *Pacific Medical Journal*,

6. N. Y. Medical Journal, Nov. 21, 28, 1903.

7. The Lancet, April 30, 1904.

8. Slight Errors of Refraction and Their Influence on the Nervous System, Harrogate, R. Ackrill, 1903.

matical precision to accurate unity and brilliant action of every muscle of the body. Similar perfection of eye and motion has been evolved in every higher animal of the world, and in every savage, and in every child. Your horse avoids all stones and knows, unconsciously, every inequality of the ground before and beneath him by the like mechanical unity. Watch little children in play barely missing obstacles and dangers which would mean injuries and perhaps death, with swift unconsciousness. The history of savagery and of civilization is all there and is of the same nature. See with unbelievable accuracy if you would succeed, is the first verse of the biologic decalog. That is the physiologic Logos which became the biologic flesh.

But see inaccurately and you die, is the antithesis, and the animal which failed to obey perished, inevitably and quickly. The savage did the same, your horse that stumbles is useless, your playing child that hits its leg or trips becomes, at least, a very different child, and a very different man or woman from the others who do not make these visual and co-ordinating blunders. Such are the backward scholars in school and, in large part, they are your failures in life, society's expensive degenerates, defectives, and dependants. They are rapidly increasing in number with every step in civilization, because every such step means the entangling difficulty of added near vision.

All of which—and this is the heart of the matter—Darwin, a martyr to bad eyes himself, failed to see, and all of which no evolutionist has since caught sight of. And yet it has been one of the large controlling conditions of the evolution process. For not only has this unity of mathematic optics and physiologic function been the inescapable method of success in the struggle for existence, but it has been the chief mechanism whereby the so-called unfit have been thrown out of the count. Visual imperfection has been, and is increasingly becoming one of the dominating causes of the exclusion of the ontogeny from the propagating phylum. This is the fundamental distinction which differentiates the laws of biologic evolution and survival of those with and those without vision. It is the key which will unlock and reveal many of the profound mysteries of heredity and descent which to-day are tormenting the different schools of evolutionists and biologists. Open the door and walk into the long-closed ancestral hall and the mystery of forbear and aftercomer is revealed. How and why we are here is at once plain. None could have been, and we could not now be the link between the phylum of the past and that of the future, except on the condition of seeing well. Those not allowed to become such parental links were largely those who saw too inaccurately to compete in the beneficent but summary process.

Note well, however, two things: The most perfect organism in the past world of animal and man was useless without, first, this perfection of visual function, cerebral co-ordination, and muscular response; and, second, the attainment of this optical mechanism was far more transcendently difficult than any other physiologic task. To attain transparency and nourishment of cornea, lens, vitreous humor, and retinal end-organs, to superpose the images of the two eyeballs, to respond to the almost nothing of stimulus, to transmit to brain, to manufacture sensation, to dominate all other cerebral function, instigate and direct all motion—where is the end of the marvellous task! The end is in failure to do any one of these things, and to make that inch-in-

diameter eyeball of a spheric perfection which shall not vary by 1/300 of an inch from the normal. The end is not to have prevented conjunctivitis, traumatism, keratitis, iritis, glaucoma, cataract, retinitis, and other multiform diseases, prone especially to occur in the astoundingly complex and refined organism. The pathology of animalian evolution has therefore been in large part the pathology of vision. The organism otherwise perfect except as to an infinitesimal visual part is thrown out by this optical necessity. The mechanism *par excellence* of the exclusion of the unfit is thus made clear.

To this now add the consummating and crowning function of vision—the creation of intellect. Psychology, history, and biology unite to demonstrate that the objectivation of the $\psi\chi\theta$ of civilization is almost uniquely by means of vision. The greatest task of all human history was the creation of the letters of the alphabet. It was so difficult that only one race did it, and within one or two milleniums all others have come to a knowledge and use of civilization only through the adoption of the invention. No writing and printing, no civilization. But the letters of the alphabet are conventionalized symbols of pictures, or things seen. Add to this that language itself is of identic origin. There has been no speech except to express the result of ocular function. Almost all psychology is summarized as handlings, co-ordinations and deductions of visual images, of these and of the motions made possible by sight. Thus every cerebral function, perception, appereception, feeling, most of it, and willing, that which is effective, surely reasoning and judgment—all spring originally and constantly, are bound up with, dependent on, and interdependent with vision.

There is something more than mere imagery and fancy which analogizes the course and phases of these developmental stages to the way of water-flow in the world. Decidedly optical are the sun, cloud, rainfall and snowfall on the uplands and mountains whence spring the crystal streams and rivulets of physiology. In them, optics become function and action, physics become physiologies. The lower falling brooks become discolored and morbid when they reach the homes and degradations of man—physiology becomes pathology. But the stream broadens into the large river of biology with the commerce, the health and unhealth of a continent, until finally the Mississippi sweeps to the mothering ocean of sociology where sail and steam the navies of the world.

Thus all routes and efforts lead to man, all biology ends in sociology. Our striving is for human betterment; because all medicine is pre-eminently philanthropic. The beclouded or befogged mariner orients himself by means of an optical instrument, and as the sun and the sun's winds bear the sun-made clouds back to the faraway mountains again, so vision and optical eyes and instruments again complete the morbid and therapeutic circle, the cure which is always beginning and never complete.

My contention is that here is a great means of civilization. It is a profoundly important thing that the hopeful Carlyle of the "Characteristics" should have become the pessimist of "Shooting Niagara and After." It is civilization's tragedy that Nietzsche should have had havoc played with his mind by eyestrain; that Huxley should have been driven from work at the height of his powers; that DeQuincey should have been an opium eater; that Darwin should have been able to work but two hours a day with his eyes, and Parkman

but a few minutes; is it not a sad thing that George Eliot and her books, Symonds and his great opportunity, Twain and his great scholarship should have suffered as they did? Is it not a pathetic source of social misery that 10 or 20 per cent. of eyes are incapable of sewing, typewriting, book-keeping, lathe-work, studying, draughting, and a still sadder thing that their owners have no knowledge of the fact, and that they should suffer until "break down" comes? Is it not an awful thing that from 40 to 60 per cent. of all school children are sickly? That suicide is increasing, insanity and epilepsy incurable, hospitals multiplying—and taxes, and prisons, and war, and want? A certain, perhaps a large, per cent. of all these backward school children, epileptics, prisoners, insane, hysterics, neurasthenics, dyspeptics, have such eyes that glasses correcting their optical defects would bring them much relief, would often have prevented much or all of their tragedy. And the proof is this: Put any pair of such spectacles on any one of us, and within an hour there would be headache, giddiness, vomiting or intense suffering. The cynics and skeptics of "eyestrain exaggeration" can be speedily converted whenever they are earnest enough to try a simple experiment on themselves. It is a truth awful in its significance that in civilized countries there are millions of people who are good products of the evolutionary mill, who have sound minds and good bodies, but who are partial or complete failures, always with intense personal suffering, simply because of an infinitesimal malcurvature of the cornea, a too long, or a too short eyeball, no greater than the thickness of a sheet of thin paper. It is the little thing that, overlooked by others, makes or mars all undertakings, all sciences, and all cosmic proceeding. The compass guides the ship, and without it there would be no civilization as we see it. Without vaccine virus there would be a different world, there could hardly be civilization, and yet it was a generation after farmer Jesty inoculated his family from the teats of the cows in the field before even Jenner dared do the same, and before the best of the profession would have anything to do with it; and to-day there are perhaps a million antivaccinationists in America! When Pasteur had demonstrated what Villemin and Davaine had before said was true, the bacterial origin of some diseases, history records that, "the doctors, in the great majority, were violently opposed to the germ theory of diseases. They answered experimental proof with oratory. The less excited among them urged temporizing. The surgeon Chassaignac warned Pasteur that laboratory results should be brought out in a circumspect, modest, and reserved manner, etc." In 1843 Dr. O. W. Holmes conclusively showed that puerperal fever was contagious. We ignored the fact. In 1846 Semmelweis of Vienna independently proclaimed that puerperal fever was due to inoculation by nurse, midwife, or doctor, and that this contagion could be prevented. For this bravery and clinical acumen Semmelweis was persecuted by his medical brethren, turned out of his professorship and ruined. In the Paris Maternité Hospital in 1856, 64 women died of the disease out of 347 admitted. In 1864, out of 1,350 cases, 310 died. At last in 1874 Fournier and Budin introduced the "new" views of Pasteur and Lister, and in spite of what Dr. Roux calls the "tyranny of medical education," they were accepted, and puerperal fever disappeared. Would it not have been an inestimable gain not to have persecuted Semmelweis, and instead, to have examined and tested his

theory? In 1888 Dr. G. Martin stated that "migraine" was due to astigmatism and published proofs. In 1903 and 1904, the *Medical News* likens those who say the same thing to Dowie and Mrs. Eddy, and the leaders of the New York Academy of Medicine call a special meeting in order to snuff out of existence the advocate of such a senseless theory. And yet migraine is due to eyestrain as any one can prove whenever he wishes, and as thousands of patients will testify whenever asked. Migraine is peculiarly a disease of civilization, increased with every added hour of near-work with the eyes; and civilization is enormously increasing that constant strain of near-work with eyes evolved during millions of years for a different function.

There is hardly an instance in all history of a great and beneficent medical discovery that was not either ignored or hated and scorned by the official leaders, and by the great part of the entire profession. It was so with vaccination, with anesthesia, the germ-theory of disease, Mendelism, thoracic percussion, ovariotomy, antiseptics in surgery, the etiology of yellow fever and malaria, the serum treatment of diphtheria, Pasteur's antirabies inoculations, the humane treatment of the insane, etc.

Now the amazing fact about all of this is its ease of proof or disproof, the passionate hatred with which was rejected a possible source of relief of human suffering, the harmlessness of the trial, the utter forgetting of the patient, the supreme interest in the prejudice. Vaccination is harmless and its protective effect easily demonstrated. To tap the chest with the finger is a very simple proceeding and the sounds elicited are easily recognized. It is not difficult, if so minded, for the nurse, midwife, and doctor, to be clean, and thus test if puerperal fever is contagious. The physicians who clamored against railway travel because it would make passengers sick, giddy or insane, and said if the foolish would build railways board fences must be built above the height of the cars—these physicians could have got on the cars and disproved their theory. The opposers of the theory of circulation of the blood might at least have tested the theory by pricking their finger. The prejudice against rabies inoculation, the diphtheria antitoxin, the mosquito-theory of malaria, and yellow fever, etc., which resulted in untold deaths and delay of scientific progress, could have been easily tested. It is childishly simple to test the power of astigmatism to produce or cure migraine, and yet many prefer not to make the test.

There are probably not a half dozen hospitals or ophthalmic clinics in the world outfitted with a trial-frame or set of test lenses that would enable even an expert refractometer to diagnose ametropia with the perfect accuracy which is necessary to cure morbid ocular reflexes. But those set to do refraction work in the public clinics are not expert. They are the students and learners. Hence nine-tenths of the glasses prescribed in these institutions are not correct. Ophthalmic surgery and inflammatory diseases are all that interest, and these would be largely preventable by the refraction that is neglected and misdone.

Even in the institutions for the blind, it has been found that some of the inmates are not blind, and that their remnants of vision may be so vastly improved as to make these dependents self-supporting. In every school of the world at least 20 per cent. of the pupils are suffering from ill-health due to imperfect eyes, and yet pedagogics, except infinitesimally and incipiently, does not know and does not care. The teachers and profes-

sors in preparatory schools, colleges, universities, technical and other schools, pay little or no attention to the ventilation of the rooms, or to the refraction of the eyes of their students. These are constantly breaking down in health, or in study, from migraine, etc., and the general scholarship is vastly depreciated because of the neglect of the eyes. An official and resident expert refractonist would make a university outdistance its rivals more than does all its "athletics."

In every asylum for the insane some patients are there because of bad eyes—and if only a few are curable of the chronic disease, many could be relieved of the headaches, gastric, and other nutritional diseases which burden the attending physicians and the taxpayer. In one great institution for epileptics, a little experiment with glasses, imperfectly executed in many ways, showed a greater percentage of cures, a greater reduction in the number of seizures, than by all other methods of cure combined that had been tried in the institution. And yet the official report characterized the experiments as "disappointing," and sneered and misrepresented it. Epilepsy, it has been demonstrated, is in many cases due to ametropia; many cases could be prevented by proper glasses in the child, or during the early history of the case. In the chronic, severe and hopeless cases it may not be always or even frequently curable. The conditions of the glass-treatment are exceptionally difficult to carry out, and often can not be done at all, especially if conscience and sympathy are absent. The improved general health, freedom from headaches, etc., would make it at least a saving of money for the state to pay an expert resident oculist. This, apart from the humane consideration. Nobody can rightly estimate the number of degenerates, paupers, defectives, and dependents, loaded on the producers and taxpayers because reading, writing, sewing, study, handicrafts, etc., are impossible to a person with disqualifying astigmatism. Neglect of the fact greatly increases the tax rate, and makes the philanthropic miserable.

Why does the truant school boy exist, and why does he so often develop into the young criminal? If the majority of these, as Dr. Case of the Elmira reformatory finds, have an ocular defect that makes vision impossible for any continued reading, writing, or hand-work, does not the fact modify all penalty? If the sewing-girl can not possibly sew, or do any such kind of eye-work, what alternative is often left her except crime? Sociology is very frequently another name for ophthalmology.

And if even to-day, in the city, the poor can not be fitted with a simple device to make their lives happy and independent, how is it with the other half or three-quarters of the people who live in small towns and in the country supplied only with the itinerant criminal spectacle-peddler? The farmers and their families now waste most of their evenings and their winters, and then the sociologist blames them for their vile country newspaper and their unprogressiveness.

Philosophers and thoughtless critics bewail the literary pessimism of the age. It is indeed a pitiable and a pitiful fact. In a time when comfort and possibility of education and of enjoyment have suddenly increased a hundredfold, why the strange phenomenon of vastly increased skepticism, mental suffering, hopelessness and melancholy? Who have set the fashion? Certain powerful, but in some respects morbid, literary geniuses. Who were they? Those almost without exception who

were great sufferers from physical disease. Of what disease? Simply of "migraine." Without a thought of the class to which they may belong, make a list of the literary pessimists of the last century, and another list of the optimists. The pessimistic or gloomy writers and artists were almost entirely great sufferers from eyestrain and from its result, migraine. They were, for instance, Nietzsche, the two Carlyles, de Maupassant, George Eliot, Wagner, Tchaikowsky, Chopin, Symonds, Tolstoi, Heine, Leopardi, Schopenhauer, Turner, Obermann, Thomson (the younger), Poe, and many others. Others that partially or wholly conquered the "migraine" of eyestrain, by opium, or by renouncing ocular near-work, by walking, etc., are Mrs. Browning, DeQuincey, Coleridge, Beethoven, Parkman, Whittier, Margaret Fuller, Browning, Huxley, Spencer, Taine, Darwin, Lewes, Hugh Miller, Southey.

The optimists, the cheerful, hopeful, encouraging, loving, and helpful ones, were, a few and at random, Goethe, Mozart, Verdi, Ruskin, Wordsworth, Ste. Beuve, George Sand, Emerson, Lowell, Longfellow, Hawthorne, Kant, Scott, Brontë, Dumas, Voltaire, Gibbon, Macauley, Mommsen, and a host of others.

In not one of the lives, or writings, of these last will you find a hint of eyestrain or migraine, hardly even of ill-health. Note also that the pessimists are mostly atheistic and materialistic, while hardly one of the healthy optimists is so. One may also remember the tendency to despair and even suicide in those who suffered the most from migraine. It is exactly so in private practice to-day. Pessimism and atheism are an expensive tax on the natural vitality, a danger to the public health, a brake on the wheels of the progress of civilization. If we care naught for the personal and preventible sufferings of these great workers in humanity's cause, nothing for those of the literary and other laborers tremendously increased by the very nature of their tasks, we at least should consider the welfare of the generations that follow us. As the creation and perfection of vision has been the condition of past biologic evolution, so its normalization and the avoidance of its pathogenic results is one of our highest professional duties and ideals.

TYPES OF CHILDREN.*

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For many years—indeed, since the advent of the more exact scientific methods in medical research—it has been, to say the least, unfashionable to refer to "diatheses" and "temperaments." It is not difficult to find why these terms have dropped into disuse, and the reasons are good. Not only are the general terms themselves illy defined, but the attempts made to differentiate their subdivisions and parts are equally inchoate and confusing. They become, therefore, an easy refuge for inexact thinking, a condition obnoxious to modern medical methods. And yet we owe so much to the fathers, and have such great reason to admire the genius with which they brought to light many fundamental truths when surrounded by vicious methods of reasoning and faulty, inexact and incomplete methods of investigation, that it becomes a duty to give respectful attention to and make careful investigation of their dicta, even when adherence to them is withheld. Even so recently

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as my own student days, and more recently still, the old woman's practice of giving teas to new-born babies was laughed at. Now we know that the kidneys of the newly born are very frequently the site of a uric-acid infarction, and that if we would prevent some of the pain of the new baby we must supply it with fluid, and we know that this fluid should be sterile. The herbs from which these teas are made are probably without any value for the purpose for which they are given, but the fact that they are administered as teas insures sterilization of the liquid. That a practice involving such a combination of important truths should have become so firmly established as to have become a custom, and that when the actual reason for its verity was utterly unknown, has long impressed me as but little short of wonderful, and has forced me to give respectful attention to the beliefs of the old practitioners. A very similar instance is the universal custom of giving a daily bath to the new-born baby, a custom carried out even among people who do not always taken even an annual bath. It is not difficult to mention numerous customs of long-established practice, whose *raison d'être* is of very recent discovery. It is such well-established facts which induce us, nay force us, to go back and examine carefully the old doctrine of the diatheses and temperaments of our forefathers.

Trousseau accepted Littré and Robin's definition of diathesis, which was as follows: "Diathesis is a general tendency, in virtue of which an individual becomes the subject of several local affections similar in their nature." This definition is broad enough to include syphilis, and what has been called the "strumous" diathesis—in other words, tuberculosis. But if diathesis includes the chronic infections it ought also to include the acute ones. This would make it almost synonymous with sickness. It is clear, therefore, if the term is to have any use, that the infections should be excluded from it, at least to the extent of refusing to consider infecting agents as direct causes of diathetic manifestations. So also should there be excluded all causes of morbidity which act from without the body, such as geographical and climatic conditions, occupations and social relations. In other words, it would seem just to limit the causes of the so-called diathetic manifestations to nutritional factors. Even the influence of heredity should be considered only in its nutritional relations.

Nutrition is a very comprehensive process. It has to do not only with the foodstuffs, but with their digestion and absorption. It has to do with the so-called internal digestion, or elaboration of absorbed material by such great organs as the liver, the thyroid, the thymus, the adrenals and the pancreas. It has to do with assimilation after all this preparation, and with disassimilation and the modifications of the end products of the metabolism, and as well with the intoxications produced by these end products, and with their excretion.

To me it seems clear that the processes which we speak of as diathetic, when we allow ourselves this liberty, all center around and have their chief origin in the great elaborating organs, especially the liver, the pancreas, the thyroid and the adrenals, while influenced also by each of the other features of the nutritional process.

In this sense diathesis can be expressed as the prevailing type of metabolism of the individual. This means that every individual has some diathesis, and, in some instances, I hope to show, has more than one.

The study of this metabolism, so far as the clinician is concerned, must be approached first through the urine, that great metabolic resultant.

The study of the urine in this connection requires an examination into the relations of urea, uric acid and the other alloxuric bodies, sugar and its congeners, the acidity, the inorganic salts, particularly the phosphates, the oxalates, as well as some other substances of very infrequent occurrence. My own study of the urine as related to diathetic states has been limited to urea, acidity and sugar. With these, for practical purposes, indican must be included, although being generally an expression of intestinal putrefaction, is not really a metabolic product. I am perforce compelled to limit my remarks on this occasion to my own line of observations.

Some seven or eight years ago I began to make occasional determinations of the acidity of urine, and, finding some very interesting things, finally adopted the plan of determining the acidity of every sample of urine brought into the office, and the further plan of having all office patients bring urine nearly every time they came, and not infrequently having them send specimens between their visits.

The method employed to determine the acidity was this: 10 c.c. of the urine, together with a few drops of an alcoholic solution of phenolphthalein, were placed in an evaporating dish and decinormal solution of sodium hydrate run in from a burette until the faintest possible permanent red of the phenolphthalein was noted. The number of c.c. of the $N/10$ soda solution used was then recorded as the index of acidity. At the same time the so-called percentage of urea was determined by a Doremus' ureometer, or other form of nitrometer, as well as a rough colorimetric determination of the indican. Later I began to use the safranin test for sugar, originally recommended by Crismer. This latter test has proven very interesting to me. Safranin is one of the coal tar dyes. I have always employed the water soluble safranin prepared by Grübler. A 1/10 per cent. aqueous solution, which is blood-red in color, was the one used. When heated with sugar in the presence of an alkali the safranin is changed to a leuco-compound and the color disappears. This leuco-compound is, however, very readily reoxidized by free oxygen, so that the slightest agitation, even a bubble rising, will cause some return of the red color. Great care must, therefore, be employed in using it quantitatively. In applying the test a series of test tubes is taken, into each of which is put 1 c.c. of urine, 1 c.c. of normal sodium hydrate, and varying quantities of the safranin solution, viz., 1 c.c. in the first tube, 2 c.c. in the second, 3 c.c. in the third, and so on. These tubes are then placed in a beaker containing glycerin and carefully heated to 180 to 190 F., a thermometer being placed in the glycerin to determine the temperature. The number of tubes in which the safranin is decolorized is recorded as the safranin index. Nearly every urine will reduce some safranin. The reaction must, therefore, not be confounded with the ordinary copper tests for sugar, nor must a urine which reduces safranin be considered what is generally understood as a diathetic urine. I have found over 90 per cent. of all urines I have examined to give a positive reaction to the safranin test. If, therefore, it shows sugar, it can only mean the so-called physiologic sugar which is now generally admitted to be present in normal urine, but in quantity too small to be shown by the ordinary tests. What is the evidence that safranin shows sugar and nothing else? 1. It is reduced by sugar; 2. it is not reduced by uric acid or creatinin; 3. I have personally determined that the safranin reducing substances found in non-diabetic, as well as that found in diabetic, urine can be gradually and in the end completely removed by

mixing the urine with yeast and subjecting it over several days to a temperature favorable to the growth of the yeast plant. This does not absolutely prove that nothing found in urine but sugar can reduce safranin, but it does put it on a better basis than any other sugar test of which we have knowledge. The unreliability of Fehling's was very well shown by some experiments which I conducted in conjunction with Dr. Julius Eichberg of Cincinnati. We found that a solution of glucose in pure water of the strength of 1 to 1,000,000, reduced Fehling's reagent and produced a precipitation of cuprous oxid, while a solution of glucose in urine of a strength of 1 to 500 failed to reduce Fehling's reagent. A solution of the same strength, however, of which half of the diluent was this same urine and the other half water, did reduce Fehling's. We are forced to conclude from this that urine apparently normal contains something which prevents the ordinary Fehling's reaction. Whatever the nature of this interference may be, it evidently occurs in varying degrees in different urines, as I have found a urine with a safranin index of 14 which failed to show sugar either by the copper or the phenylhydrazin

teresting conditions. The average of each of the items of examination, viz., urea percentage, acidity index and safranin index was determined for each year of life and for each sex separately. The number of urinalyses for each year up to 14 was sufficiently large to secure fairly accurate norms, as shown by the regularity of the resulting curves which are here reproduced.

A study of the development of urea excretion, as expressed by percentage, shows the following:

1. This percentage is very low in the first year of life, being considerably less than 1 per cent.
2. In the second year of life it increases very rapidly to a little less than 2 per cent.
3. It then increases more slowly to 3 years of age (the fourth year of life) when it reaches its maximum, about $2\frac{1}{4}$ per cent.
4. From this time on it runs a fairly constant course, with some tendency to decrease, up to puberty, when it is about the same as in the second year of life.
5. As to the sexes, the curve for girls parallels that for boys, but is lower than the masculine curve, except in the first year of life, until the age of 12 is reached, when it crosses it.

As will be seen from the chart, the safranin curve parallels the urea curve with singular fidelity, except that the feminine curve crosses the masculine curve at 11 years instead of 12.

The acidity curve also follows the urea curve generally, but is more irregular, a condition due first to the fact that acidity itself is a very complex result, and next, this factor was much interfered with in many of these urinalyses because of the free administration of alkalis.

Until further work is done on these lines we can accept these curves as expressing norms, with which the conditions found in any individual child can be compared to determine its variations from the normal, just as we compare the measurements of the individual child with anthropometric norms to show vagaries in growth which go so far in explaining some morbid states. It is for the special purpose of calling attention to deviations from the chemical norms, as expressions of diathetic conditions, that I have called attention to the norms themselves. I wish to deviate for a moment to refer again to the crossing of the curves of the two sexes in these three chemical factors at the ages of 11 and 12. The curves of the sexes representing growth in stature cross at 11 years, so do those of height sitting, while those of weight cross at 12 years, the same years at which the urea, acidity and safranin curves cross. Hence these norms of chemical factors illustrate the profundity of the processes of puberty, in a direction, I believe, not hitherto shown.

In using the foregoing norms it must be remembered that the variations in the urine of a child from day to day are often very considerable, and consideration of a single urinalysis is liable to be very misleading.

To determine the minimum number of observations necessary to establish with some degree of significance the average safranin index of an individual, the following study of these urinalyses was made. A list was made of all individuals under 21, of whose urine ten or more examinations were made; also of the number of examinations of each, and of the average safranin index of each individual. There were altogether 77 individuals (both sexes) with 1,559 urinalyses, making an average of 20.3 examinations for each. The average of all their safranin indices was 1.82. The average safranin index of all urines examined, adults excluded, was

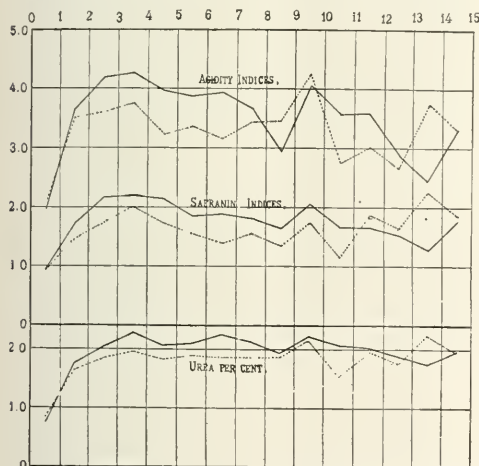


Chart 1.—Normal urea, safranin and acidity curves. Solid line, boys; dotted line, girls.

test, while ordinarily a urine with a safranin index of 5 will show sugar by the copper test. It has also been shown that phenylhydrazin does not always precipitate all the sugar present in a given urine. On the whole, I think we are safe in saying that the safranin test for urinary sugar stands on at least as reliable a basis as any other test for this purpose, and is quite as free from legitimate criticism as most other tests in biologic chemistry.

The special value of the safranin test to the clinician is its applicability to the determination of the quantitative variations in the physiologic sugar of the urine.

One year ago I took all of my recorded urinalyses, which showed the urea percentage and the acidity and safranin indices, and for which I could determine the age and sex of the children, and subjected them to a somewhat critical analysis. This review¹ of these analyses, some 3,500 in number, revealed some rather in-

1. The Safranin Test for Sugar in the Urine of Children.—THE JOURNAL, A. M. A., June 20, 1903.

1.81. Of the 77 individuals, 11 had exactly ten urinalyses, and the average safranin index of these 11 was found to be 1.81. This would indicate that for a given individual not less than ten examinations should be

made to determine his average safranin index. Of the 77 individuals with ten or more examinations, 11 had a safranin index between 2 and 2.5; 11 had an average safranin index between 2.5 and 3; with 2 the average index was between 3 and 3.5, and with 4 it was 3.5 or more; the maximum was 3.92.⁷³¹

Lewis G. was under observation from Sept. 7, 1900, to Oct. 9, 1902, from the age of 19 months to the age of 44 months. During this time 78 urinalyses were made, in all but 4 of which the safranin test was made. Chart 2 illustrates his urinalyses. These examinations gave an average urea percentage of 2.27, average acidity index of 4.82, and an average safranin index of 3.92. The average of the norms for the three years in which his age fell are urea percentage 2.02, acidity index 4.04, and safranin index 2.02, indicating throughout a concentrated urine of high acidity and very high safranin index. A consideration of the chart illustrating this boy's urine leads to the following conclusions, which are also in harmony with observations made on other patients:

In general, safranin and acidity parallel each other. Occasionally a high acidity will be found to precede a high safranin by a day, and begin to drop the same day that the safranin index reaches its maximum. In general, a high safranin does not last more than two or three days; high acidity not infrequently persists longer, and may occur independently of the safranin reaction. High safranin very rarely occurs independently of high acidity.

A few extracts from this boy's clinical history are now in order:

He had jaundice neonatorum and has always been pale and sallow. Was brought Sept. 7, 1900, for painful micturition. His urine then showed acidity 6.2, urea 1.7, ind. +, saf. 3. He was put on kal. bicarb., gr. 4, kal. nitrat., gr. 1, and vin. colch. sem., gt. 1, every two hours. This will hereafter be called his alkaline mixture. One week later the urine showed acidity 1.4, urea, 0.9, indican +, and safranin 1. Urination was less painful. Alkali continued. Ten days later he had some fever, with putrid stools and a canker sore, which quickly yielded to calomel. On October 19 his urine gave a safranin index of 10½ and also reduced bismuth and Fehling's test. Nov. 1, 1900, trouble again, with putrid bowel contents. Jan. 23, 1901, urinalysis: sp. gr. 1.023, acidity 7.2, urea 2.6, indican absent, safranin 8. Was given pulv. Doveri, gr. 1/10 t. i. d., and one week later urine showed sp. gr. 1.026, acid 5.8, urea 3.2, indican absent, safranin 2½.

In June he was brought in with the statement that he had had in March a grip attack which particularly affected the bowels, producing a mucous discharge which lasted for five or six weeks. After some improvement for two weeks the condition returned and was present at the time of his visit. His urine then showed acidity 7.2, urea 4.8, indican +, and safranin 12. He was put on his alkaline mixture and the bowel symptoms promptly cleared up and his disposition was much improved and his sleep became quieter. He was still taking the medicine when he was brought in on Aug. 5, 1901, at which time his urine showed acidity 2.3, urea 1.8, indican absent, safranin 2½. During the fall he continued in fairly good health, but was on the alkaline mixture much of the time. He would occasionally have slight attacks of putridity of bowel contents, requiring calomel, once or twice showed slight jaundice, and much of the time presented a geographical tongue. When he finally dropped out of observation he was in much better condition, showed less autotoxemia, and his urine ran close to the normal.

The accompanying table shows the average urea and acidity and safranin indices, with the average age of all cases up to April, 1903, for whom 10 or more urinalyses were made and whose average safranin index

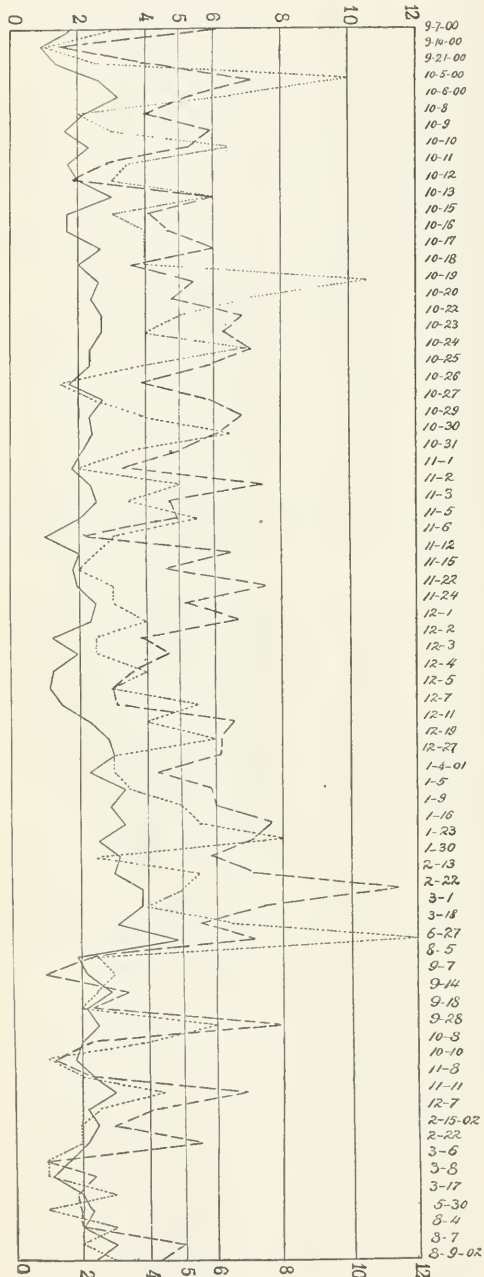


Chart 2.—Safranin, acidity and urea curves of Lewis G. Solid line, urea; dotted line, safranin; broken line, acidity.

was above the normal for the age. For convenience, parallel columns show norms. This table is intended to illustrate the general peculiarities of the urine of children presenting abnormally high safranin reactions. Arrangement is in the order of the safranin indices:

TABLE 1.

No.	Name	Sex	Age	Aver. Acid	Norm. Acid	Aver. Urea	Norm. Urea	Aver. Saf.	Norm. Saf.
1	T. E. F.	M	5 9	5.30	3.84	2.55	2.10	2.06	1.87
2	E. R. F.	F	4 7	3.35	3.23	2.09	1.84	2.08	1.75
3	H. I. M.	M	6 2	10.21	3.95	5.66	2.25	2.23	1.90
4	R. K. M.	M	11 0	1.95	3.69	1.21	2.04	2.27	1.69
5	D. M. F.	F	2 7	5.49	3.59	2.48	1.85	2.29	1.73
6	M. S. F.	F	5 8	3.75	3.38	1.99	1.92	2.29	1.57
7	H. C. F.	F	9 9	5.23	4.23	2.91	2.11	2.35	1.73
8	F. S. F.	F	3 2	4.63	4.27	2.40	2.29	2.11	2.21
9	M. S. F.	F	4 1	4.25	3.23	2.48	1.84	2.50	1.75
10	H. O. M.	M	9 10	4.33	4.05	1.97	2.22	2.37	2.05
11	W. G. M.	M	2 7	4.78	4.20	2.21	2.03	2.60	2.14
12	D. C. F.	F	1 11	3.25	3.49	2.39	1.64	2.66	1.60
13	E. E. M.	M	3 7	5.36	4.27	2.51	2.29	2.68	2.21
14	F. H. M.	M	3 3	5.94	4.27	1.98	2.29	2.68	2.21
15	E. H. M.	M	2 11	4.75	4.20	2.43	2.03	2.77	2.14
16	C. A. M.	M	6 9	3.72	3.85	2.15	2.25	2.77	1.90
17	C. A. M.	M	8 11	9.37	2.96	2.87	1.97	2.77	1.80
18	L. F. M.	M	2 3	4.88	4.20	3.03	2.03	2.95	2.14
19	F. F. M.	M	4 10	5.98	3.97	3.03	2.08	3.00	2.13
20	W. S. M.	M	2 7	5.71	4.20	2.11	2.03	3.23	2.14
21	R. W. M.	M	3 3	3.14	4.27	1.75	2.29	3.34	2.21
22	A. M. F.	F	4 2	5.06	3.23	2.21	1.84	3.38	1.75
23	R. B. F.	F	4 3	3.16	3.97	2.65	2.08	3.60	2.13
24	L. G. M.	M	2 7	4.82	4.20	2.27	2.03	3.92	2.14

Nos. 16, 21 and 23 were typical instances of high safranin. Of 24 cases showing excess safranin, 20 also had high acidity, illustrating very well the general association of these two phenomena. The table also illustrates that both high acidity and high safranin may occur independently of each other, indicating difference in origin.

The history of Lewis G. (Case 24 in the table) gives a fair view of the clinical course of a well-marked case of the saccharin diathesis. It is impossible to review in detail the clinical histories of these patients, beyond a comment or two on a few of them:

CASE 22.—Aimee M. Has always been a well-developed and well-nourished child, with an appetite that has needed curbing and with a tendency to minor skin eruptions, canker sores in the mouth and gingivitis. Often troubled with putrid bowel contents.

CASE 11.—Walter G. Was a difficult baby to feed, and from the age of 16 months for three years had persistently elevated temperature ranging in the morning from 99 to 99.5 (rectal), to 100 to 101 (rectal), in the evenings, and most of the time in apparently very good health and gaining regularly in weight. Since last fall this boy's temperature has been normal most of the time. Another boy in the same family seems to be about to follow in the older brother's footsteps.

CASE 20.—William S. At 21 months had a convulsion and two weeks later another. No fever. Urine showed acidity 6.0, urea 2.0, safranin 3, no indican. Put on alkalis, with prompt improvement in general conditions. Three months later another convulsion. During the next year, two more convulsions. None since.

CASE 21.—Ralph W. Was a difficult baby to feed, who did badly on milk, especially uncooked milk, and well on beef juice.

CASE 12.—Dorothy C. A delicate, nervous, sensitive child, continuously under weight. Subject to periods characterized by malaise, lack of appetite and marked languor. In each of these periods urine always highly toxic, i. e., showed high acidity and high safranin. Each spell quickly dissipated by alkalis. Twice she had slight jaundice. This child's urine was a perfect indicator of her feelings. Deficiency of weight was always a feature. Under the influence of alkalis, with the consequent improvement of general conditions, her weight would always increase.

CASE 23.—Russell B. Had bronchitis which was very persistent, and subject to exacerbations. Promptly relieved by alkalis.

CASE 10.—Harold O.C. This boy's autotoxemia was associated with diarrhea, headache and slow gain in weight.

Melvin I. At 2½ years of age suffered much with "dyspepsia," characterized by abdominal pain and undigested food in feces. Urine at this time highly toxic. Later some eczema. Under alkalis and colchicum he made rapid improvement in digestive symptoms and gained rapidly in weight.

Cyclical vomiting, or as I personally prefer to call it, recurrent biliousness, is always accompanied by high acidity, but not always by high safranin. For purposes of illustration, I present two recent and typical cases:

Anna J., age 7 years. Has been troubled with recurrent biliousness for two years past. Last attack began on the 6th inst., and lasted 30 hours, during which period she vomited thirty-five times. The urinalyses were as follows:

	May 7.	May 8.	May 9.	May 10.
Acid	6.8	9.1	3.2	4.4
Urea	1.8	3.2	3.0	2.8
Indican	+	+	0	+++
Albumin	0	0	0	0
Safranin	2	2	1	6

Treatment.—Soda bicarbonate, calomel, and enemata of plain water.

Eldon V., age 2 years. Subject to recurrent biliousness. Commenced vomiting on the 7th and vomited about ten hours. Urinalyses as follows:

	May 8.	May 9.
Acidity	14.7	1.3
Urea	3.0	0.7
Indican	0	++
Albumin	0	0
Safranin	5	0.5

In this second case it is interesting to note that even after complete recovery the urine contained large quantities of indican.

A case unique in my experience, associated with toxic urine, was the following:

Bonna B., age 21 months. This child, brought in from Emporia, Kan., presented the most marked choreic movements that I have ever seen. The condition had been present for several weeks at the time I saw her, in consultation with Dr. G. M. Gafford, and the choreic movements were so severe as to require chloroform narcosis to produce sleep. The single sample of urine obtained before she died showed acidity 9.4, urea 1.6, indican 0, albumin 0, safranin 3.

Several times I have met what was symptomatically meningitis, apparently due entirely to autotoxemia. The most striking instance was the following:

Gretchen J., age 8 years. This child had been sick two days when I first saw her, there being present fever, intense headache and persistent vomiting. I found also opisthotonos, photophobia, irregular pulse and Cheyne-Stokes respiration. Her urine showed an acidity of 18. She was given two teaspoonfuls of baking soda during the next twenty-four hours, and at the end of that time all symptoms had ceased. The soda was then stopped and in another twenty-four hours all the symptoms had returned. On resorting again to the baking soda the situation was again controlled and complete recovery ensued.

(To be continued.)

CONSTIPATION IN INFANTS.*

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Complete digestion embraces a three-fold function—viz., conversion, absorption and evacuation. There is a conversion and an absorption of the nutrient element of food, and following there is an evacuation of the refuse.

The successful performance of these several divisions of the digestive function is dependent on each other, on

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

the character of food ingested, and on certain secretions and motions of the organs involved.

If the food be of such character, or if it be so contaminated, that it over-stimulates secretions or exaggerates peristalsis, the lower bowel responds to the excitation and a diarrheal condition results.

On the other hand, if the secretions are not properly elaborated or if the mechanical movements of the bowel are insufficient to propel the contents of the intestine along its canal, the products of ingestion will be retained beyond that period necessary for all purposes of conversion and of absorption. This constitutes constipation; which may be defined then as a condition in which the products of food are retained in the bowel after they have lost all nutritional value and have become, therefore, foreign matter.

Constipation, it is true, is only a relative term, but it expresses a condition no less definite than that conveyed by the opposite term—diarrhea.

To determine the existence of either, the knowledge of just how many stools are normally evacuated during the day is of secondary importance to the knowledge of what character and volume the normal stool should be.

There are certain anatomic differences in the digestive tract of the infant compared with that of the adult, which are usually recited as predisposing the former to constipation.

The intestinal canal is relatively longer in the infant than in the adult. It contains a larger number of loops and coils and its caliber is relatively smaller. The infant's abdominal cavity, whose walls are yielding, is forced to accommodate a larger number of coils of intestines because of the undeveloped condition of the pelvis. The peristaltic movements are slight because muscular structure is undeveloped. The walls generally are thinner and weaker in the infant than in the adult.

Now it is well to know of these peculiarities, but the knowledge should furnish us with something better than an opportunity to nag at nature. As is very often the case, naked facts, such as are here furnished by the anatomists, have forced a false conclusion.

It is not by accident that an infant evacuates a smooth, yellow, homogeneous mass, thinner and relatively two or more times bigger by volume than the irregular sausage-shaped mass of varying color, which the adult normally passes. This difference in the character of the infant's stool is just what we should expect after considering the difference between his diet and the diet of the adult.

The infant's food is uniformly liquid, and its composition is more or less constant. Relatively the baby partakes of this more bountifully than does the adult of the long and interchangeable list of articles (liquid, semi-liquid, and solid), which goes to make up the latter's diet.

Nature is only able to perpetuate herself by conserving energy. Therefore she does not give to the infant a fully developed digestive tract, but she does give him that which is wonderfully adapted to his natural food and that which his natural food is capable of developing.

Because a great many constipated mothers have constipated babies, some have thought that they have seen another expression of hereditary influence. Constipation in the mother, however, or its causes, will produce just the changes in her milk that renders it constipating of itself. Her own baby is the one most likely to suffer, because he is the one most likely to be nursed. However, any other baby would suffer the same inconvenience on the same diet.

So far as the infant is concerned, the real causes of constipation are to be found only in the errors of hygiene or in errors of diet. Over-crowding, lack of sunshine, lack of fresh air may so interfere with the digestive processes and with the normal development of the child that irreparable injuries are produced.

The pernicious habit, not only prevalent among the poor and ignorant, but too often seen in homes where intelligence is otherwise perceptible, of so bundling and wrapping the infant with clothes that a heavy weight is placed on the abdomen and the normal exercise of limbs and abdominal muscles is prevented, is accountable for a large number of constipated babies. A too tight or resisting diaper may also be a factor in its production.

ERRORS OF DIET.

Errors of diet, to which constipation may be traced, are found in the method of feeding, in the composition of food or in both. Irregularity in the time of feeding and overfeeding usually accompany each other. The former interferes with the rhythm of the various stages of digestion, including bowel evacuation.

Distention from overfeeding materially affects bowel tone and embarrasses muscular activity. Insufficient nourishment will cause constipation immediately, by furnishing too little bulk of waste matter to supply the degree of resistance necessary to excite peristalsis; mediately by depriving the child of the necessary nutriment for development. Nourishment furnished in a too concentrated form will act very much in the same way.

Fat is normally supplied to the infant in excess of the nutritional needs proper. It is always found in considerable quantities in the normal stool and to its presence is due the soft, mushy consistency of the feces. Being nature's own laxative, it does not impair bowel tone or muscular activity, but only strengthens and develops them. A deficiency of fats in the food then will usually very promptly result in constipation.

The proteids, on the other hand, are almost all absorbed in their passage through the digestive tract. They are found in the feces in but slight quantities.

Now, if proteids are ingested in quantities much above the absorbing capacity of the bowel, the excess will form an unexpected residue. The same thing will result if the proteids are in a form illy suited to the absorbing function of the particular bowel into which they enter. In either case the residue is adventitious matter, difficult to propel, obstructing the bowel, weakening its tone, and producing constipation. If these errors of too low fat and too high proteid occur in the same milk, the result is all the more quickly evident and obstinate.

For the performance of the evacuating function a stimulus to peristalsis is necessary. Besides the fats already mentioned, this stimulus is furnished by bacterial fermentation, the acids, and the gases of the intestinal contents.

Strassburger's experiments have shown that the feces of constipation are almost free from bacteria, while normal feces abound in them. Two varieties of bacteria are constantly present in the intestinal tract of the infant. In the upper part of the small intestine the *Bacterium lactis aerogenes* is found in great numbers. It decomposes milk sugar, on which it depends for its growth, with formation of lactic acid and certain gases. As you note, these products of decomposition are some of the very forces acting as stimuli.

In the lower portion of the small intestine and throughout the large intestine, is found the *Bacillus*

coli communis, which, though depending on the secretions for its growth, when grown still further stimulates peristalsis and intestinal secretions. Ordinarily then, these bacteria are not only non-pathogenic, but are even desirable for furthering the performance of bowel functions. Because the one is directly and the other indirectly dependent on sugar for growth, a deficiency of this ingredient in food may result in constipation.

It has been found that farinaceous food will decrease the number of bacteria present, and it is as much by this property as by the residue it leaves, that this class of food has been found constipating to a great many children.

For the most part, constipation following the use of sterilized milk is due to the changes produced by heat on the proteids, whereby they are rendered less absorbable. Heat, however, produces several other changes in milk, which reinforce this constipating effect of the proteids. It changes at least a part of the sugar to caramel. It also destroys the chemical union between the mineral salts and the proteids. This union is not an arbitrary arrangement on the part of nature, but is essential to proper assimilation and distribution of those parts entering into it.

The importance of the mineral salts in furnishing constituents to the blood and in facilitating absorption, secretion and excretion is now generally accepted.

I hope that, without taxing your patience, I have entered sufficiently into the etiologic details to assist in offsetting certain misconceptions as to the gravity of the significance of the disorder and the importance of early treatment.

In the course of our care-taking of children, we are wont to be so concerned with the more distressing and imperative symptoms coincident with other digestive disturbances that we give slight, or at most secondary consideration to the more insidious, but after lapse of time, none the less undesirable digressions from the normal, which, so far as we are warned against them, have their beginning in a condition of constipation.

IMPORTANCE OF PROPER FEEDING.

For a long time text books on the diseases of children either ignored the subject entirely or gave to it only a cursory, paragraphic mention. Present writers give to it some of the space which it deserves. But that there is still no inclination to give to the subject full consideration, can not be better illustrated than by pointing out to you that in the series of papers on infant feeding, read before this section last year, not only did the subject fail to win title, but was not specifically mentioned either in the papers or in the discussion.

There is a too general impression in the professional, as well as in the lay mind, that constipation need be interfered with, not for what it stands for, but only when it produces undesirable and uncomfortable symptoms of its own.

Too often the practitioner feels that his obligation to the child ends after he has found, by accident or experiment, a food which agrees with it. In ordinary acceptance, food which agrees means no more than one which does not provoke vomiting or excite diarrhea.

In fact, so unsure of their methods, so fearful of exciting diarrhea are some who are attempting infant feeding that they regard constipation as a desirable, rather than an undesirable condition.

It goes without saying that the members of this section have a better understanding, but when we consider

the effect of what is said and of what is left unsaid here on that great body of physicians which looks in this direction for guidance, are we not, after all, responsible for their misconceptions?

We must teach that the baby must be carried, not dragged, through his infancy, and that he must be placed on the threshold of childhood in condition to enjoy his existence, which can be only after he has been furnished with all the nutriment necessary for his normal development.

Constipation does not cause rickets, nor scurvy, nor inanition, nor chronic indigestion, nor marasmus, nor anemia. Constipation, however, is the result of that which, if persisted in or allowed to be neglected, will cause one, and may cause any of these nutritional diseases. When we can gain a general recognition of the significance of constipation, preventive medicine will have taken a stride forward.

TREATMENT OF CONSTIPATION.

The treatment of constipation in the infant is then something more than the treatment of the condition itself. There is no more intelligence displayed in simply securing daily evacuations with medicinal stimulants and excitants of the bowel than there is in checking a diarrhea only to allow the absorption of the poisons producing it.

If the disorder is one resulting from unhygienic conditions, no amount of castoria or of castor oil or of nuxvomica will better those conditions in the least.

If the diet is too high in proteids, the most liberal administration of salts, of suppositories or of enemas will not lessen the percentage of those proteids by the smallest part of a fraction.

The treatment of constipation is not a difficult thing if the condition is treated early and dealt with intelligently. A knowledge of the relationship between the feces and the ingesta and of an abnormality in the first pointing to the abnormality in the latter is prerequisite. Have we the right to attempt infant feeding at all without this knowledge?

General recommendations, such as are found in some text books, for the use of cream, of oatmeal, etc., are misleading and only show how carelessly the subject has been handled by otherwise capable authors.

Rational treatment denies routine in these cases, and demands primarily the finding of the cause. The cause, when found, suggests its own correction, which is the treatment of constipation in the infant.

If, however, the condition is neglected while the child is yet a young infant, treatment becomes an altogether different and more difficult question.

Before the contents of the bowel alone were at fault, but to this has now been added changes in the bowel structure itself, which can not be corrected by simply controlling the diet. It is for such cases that medicinal treatment is necessary, but even here great caution must be observed against abuse.

If the constipation is not of very long standing, atony of the bowel may be overcome, after correcting the diet, by an endeavor to establish habit. The simplest way of accomplishing this is by holding the child at regular hours, preferably after the morning and evening bottles, on a chamber in such a posture as to favor an evacuation. For the success of this method, regularity in feeding, because it favors rhythm in the stages of digestion, is necessary. If the bowel still remains obstinate a stimulus should be given. At the same time it should be recognized that this is unnatural and foreign

and that not only must it be slight as possible, but it must be withheld at the earliest possible moment.

Because no better method presents, I frequently advise the insertion, while the child is in posture, of an ordinary clinical thermometer, well oiled and used only for the purpose. Beside its simplicity and frequent success, it impresses the mother with the foreign nature of such a stimulus and the more readily does she dispense with its use. Soap and glycerin suppositories are to be avoided if possible. Massage ought never to be practiced on the young child.

This paper is intended as a plea for the early correction of constipation and will not, therefore, outline any treatment for the neglected cases of this disorder.

DISCUSSION.

DR. THOMAS S. SOUTHWORTH, New York City, said that the first step in the treatment of constipation in infants is to understand the underlying conditions. With nursing infants, the care of the mother and the regulation of her diet are important in relation to the constipation of the child.

DR. ISAAC A. ABT, Chicago, stated that the use of over-fatted food, especially cream, which is commonly regarded as desirable in the treatment of constipation in infants, has actually been found at times to produce constipation and has led to the formation of scybala. The late Dr. Earle once made the statement that children were often constipated because the food they received was so perfectly assimilated that there was very little residue. Dr. Abt believes that constipation in infants may be due to a variety of causes. First, to the food itself; second, to the nature and quantity of the residue, and third, to a lack of muscular tone in the bowel. It may be the result of an atonic condition of any section of the bowel, or it may depend on a simple tonic constriction of the sphincter. Dr. Abt believes this is a frequent condition in infants. We have all seen cases where the mere introduction into the anus of a fever thermometer, or the point of a syringe or a bit of greased paper, has given rise to a stool of perfectly normal consistency. All that is necessary in these cases is the relaxation of the sphincter muscle.

DR. J. R. SNYDER believes that such children are underfed and that a child should have an amount of food in excess of the actual nutritional needs. The best way to determine the cause of constipation is by a close inspection of the stools. This will disclose just what the stool lacks.

PERINEPHRITIS IN CHILDREN.*

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The term perinephritis is used by most writers to describe an inflammation in the tissues surrounding the kidney. Schmid,¹ Prior,¹ Puky,¹ Senator¹ and Israel² would limit it to those cases where the disease originates in the fibrous sheath of the kidney. When it begins in the fat tissues they prefer the term paranephritis, except Israel, who designates such cases as epinephritis. Kuster³ limits perinephritis to an inflammation of the anterior peritoneal covering of the kidney, and calls all others paranephritis. Under paranephritis Israel classes all inflammations beginning in the retroperitoneal tissues.

This diversity of nomenclature rather tends to con-

fusion than clearness, and in this paper all cases are spoken of as perinephritis.

Perinephritis is not of frequent occurrence. Nieden,⁴ in 1897, could only find records of 166 cases. Of these, 23 were under 15 years of age, the youngest being five weeks old. Gibney,⁵ in 1876, reported 9 cases, and in 1880 increased the total to 28. The ages varied from 1½ to 15 years. In 16 there was suppuration; in 12 no suppuration. In 19 cases no cause was found; in 8 a cause was given. Fenwick,⁶ in a report on 76 cases, speaks of 4 in children under 10 years of age, and of 9 between 10 and 20 years, the youngest being 14 months old. He excluded from his list all of Gibney's cases, because none of them had been verified by postmortem findings. Kuster³ rejects 16 of Nieden's list, and adds 80 cases, making a report on 230. Of these, 24 were under 10 years of age, 17 between 10 and 20.

Johnson,⁷ in an experience of nine years in Roosevelt Hospital, saw but one case in a child, a perinephric abscess in a boy of 10, following a fall, not complicated by a kidney lesion. Israel,² in a report on 43 cases, speaks of one in a patient 12 years old. The 6 cases reported in this paper were all that were seen in children at the Hospital for the Relief of the Ruptured and Crippled, New York City, during the years 1894-1903, when 3,689 patients were treated in the indoor department, all under 14 years of age.

In no instance in the 6 cases reported from the Ruptured and Crippled Hospital was a correct diagnosis made by the attending physicians who first saw the patients, but all of them were sent to the clinic to have either spinal or hip braces applied. Gibney and others state that an erroneous diagnosis is made in over 50 per cent. of the cases seen. Only in rare instances should any difficulty arise in correctly interpreting the symptoms in a case of beginning perinephritis. After an abscess has formed the diagnosis is usually very easily made.

CLASSIFICATION.

In a consideration of perinephritis, the most simple classification is the division into primary and secondary, acute and chronic. Other classifications have been made, but they are unnecessarily elaborate. The best is that of Schmid,⁸ who speaks of direct and indirect infections, with various subdivisions.

Under primary are classed all cases where the disease originates in the tissues about the kidney, the fibrous capsule, the fatty or areolar tissue, the fascia over the quadratus lumborum or psoas, the fascia about the diaphragm or in the peritoneum in front of the kidney.

The secondary comprises all diseased conditions of these parts following or secondary to diseases in other parts of the body.

Acute and chronic are used in the ordinary acceptance of the term. Fenwick⁶ would add to the acute and chronic a latent type, to include those in which no physical signs are present pointing to suppuration near the kidney, or in which they are masked by more prominent manifestations of illness in other parts. In this class would be placed many of the pyemic cases.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

1. Herszky, Jena, March, 1903, *Centralblatt für die Grenzgebiete der Medizin und Chirurgie*.

2. Israel, Berlin, 1901, *Chirurgische Klin. der Nieren Krankheiten*.

3. Kuster, Stuttgart, 1896-1902, *Die Chirurgie der Nieren. Deutsche Chirurgie*, 1897.

4. Nieden, Leipzig, 1878, *Ueber Perinephritis hauptsächlich in Aetiologischer und Diagnostischer Berücksichtigung*.

5. Gibney, New York, Amer. Jour. of Obstet. and Dis. of Child., vol. ix, 1876; Chicago Med. Jour. and Examiner, 1880.

6. Fenwick, London, Lectures on Cases of Difficult Diagnosis, Laneet, 1885.

7. Johnson, New York, Contribution to the Surgery of the Kidney, *Annals of Surgery*, 1899.

8. Schmid, *Handbook of Therapy Nieren Krankheiten*, vol. vi.

ETIOLOGY.

In most instances the etiology is obscure, but in many a definite cause is supposed to exist. Exposure to cold, a strain or sprain, a blow, a wound or fall on the side, constipation, excessive exercise of any kind, jarring of the body, overexertion, simultaneous infection of the perinephric tissues with other infections are among the causes that have been held to produce primary perinephritis.

The secondary may follow infection of any part of the body, and has been seen in all forms of kidney lesion, especially in pyonephrosis, pyelitis and stone in the kidney, or after operations on the kidney, ureters, bladder or urethra. It may follow or occur in typhoid and other fevers, in pneumonia, empyema, abscess of the lung or pleurisy, after the ulceration of a stone through the gall bladder or the rupture of an echinococcus cyst, in appendicitis or inflammations of neighboring organs within the thorax or pelvis, or after injuries of the kidneys,⁹ etc. The acute cases come on suddenly, and most of the primary cases are of this character.

PATHOLOGY.

The pathology is an inflammation of the parts. Among the bacteria which may be found are staphylococci, streptococci, pneumococci, typhoid, tubercle or colon bacilli. Eighty per cent. of the primary cases end in abscess, and in the secondary an abscess is always found.

Where no abscess occurs the inflammation subsides more or less rapidly, and no trace may be left except, in occasional instances, a thickening of the part.

SYMPTOMS AND PHYSICAL SIGNS.

Symptoms.—The first symptom of primary perinephritis is usually pain, which may be very severe in character. It is most frequently felt in the region of the kidney near the vertebrae, but may be referred to the terminal filaments of the nerves and felt in the axillary line or even in front of the body. It may intermit and be mistaken for a neuralgia or lumbago, or extend downward and simulate a sciatica. Occasionally it is felt in the distribution of the anterior crural or obturator nerves. If constant it may be severe or dull in character, and pressure about the region affected generally increases it. As movements of the body tend to aggravate the pain, the spine is generally held rigid, and it is due to this fact that so many of the cases are at first mistaken for Pott's disease. A spine held stiffly often misleads the careless examiner, as the position assumed may tend to bring into prominence the spinous processes of the vertebrae, but to the careful observer this "position curve" is very different from the kyphosis of Pott's disease, the curvatures due to rhachitis or the beginning cases of rotary lateral curvature.

When psoas contraction occurs either before or after an abscess has formed or within the psoas muscle, flexion of the thigh results, and attempts to straighten the lower extremity cause pain, due to tension on this muscle, which may be referred to the hip, spine or pelvis. Very young children can not locate it definitely, and even those older are often uncertain where it is felt. This drawing up of the thigh by contraction of the psoas causes lameness and tilting of the pelvis, with consequent bending of the body to the affected

side. This accounts for these cases being mistaken for beginning hip-joint disease, and the true condition overlooked.

As the disease is of an inflammatory type, chills or rigors, followed by fever and septic temperatures, are among the first symptoms, and are often severe in character, and produce rapid depression of the vital forces. Rigors, septic temperatures and great general depressions, where a definite cause is not known, should suggest an examination for a perinephritis, even if other symptoms are absent.

Constipation is the rule, and its causation is variously ascribed to the patient's desire to avoid the pain of moving the body necessary to open the bowels, to pressure from the abscess on the intestinal tract, or to pressure on the sympathetic nerves. Diarrhea is very exceptional, and may be an early sign of pyemia. Vomiting is often present at the onset, but is of no special significance.

Examination.—A physical examination of the loins may show a dull note on percussion in the hypochondriac region over the affected area, and this is apt to increase as the abscess enlarges. The colon on the left side is in front of and on the right side to the inner side of the tumor, and over this a tympanitic percussion note may be elicited.

Abscess Formation.—With the formation of an abscess we have a tumor which may be felt, even when small, and which usually follows certain lines in coming to the surface.

It either points near the spine or in the hypochondrium or simulates a psoas abscess,¹⁰ which may be described as consisting of four parts: 1, A somewhat narrow channel at its upper part in the psoas sheath; 2, a dilated sac in the iliac fossa; 3, a constricted neck under Poupart's ligament; 4, a dilated sac in the upper part of the thigh.

All psoas abscesses do not, however, pursue this course. The matter may leave the muscle above the crest of the ilium, and tracking backward, may point in the loin (lumbar abscess); or it may point above Poupart's ligament in the inguinal region; or it may follow the course of the iliac vessels into the pelvis, and, passing through the great sacrosciatic notch, discharge itself on the back of the thigh; or it may open into the bladder or find its way into the perineum.

It may burrow upward and pass through the pleura and lungs and be discharged through a bronchus,¹¹ or burrow downward and open into the vagina or intestinal tract.

The pus may have a fecal odor without any connection existing between the abscess and the bowel, as gases in debilitated patients may pass through the bowel wall. When a perforation of the kidney has occurred, a urinary odor may be noticed in the abscess.

Urine.—The urine may be of high specific gravity, high color, and may contain albumin and casts, indications of involvement of the kidneys, such as occurs in course of inflammations in other parts of the body. It is transient in character, not a permanent kidney lesion.

Blood.—The blood count shows an increase in the leucocytes, such as is found in abscess formation in other parts, and in many inflammatory conditions. If tubercular in character, there will be no leucocytosis unless sepsis also exists.

9. Watson, Boston, Subperiosteal Injuries of the Kidney, Boston Med. and Surg. Jour., 1903.

10. Gray's Anatomy.

11. Loumeau: Jour. de Med. de Bordeaux, vol. xx, No. 41.

RELATION OF AGE AND SEX TO THE DISEASE.

The disease affects the sexes in about equal proportion and the same is true of the side affected. There is no reason why bilateral perinephritis may not occur in children, but I have found no recorded cases. Secondary bilateral cases have been reported by Turner,¹² Rayer,¹ Rosenstein,³ Hitz,³ and others in adults.

DIFFERENTIAL DIAGNOSIS.

The most common errors are to mistake perinephritis for beginning osteitis of the spine, Pott's disease, osteitis of the hip or hip-joint disease, or for acute osteomyelitis of the vertebrae. The absence of kyphosis, the rapid onset, the location of the pain, the rapid formation of abscess, high leucocyte count, with high temperatures, are symptoms rarely found in beginning Pott's disease, and the differential diagnosis is rarely difficult.

In hip-joint disease all motions are limited, in perinephritis only extension, and all are possible if the thigh is flexed. In hip-joint disease there is atrophy of the hip. An abscess rarely occurs in early stages, but if present, it is apt to be near the joint, not near the spine. The onset of hip-joint disease is usually slow, and the first symptom is generally lameness, the leucocyte count is not increased until suppuration occurs, and pain is apt to be referred to the knee or hip. In but rare instances will any difficulty be found in making a proper diagnosis.

From psoriasis in some cases a positive diagnosis can not be made. The principal points to remember are that psoriasis is more rare, abscess is infrequent, pain is apt to extend along the course of the psoas and iliacus and to be felt in front rather than behind, and that psoas contraction or thigh flexion is a very early symptom. Undoubtedly some of the reported primary cases of perinephritis where no suppuration occurs are cases of psoriasis, although suppuration may occur in inflammation of muscle.

In acute infectious osteomyelitis of the vertebrae, the pain is felt in the spine, most severely in the affected area, with local spinal tenderness. The last symptom is of great value, and is absent in perinephritis. With involvement of the nerve root within the spinal canal, we have lancinating pains which extend in front. These are usually more severe than the pain in perinephritis, but this symptom may be misleading. Dural symptoms may appear early, and pressure on the cord cause compression symptoms. These are absent in perinephritis. The septic symptoms would be the same in both.

The abscess tumor may be mistaken for an enlarged spleen, liver or kidney, or for an aneurism or appendicitis, but proper study of the symptoms will rarely leave one in doubt as to the true condition that exists.

The treatment should be based on the conditions present. If seen early, rest in bed, tonics, laxatives and mild stimulation are indicated. If an abscess is present, prompt surgical interference is demanded. Failure to promptly open a collection of pus may mean death from sepsis or burrowing into other parts, with formation of sinuses and long delay in recovery and serious complications.

A study of the reported cases in the literature clearly shows that the tedious convalescence, the formation of abscesses in other parts secondary to the perinephritis and the deaths were largely due to failure in making an

early diagnosis and to indefinite surgical procedures after the diagnosis had been made.

In the cases treated at the Hospital for Ruptured and Crippled Children, no deaths have occurred. In primary perinephritis the death rate should be very low, if cases are properly treated; in secondary it will depend on the primary site of and character of the infection.

Watson⁹ found perinephritic abscess the cause of death in 56 of 81 fatal cases of subparietal injury to the kidney treated expectantly, but in 99 uncomplicated cases treated by operation other than nephrectomy, in 21 cases of perinephritis there was but one death. The cause of perinephritis and the treatment both influence the mortality rate.

REPORT OF CASES.

CASE 1.—Male, aged 13; admitted to hospital Nov. 27, 1903. Family history negative. Was perfectly well up to two weeks ago.

History.—In July he had a chair pulled from under him, slightly injuring his back, but he fully recovered. In September he fell from a bicycle, but did not hurt himself. Two weeks before admission he lifted a heavy box and the next day suffered intense pain in the back and had a chill. The pain was excruciating and paroxysmal in character and confined to the right side of the spine. About a week later it extended downward toward the hip and was felt in front of the abdomen. He was constipated and the bowels were finally moved by the use of salts. After the chill he had fever, and three days later was delirious. A physician who was called at this time was unable to make a diagnosis, but pronounced it hip joint disease when one week after onset the thigh became flexed and was held constantly in that position. After the first few days vomiting was present and persisted, until after admission to the hospital. Boy lost flesh rapidly and had a daily chill and fever for over two weeks.

Examination.—On admission, rectal temperature was 101 degrees, pulse 88, respirations 18. He was pale and evidently suffering pain. The right thigh was flexed on the abdomen; extension beyond 90 degrees was impossible. No disease of hip or spine made out. Deep pressure in region of kidney caused pain.

Urine amber color. Sp. gr. 1020. No sugar or albumin. Abdomen retracted, no signs of peritonitis. Leucocyte count 14,000.

Treatment.—Treatment was rest in bed and milk diet.

Result.—Symptoms gradually subsided. Leucocyte count December 5 was 7,500. Flexion of thigh had disappeared, and on December 12 he was discharged cured.

Feb. 15, 1904, he was seen in the out-patient department and was perfectly well; could walk or run as any other boy, and was gaining flesh rapidly.

CASE 2.—Male; aged 6½; admitted to hospital July 22, 1903. Family history negative. Has had none of the diseases of childhood.

History.—Was perfectly well until one week before admission, when he complained of pain in the left side, very severe in character and worse at night. No cause known. Had chills, followed by fever; lost flesh; appetite failed. The family physician first made a diagnosis of malaria, then of hip disease, and sent the patient to the hospital for a brace.

Examination.—Examination on admission showed general condition poor; rectal temperature, 102.8 degrees. A large, fluctuating tumor was easily made out in the lumbar region, presenting two inches to the left of the spine, midway between the crest of the ilium and the last rib.

Treatment.—Abscess was opened, careful examination made and no disease of spine was found.

Result.—August 19, discharged cured. February 14, 1904, seen at his home; was perfectly well.

CASE 3.—Male; aged 11 years; admitted to hospital, Oct. 29, 1902. Family history negative.

History.—The first symptom noticed was pain in the back near the spine; the child held himself bent over when he walked. He lost weight and had chills, followed by fever. No cause known. The family physician made a diagnosis of hip disease and sent him to the hospital for a brace.

Examination.—Examination on admission showed boy in poor physical condition. The left thigh was flexed on the abdomen, and could not be extended beyond 90 degrees. No evidence of disease of spine or hip. In left ilioacostal space a fluctuating tumor was easily made out.

Treatment.—This was opened, drained, and patient was discharged cured on November 24. February 15, 1904, seen at his home; was perfectly well.

CASE 4.—Female; aged 6 years; admitted to hospital Nov. 12, 1903. For two weeks prior to admission she had pain in the back, with chills, followed by fever. No known cause. The family physician sent the child to the hospital for a brace for Pott's disease.

Examination.—On admission the rectal temperature was 104 degrees; there was incontinence of urine, sensitiveness to pressure in the right lumbar region, marked stiffness of the lumbar spine. Pain was increased when the child bent to either side. Bowels regular; no tumor felt.

Two days later the parents removed the child from the hospital. At that time the temperature was lower and the general condition improved.

February 12, 1904. Seen at her home and condition found to be perfect.

CASE 5.—Female; aged 3; seen in out-patient department Sept. 27, 1901.

History.—For two weeks had been complaining of pain in the back and walked lame. No cause known. Had chill, followed by fever.

Examination.—A fluctuating tumor was found to the left of the spine in the lumbar region; marked psoas contraction; thigh held flexed on abdomen; constipation; passes but small quantities of urine daily. Temperature in axilla 100 degrees.

Treatment.—Three days later at the hospital the abscess was opened, and one month later entirely healed. Feb. 15, 1904. Seen at home; perfectly well.

CASE 6.—Female; aged 5 years; admitted to hospital Dec. 5, 1898.

History.—In July she was run over by a wagon, but the superficial wounds healed, and she was apparently well, but two months ago she began to get lame.

Examination.—General condition was poor; abdomen prominent, also third and fourth lumbar vertebrae. Muscular spasm and rigid spine. Distinct abscess was found in the right pelvis, psoas contraction; thigh flexed on abdomen.

Treatment.—December 18, aspirated, and two ounces of greenish pus were withdrawn; December 22, aspirated and seven ounces withdrawn. Temperature, 100 to 102 degrees.

December 26, abscess was opened, and on Jan. 17, 1899, a counter opening was made between the ribs and pelvis and free drainage established between this and the opening in front.

Dec. 26, 1899. Posterior opening was closed; one into the pelvis in front still discharging.¹³

DISCUSSION.

DR. R. B. GILBERT, Louisville, mentioned two cases in which this condition was mistaken for disease of the vertebra, and said that the knowledge of the facts in regard to perinephritis in children should aid in the diagnosis of this condition, which is so frequently overlooked.

DR. A. JACOBI, New York City, considered that Dr. Townsend did not lay sufficient stress on the possibility of constipation being a cause of the condition in children, just as it is in the adult. It is due, not so much to the pressure produced by the dilated colon, but to the stagnation of the feces, producing inflammation of the colon and subsequent infection. Dr. Jacobi has no doubt that in the adult Dr. Townsend has seen many

just such cases. In some cases that have come under Dr. Jacobi's observation, obstinate constipation of many years' duration was the cause, or one of the causes, of the perinephritis. He could only recall four cases of this condition in young children, two in children perhaps 2 or 3 years old, the other two in older children. In the latter cases the perinephritis was on the right side; in the younger children on the left side. Constipation takes place in very young babies particularly about the left curvature, just in or above the sigmoid flexure; particularly in those which he has described as "congenital constipation," which depends on an exorbitant length of the sigmoid flexure. In older children, in whom the ascending colon is longer than in the newly born, the constipation may take place in the right curvature, and this happened in the cases that came under his observation.

DR. W. R. TOWNSEND said that he had recently seen two cases of perinephritic abscess in children and both had been mistaken for hip-joint disease.

Clinical Notes.

RESPIRATORY PITCH.

A. J. STEVENS, M.D.

MALDEN, MASS.

Those who write their opinions on medical subjects, unsupported by reasons or experiments which can be put to the proof by any competent person, and those who write the "one consecutive case" articles may usually be considered bores. My justification for asking a hearing is based on something more definite than personal opinion, something which can be confirmed by evidence sufficient to prove a case in the courts. As a preliminary I will ask the reader's indulgence in the relation of a personal experience which may have a certain value to those interested in auscultation.

Thirty-six years ago the teaching as to the pitch of respiratory sounds was the same as that of to-day. At that time it was my privilege to receive instruction in auscultation under a talented pupil of Dr. Austin Flint. Through personal experience of pulmonary disease my interest in becoming expert was great, but my first experience as a pupil was discouraging. The current teaching as to pitch did not coincide with the evidence of my ear.

After referring to my instructor a number of patients in whose chests the expiratory sounds were lower than the inspiratory, and being told that I was in error, I feared for some time that my peculiarity would be fatal to proficiency as a diagnostician in pulmonary diseases. I had confidence in my ability to detect slight differences in pitch, but that confidence did not carry me to the extent of setting up an unsupported opinion against that of the experts in the profession. After many discouraging attempts to master the subject, I learned that ability to detect morbid sounds was not lessened by inability to define the pitch in the terms of the accepted authorities.

After thirty-five years, in which auscultation has been practiced daily, and the correctness of early impressions in this particular have been confirmed, it is a satisfaction to read what Dr. Quimby stated in his paper in THE JOURNAL, Oct. 1, 1904. The following evidence is worth considering, and any physician can multiply the tests to any desired extent on the same lines. Musicians use the term "positive pitch" to designate a faculty which seems incredible to one who does not possess it. Those persons who have it can, unaided by any sense except that of hearing, name any note sounded on a piano. The evidence of persons having "positive pitch" should have great weight in settling the question of the pitch of respiratory sounds.

Several of my patients and friends have this faculty, and having tested their ability to hear and describe the sounds heard through a stethoscope placed over the trachea and also over different parts of the chest, and finding their evidence unanimous, that inspiration is of higher pitch than expiration, it seems to me that an unbiased jury would render a verdict in

13. Since the above was written the author has seen two additional cases in children of 3 and 4 years of age, one mistaken for hip-joint disease, the other for spinal disease. Abscesses were opened and drained and both cases made perfect recoveries.

accordance with the evidence, without hesitation. Doubtless many physicians are proficient in auscultation whose sense of hearing would not enable them, either from natural defects or erroneous training, to decide this question correctly. A better foundation can be laid on truth than on error, and more men will become expert in auscultation when to every factor is assigned its correct position and value than when an error complicates the problem. It would seem that a correct settlement of this question is not only of interest but of importance, and that it may be settled to the satisfaction of all by the kind of expert testimony cited.

RHEUMATISM TREATED BY VENESECTION AND HYPODERMICOLYSIS.

C. G. HARRIS, M.D.
FESTUS, MO.

A man, aged 26, English, bricklayer by occupation, has had rheumatism at varying intervals since he was 15 years old. His father is in good health, but drinks a good deal. Mother is extremely "nervous." The patient complained of lameness and rheumatic pains which had persisted for the last four months. The right shoulder, wrist, knee and ankle joints were swollen and painful. Temperature was 103, pulse 96. His tongue was heavily coated and his breath bad. He complained of headache. The urine was of dark red color, high specific gravity and acid in reaction. Calomel and saline cathartics were given to clean out the intestinal tract. As the usual anti-rheumatic remedies failed to give relief and anodynes seemed to have no effect on the pain, venesection was performed and about twelve ounces of blood were withdrawn. Following this, two pints of normal salt solution were injected beneath the skin of the breasts. All pain (except a slight soreness) had disappeared in less than two hours. Temperature dropped to normal and pulse to 80. Two hours later the pulse was 72. Recovery was uneventful and so far (four months later) there has been no recurrence.

New Appliances.

A SUPPORT FOR PATIENTS SUFFERING WITH WEAKNESS AND PAIN AFTER THE ARREST OF TUBERCULOSIS OF THE SPINE.

JOHN JOSEPH NUTT, M.D.

Assistant Attending Surgeon, Orthopedic Department of Cornell Dispensary,
NEW YORK CITY.

The relief from weakness and pain, which sometimes remain persistently after all the acute symptoms of tuberculosis of the spine have disappeared, may severely tax the ingenuity and skill of the orthopedist. Because of this fact, this apparatus is presented with the hope that it may be of value to the profession. No originality is claimed, except for the ensemble of its parts, which are taken from well-known braces and applied to a leather corset. This combination, however, proved so serviceable in this instance that others may profit by copying it, in whole or in part.

Patient.—S. F., aged 27, of Caracas, Venezuela, had developed Pott's disease during early childhood. Until his tenth year he was so weak and sickly that he was not expected to live. He then began to improve, and for the following eight or ten years enjoyed comparatively good health.

History.—During the past ten years he has suffered a great deal from pain and weakness, and three years ago he was forced to give up every form of exercise. After several months in bed he gained enough strength to sit up and walk about to a limited extent. The actual canterly had been applied at frequent intervals during the last year and gave slight but temporary relief from the pain. He had also been placed in a Sayre's suspensory apparatus a number of times last winter; with just what object is not known.

Examination.—Physical examination showed a most pronounced kyphos in the lower dorsal region. No symptoms of an acute process could be found, although it seems highly probable that there had been an exacerbation of the disease about three years ago. The heart and lungs appeared to be normal.



Figure 1.



Figure 2.

He came to New York because he still suffered from pain and weakness. The pain was felt on either side of the kyphos and along the costal borders, especially the right. This pain was not usually present while lying down, but became more marked the longer the time he remained in an erect position. He could

walk but a few moments without being compelled to rest, and even standing quickly fatigued him.

Diagnosis.—A diagnosis was made of intercostal neuralgia and weakness from deformity. It seems probable that the vertebrae, though ankylosed, had been too far disintegrated to form a spine of sufficient strength to support the well-developed shoulders and chest.

Treatment.—A plaster-of-paris jacket was applied with the patient in extension, and, by giving some relief, gave encouragement. A stronger plaster was then applied, but did not fill all the indications. After considerable study and experiment-

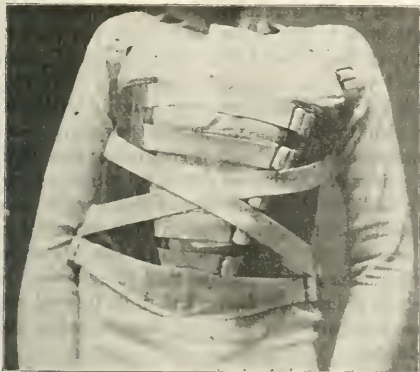


Figure 3.

ing, the apparatus here shown was devised and applied. (Figs. 1 and 2.) The patient wore it to St. Louis on a visit to the Fair, and on his return pronounced it very successful.

He had been able to walk about for several hours at a time without once sitting down. Except for a slight change in the leather beneath one shoulder, no alterations were made.

As it was difficult to get sufficient leverage to obtain the necessary support, the crossed straps were used extending from the ends of the pelvic band to the upper part of the crutch on the opposite side. (Fig. 3.)

A NEW INHALER FOR NITROUS OXID ETHER SERIES.*

SAMUEL IGLAUER, B.S., M.D.
CINCINNATI.

Purpose.—The advantages of nitrous oxid as a preliminary to ether are well known and require no particular commendation. Suffice it to say that nitrous oxid followed by ether combines the elements of safety, rapid and pleasant narcosis, avoidance of the stage of struggling and excitement, and a great reduction of the quantity of ether necessary for the induction and continuation of the anesthesia. Various apparatus have been devised for this series. Many, however, are rather cumbersome, complicated and expensive.

Construction.—The inhaler which I have devised for the administration of nitrous oxid and ether consists of a closed metallic face-piece, provided with an inflatable rubber cushion, accurately fitting it to the patient's face. On top of the face-piece is a detachable glass and metal ether-container, from which a visible supply of ether may be fed in definite quantities as desired. (Modification of Brown's ether container.) Within the face-piece is a wire basket for the gauze, on which the ether is allowed to flow.

An L tube telescopes at one end with the face-piece. To the other end of the tube is attached a large rubber bag for the nitrous oxid gas. To prevent the gas from escaping until de-

sired, the tube contains an obturator valve, controlled by a small lever, which projects through the air slot in the tube. This is the only valve in the apparatus, and acts simply as a cut-off.

A large ring for the thumb enables the anesthetist to hold the face-piece, and to support the angle of the patient's jaw with one hand. On the side of the face-piece are two openings, through which air may be admitted or ether poured, if desired. If the ether-container be removed, the ether may be poured from a bottle, directly on the gauze.

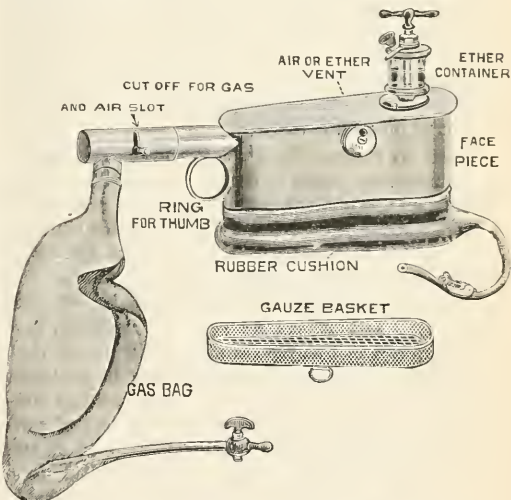
Use.—To use the inhaler, first, loosely fill the wire basket with gauze.

Second, fill the ether-container with ether (about one ounce).

Third, inflate the gas bag with nitrous oxid from a cylinder containing the gas. (This cylinder must have key, yoke and tubing, which may be obtained at any supply house.)

Fourth, apply the inhaler to the patient's face and instruct him to breathe through the mouth. Admit air through the air slot, until the breathing is regular and the patient reassured.

Fifth, now turn the lever freeing the gas and shutting off the air. Allow the patient to breathe the gas back and forth into the bag. In about forty to sixty seconds nitrous oxid narcosis will ensue.



Sixth, at this time allow from two to three drams of ether to flow on the gauze. The patient now breathes a mixture of nitrous oxid, ether and carbon dioxide from his own lungs.

Seventh, admit a breath or two of air if the patient becomes cyanosed or if the breathing is stertorous.

Eighth, allow ether to flow on the gauze from time to time until ether anesthesia is established. This usually requires three minutes.

Ninth, remove the large rubber bag and slide on the smaller one (provided with the outfit), continuing the anesthesia with the closed or Clover method, air being admitted from time to time as necessary. By removing the bag we can change to the open method if desired.

For the administration of nitrous oxid alone the inhaler is provided with a three-way valve, modified after Goldan's. The inhaler may be used for ethyl chlorid by closing all the vents except one, through which ethyl chlorid may be sprayed on the gauze. For ethyl bromid, all vents are closed, and after pouring the bromid directly on the gauze, the inhaler is applied to the patient's face until anesthesia ensues.

The inhaler combines the qualities of lightness, compactness, convertibility with simple construction. The metal parts may be sterilized by boiling, while the rubber parts are best cleansed with alcohol.

* Demonstrated before the Section on Surgery and Anatomy at the Fifty-fifth Annual Session of the American Medical Association, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

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CHEMISTRY OF AMYLOID.

Before the era of aseptic surgery, amyloid disease was one of the commonest conditions met with by hospital physicians and surgeons, but now that chronic suppuration has become rare, the frequency of amyloid has been greatly diminished. Still, one sees it occasionally, especially in old syphilitic cases, or in connection with advanced tuberculosis; the clinician recognizes the enlarged liver and spleen, and looks for the characteristic pale urine with its large amount of albumin; the pathologist, even more frequently, demonstrates the presence of amyloid at autopsy, finding the waxy liver and the sago spleen, or, in sections, using the iodine reaction or the methyl-violet test.

Since its discovery by Virchow, amyloid has been an ever-interesting puzzle to medical men, and there have been many speculations as to its origin and nature. On account of the iodine reaction which it yields, Virchow was inclined to regard it as a carbohydrate, looking on it as a sort of animal cellulose, but analyses, at first crude (Friederich and Kekulé, C. Schmidt), but later more exact (Kühne and Rudneff, Modrzejewski), have demonstrated that amyloid is more of the nature of an albuminous substance. Oddi's discovery in 1894 that amyloid contains chondroitin-sulphuric acid, a substance known to be an important constituent of cartilage, and Krakow's proof of the firm union of this acid with the albuminous part of the amyloid molecule, probably in the form of an ester, led many to hope that the question of amyloid formation might be quickly solved. It seemed rational to suppose that a general metabolic disturbance, causing the cachexia and marasmus preceding the amyloid degeneration, resulted in the transportation of chondroitin-sulphuric acid into the diseased organs, where it accumulated, irritated the tissues and caused the formation of amyloid. Experiments (Oddi, Kettner) undertaken in support of this hypothesis yielded, however, entirely negative results, and there would seem, therefore, much more to be expected from a study of the albuminous part of the amyloid molecule, especially as the chondroitin-sulphuric acid component is relatively small. Unfortunately, up to this year we have remained practically ignorant of the essential nature of the albuminous part of amyloid, the only observations earlier made having been those of Modrzejewski, through which the presence of leucin and tyrosin in the molecule was made probable.

In view of the great progress now being made in albumin chemistry, thanks to the initiative of men like Kossel, Fischer and Hofmeister, it is not surprising that attention has recently been redirected to the structure of the albuminous part of amyloid. Neuberg, in Orth's laboratory, has carefully examined purified amyloid by the most modern methods, and has arrived at some highly important and interesting results. The details of the research are chemically too abstruse to be presented to the average medical reader, but the general results must be interesting to all. To put these most briefly, it may be said that Neuberg has shown that amyloid varies in constitution according to its origin; that it belongs to the more basic albumin bodies, being very rich in diamino-groups and relatively poor in monamino-nitrogen; that it is absorbable; that contrary to the views of Herxheimer and of Schrötter, it is chemically as different from fibrin and elastin as it conceivably could be; that, in opposition to Tschermak's opinion, it is far removed in constitution from the ordinary body-albumins; and, finally, that it resembles most closely in the analytic figures and in its internal constitution that particular group of albumin bodies known as histones.

We are justified in believing, as a result of Neuberg's investigations, that amyloid results from the transformation of albumins in the body in the way that more acid molecules are transformed into more basic ones through the introduction, gradually, perhaps, of an increasing number of diamino-groups. Just as there is, as Miescher demonstrated, a gradual increase in the basic properties of the albumins in the developing testicle with culmination in those very basic substances, the protamins, so a somewhat similar metamorphosis may, Neuberg thinks, under certain pathologic conditions, lead, in the liver, spleen and kidney, to the formation of amyloid.

These results are, of course, still very far from clearing up the obscure questions connected with the origin of amyloid. They do represent, however, a good step forward in our knowledge of its nature, for, though hydrolysis indicates that the amyloid molecule is far more complex than that of a relatively simple protamin, it seems likely that a "protamin nucleus" occupies a very dominant position in it. It is now highly desirable that those who have the opportunity to do so should examine different amyloids varying in their age and origin, with the hope of gaining an insight into the exact stages of metamorphosis through which the albumins from which amyloid arises pass.

BORIC ACID AS A FOOD PRESERVATIVE.

At the meeting of the New York Academy of Medicine, held November 17, Dr. H. W. Wiley, the chief of the Bureau of Chemistry of the United States Department of Agriculture, made a formal preliminary re-

1. Neuberg, C.: Ueber Amyloid. *Verhandl. d. Deutschen pathol. Gesellsch.*, Jahrg. 1904, No. 1, pp. 19-32.

port with regard to the effect of boric acid and borax when used as preservatives in food. So much has been said in the newspapers pro and con on this subject that it is very interesting to have the definite results of the government investigation given by the investigator in charge. The report is a model of judicious and temperate weighing of the elements of a difficult problem, and the conclusions are not emphasized, but rather suggested. They are eminently calculated to do honor to those who have had the investigation in charge, and will doubtless prove definite landmarks in our knowledge of this extremely important subject.

According to the German investigators, borax and boric acid, given in large doses, always cause severe nausea and vomiting, and their use is followed by great depression, and, of course, by loss of weight and strength. Such marked effects were not found by the American investigators, either when the boron derivatives were given in large doses over short periods, or in small doses over long periods. Dr. Wiley points out one possibly important reason for this difference of opinion, in the fact that the German investigators were asked to make their studies with the definite purpose of justifying the German Government in certain legal measures that had already been enacted, for the exclusion from Germany of foodstuffs preserved by means of boron compounds. The problem is not so easy of solution as might seem at first sight, and the bias inevitably created in the investigator's mind by the previous action of his government would undoubtedly prove sufficient to turn the scale of judgment and vitiate the value of his experimental conclusions.

The main results that were found were first an inhibition of the elimination of nitrogen; that is, the men under observation who were taking boric products excreted less nitrogenous material than they did while taking the same amount of food of the same nature, in a preliminary set of observations, before the administration of these substances was begun. In a word, the boron derivatives prevent the tissues of the body from breaking down, and so prevent them from keeping in that renewed youthful condition which the frequent reproduction of cellular tissues insures. If all the tissues can be kept young, then there is no senility. If worn-out tissues are prevented from breaking down, however, then senile change is advancing. Hence the use of these food preservatives can not be otherwise than inimical to health. On the other hand, more phosphoric acid is excreted than is normal for the amount and character of food taken. This means that the bones are being disintegrated.

A very interesting phase of the investigation was that which showed that wherever albumin, not nephritic but physiologic, was present in the urine of the individuals on whom the observations were made before the ingestion of boron products was begun, it was increased to a notable degree during the time of administration. A curious commentary on this is the fact

that the boric acid and borax are excreted, not through the feces, as might be expected, but almost entirely through the kidneys. At least 80 per cent. of the amount ingested can be found in the urine, while the remaining 20 per cent. is excreted in the perspiration.

In the discussion it was pointed out that in recent years there has been a marked increase in the number of cases of nephritis in this country, and that it is not at all unlikely that the free use of such preservatives in food has been an important factor in this sad state of affairs. Certain it is that with the strain that is put on the kidneys by the tendency, so marked in modern life, to overeat, especially of nitrogenous material, the extra effort required for the excretion of such foreign materials as the boron compounds is likely to work serious harm if continued over long periods.

The conclusions, then, while not absolute, are very definite. All metabolism is disturbed by the constant use of such food preservatives. All the individuals experimented on lost weight. As was pointed out in the discussion, small doses of boric acid constitute one of the best antifatals that we have, and the only one that has sustained its reputation in the hands of conservative observers. To permit its general use, then, is to invite evil. While it is not a serious poison, it is a dangerous substance. Laws should be so constructed that all food materials in which such preservatives are employed must bear a label to that effect. There may very well be times when the slight danger involved in the temporary use of such preserved foods may be preferable to the greater risk of consuming food materials that have begun to spoil. Consumers must be allowed to choose for themselves in this matter. Physicians, however, must certainly take the side that it is better to avoid such suspicious substances than to run the risk of metabolic disturbances, with possible nephritis at the end, that may follow their prolonged use.

THE PROPHYLAXIS OF MALARIA.

Since it has been demonstrated that the malarial fevers are due to an animal parasite transmitted from one person to another through the intermediation of certain mosquitoes, it can be comprehended that the only connection between malaria and bad air resides in the fact that emanations from decomposing vegetable matter take place under conditions that favor the propagation of the intermediating mosquito. In view of the facts as they have been demonstrated, it should be scarcely, if at all, more difficult to eradicate malaria than it has been possible so to do with yellow fever in Havana. Indeed, the task should be even simpler, inasmuch as in quinin we possess a specific remedy against the disease that has also considerable prophylactic value.

The means of prevention based on the known facts must consist (1) in the vigorous treatment of all individuals suffering from malarial fevers, thus eliminating sources of infection; (2) in destruction of the parasite-

bearing mosquitoes; and (3) in case of failure to destroy the mosquitoes, in protecting healthy persons from their bites. A most interesting discussion on this subject was held in the Section of Tropical Diseases at the meeting of the British Medical Association, recently held at Oxford, and was participated in by a number of experts, who spoke authoritatively from personal observation.

Dr. J. W. W. Stephens¹ laid emphasis on the fact that only certain species of anopheles acted as the intermediate host and carrier of the malarial parasite, and that the species varied in different localities. In conformity with this fact, the measures to be employed for the eradication of the breeding places of the pathogenic mosquito will vary in accordance with the species and its individual habits. In contradiction of a somewhat prevalent fallacy Stephens and Christopher found that the normal flight of anopheles is a matter of only some hundred yards and not miles; and the intensity of infection and the danger therefrom grow gradually less as the distance from the breeding grounds increases, disappearing ordinarily at a distance of about one mile.

The methods of prophylaxis to be enforced are (1) antilarval; (2) mechanical; (3) medicinal, and (4) segregatory. The first consists in systematic drainage, as a result of which the breeding places of the larvæ are removed. Petrolage, or the covering of the surface of collections of water with petroleum, can be considered only as a temporary expedient and not as an ultimate means of eradication. Mechanical prophylaxis consists in the use of wire screens, mosquito netting, veils, gloves and similar means of preventing the access of mosquitoes to both the sick and the healthy. Medicinal prophylaxis consists in the administration of quinin in suitable dosage to individuals exposed to the danger of infection with malaria. Finally, separation of the sick from the well has been recommended in tropical countries, with the object of avoiding such exposure.

Only by the intelligent application of the foregoing measures is it possible to diminish on any large scale the prevalence of the malarial fevers and evidence is not wanting of their practical efficacy.

THE FUNCTION OF THE CECUM AND APPENDIX.

The large amount of study which has been applied to the vermiform appendix in the last ten years has had to do, in the main, with the surgical aspects of this organ. It is true that the widespread recognition of the importance of this structure in human pathology has led to a restudy of its anatomy and pathology, but the physiology has been greatly neglected. In his recent Huxley Lecture Macewen² calls attention to these facts: He states that, as a rule, the appendix is de-

scribed as a rudimentary organ, and that some writers regard even the cecum as a useless inheritance derived from our prehistoric ancestors. He comments on the modern tendency to regard organs whose functions we do not fully understand as useless organs, and the resulting idea that it is of benefit to remove such organs, even when not diseased, when they are exposed by operations done for other purposes. He suggests the improbability that Nature has constructed our bodies so faultily that it is necessary for us to patch and trim them, as is often suggested and occasionally done. He then attempts to show that the cecum and appendix have useful functions, and are not the useless structures that the appendectomaniacs would have us believe.

He considers the subject first from the comparative view-point, and shows that the relative importance of the stomach and the cecum in the digestive process is determined by the kind of food on which the animal lives. In carnivorous birds and animals, most of the work of digestion is done by the stomach, and the cecum is small or rudimentary; in herbivora, on the other hand, the cecum is enormously developed, and in certain species, the solipeds, the cecum is the chief digestive organ. This suggests, Macewen states, that man, who is both carnivorous and herbivorous, should possess not only a stomach, but also a cecum, and this is indeed the case. The relatively small size of the cecum in man can be explained by the fact that the vegetables which he consumes are soft and relatively easily digested.

Observations on human beings which bear on the function of the cecum and appendix have been obtained as a result of injury or of operation, and are necessarily somewhat fragmentary. The effects of fecal fistulæ occurring at various levels in the intestines have shown in a general way that the nearer a fistula is to the stomach the more pronounced are the symptoms of malnutrition. Where a fecal fistula is situated just above or in the cecum, provided in the latter case that the opening be large, a certain amount of interference with nutrition results. In patients in whom the cecum has been removed the digestive processes are practically never normal, and all of these cases have to live on a special diet. In the few cases in which an opening in the cecum has existed which was large enough to allow of easy inspection, certain interesting occurrences have been observed. It has been noted that certain definite movements occur in the cecum as a result of stimulation by food, and it has also been noted that one or two hours after the introduction of food into the stomach there is a considerable secretion of mucus by both the cecum and the appendix. Then, too, it has been noted in such cases that the ileocecal valve allows only the intermittent passage of the chyme, a circumstance which would favor its admixture with the cecal and appendiceal secretions. Anatomically, the situation of the valve opening just above the appendiceal opening, the dependent situation of the cecum, and

1. British Med. Jour., Sept. 17, 1904, p. 629.

2. *Ibid.*, Oct. 8, 1904.

the presence of large numbers of follicles of Lieberkühn in the cecum and appendix, all speak for something more than a mere mechanical action.

The bearing of these facts on appendicitis Macewen merely touches on, and in this part of his paper he really brings out nothing which we had not already learned empirically. The relation of appendicitis to digestive disturbances and the preventive measures which logically suggest themselves were already sufficiently obvious. The first part of the paper, however, is very suggestive, and should be read by the surgeons and gynecologists, and especially by those who advocate removal of the normal appendix, whenever an opportunity offers.

MEDICINE AS APPLIED SCIENCE.

It can scarcely be too often emphasized that the science of medicine consists almost entirely of applications of the principles and methods of other sciences, natural and mental, to the study of disease. The principles of natural science, especially, form the skeleton on which the great masses of medical facts are hung. Medical men sometimes forget that it is the methods of physics and chemistry that they are using every day, and that it can scarcely be otherwise in their work. Everyone knows, when he stops to think of it, that physics and chemistry are more fundamental or basal sciences than biology, just as mathematics is a science more fundamental than physics.

The ophthalmologist, fitting a pair of spectacles or examining a fundus, and the microscopist, making his observations through the wonderful instruments with which we are familiar, have to be reminded that their work is largely applied optics. The clinician percussing the chest or listening to the sounds of the heart, is seldom conscious that he is working in the field of applied acoustics; nor does he realize that he is performing a simple experiment in hydrostatics when he makes a blood-pressure reading, or that he is making a physical measurement when he takes a patient's temperature. Analyses of the urine and stomach juice are now such distinctly medical operations that their relations to purely chemical procedures are often lost sight of. In an applied science, such as medicine, except that part of it which deals with problems of coordination, which wholly is, the applications have to be made from sciences which are more fundamental, more nearly primary or elementary, more all-inclusive, and these are, in progressively more fundamental sequence, biology, chemistry, physics, geometry, mathematics, and, finally, that wider conception, the science of manifoldness.

Considering the origin of "their own methods," one would scarcely expect physicians to deplore the recommendation of new lines of research by biologists, physicists and chemists. But they sometimes do, and the explanation probably lies in the fact that the practical

man is pre-eminently conservative in his tendencies. He is seldom the first to try new methods or to cast aside old ones; so far as the practical man is concerned, Pope's famous lines need scarcely have been written. Farmers were a long time giving up the sickle to welcome the reaper; printers have resisted for an unconscionable period the introduction of the linotype machine. Manufacturers fought the principle of "community of interest" until they were forced to accept it; engineers preferred the training of apprenticeship until the graduates of the technical schools began to capture all the prizes in the shape of advanced positions. Should anything arise which would discourage work along biologic, chemical and physical lines in medicine, so that no new applications of these sciences would be attempted, it would be interesting to know whence the streams of medical research could take their spring. A war between medicine on the one side and biology, physics and chemistry on the other would be impious in its nature; the fifth commandment of the decalogue would be definitely disobeyed.

THE ACTION OF THE X-RAYS IN LEUKEMIA.

Our attention has been called to the editorial under the above title, which appeared in these columns November 12, to the effect that it carried the impression that the Senn case was the first one recorded. We lost sight of the earlier recorded cases to which Dr. Pusey called attention in *THE JOURNAL*, July 23, 1904. We refer to this error on our part so that it may not be repeated by others who may take our editorial statement as correct.

UNCORRECTABLE MISTAKES.

It seems to us rather a curious decision or opinion of the attorney general of Iowa that a medical certificate obtained through misapprehension can not be revoked. A certain osteopath received a certificate from the Board of Medical Examiners while the board was under the impression that the institution from which he obtained his diploma was one of those recognized by the board. When the mistake was discovered it was proposed to revoke the certificate, but the power to do so was denied by the attorney general. The case will probably be a warning to other boards to scrutinize credentials, especially in this class of cases.

MYOCARDITIS IN CHILDHOOD.

Inflammatory and degenerative processes involving the myocardium are generally thought of in connection with mature or advanced life, but when it is considered that the muscular wall of the heart may be affected in the course of various infective disorders it will be clear that the conditions referred to may occur likewise in children, although often the underlying cause may remain obscure. Attention has been called to this matter by Dr. George Carpenter,¹ who has recently reported a case in which uncomplicated myocarditis developed in a

girl in her eighth year and was attended with signs of cardiac failure and terminated fatally. No etiologic factor could definitely be ascertained, although it was suspected that the condition had succeeded on an unrecognized diphtheria. The child presented a cyanotic appearance. The pulse was weak at the wrist and the first sound of the heart was not good, while the second at the left base was accentuated. The urine contained a large amount of albumin. Death resulted and post-mortem examination disclosed the existence of fatty degeneration of the myocardium.

A PHYSICIAN WITHSTANDS A MOB.

It is refreshing to learn that a Georgia physician is by himself alone more effective than a whole company of militia in foiling a lot of would-be hangmen. His conduct is in notable contrast to that of many cowardly public officials, whose failures at such times have brought dishonor on their names and on the reputation of their states. In this instance a murderer, himself badly wounded, lay in a hospital. A mob, bent on vengeance, was met at the hospital door by the surgeon-in-charge, who announced his intention to shoot any one who attempted to enter. The mob reconsidered its threat and finally dispersed. We do not know that it is the custom of Georgia physicians to be prepared to meet such emergencies, but it is satisfactory to know that when the occasion occurred one was not found wanting. The physician in this case upheld the best traditions of his profession as a life saver, and should receive the thanks of his brethren and of the community generally. It is a pity that public officials, sheriffs and the like in some portions of the country have not the pluck and regard for their obligations of this physician. He is undoubtedly in his proper place, but otherwise we should recommend the State of Georgia to put him in charge of its militia. At any rate, the latter can profit by his example.

VITAL STATISTICS.

Bulletin fifteen of the Department of Commerce and Labor of the Census Bureau contains a discussion of the vital statistics of the twelfth census, which ought to be a reminder to our state authorities and health boards of their failures of duty in this regard. Only three or four states give approximately correct records of births and deaths and about seven states of deaths alone. The value of such figures is almost incalculable and the Census Bureau has in its last enumeration endeavored to give us some facts that will make up for the deficiencies above mentioned. While the tables are not strictly accurate, they are suggestive in many ways, as well as of value for comparison with other available data. As regards municipal sanitary statistics the figures are more useful, as many cities give fuller, though far from complete, data than do the rural communities surrounding them. They are encouraging as showing in many of these cities a progressive general lowering of the death rate during the past ten years. The figures also show what has been observed elsewhere, that while

tuberculosis has decreased its mortality, pneumonia has become progressively a more fatal disorder—a fact which was first brought prominently before the public by THE JOURNAL. The increase of cancer is also a notable fact, pointed out by the census statistics, and deserves—as it is receiving—the careful attention of sanitarians. While the census figures have as a whole only a relative importance and are useful mainly for comparison, they are suggestive and worthy of study.

ANTIVACCINATION AND INTERNAL VACCINATION.

Opposition to vaccination, as well as to other like sanitary requirements, sometimes takes on queer phases. In Latin-American countries, where revolutions are a specialty, it may break up the government, as was apparently attempted the other day in Brazil.¹ In this country the methods are different. The antivaccinationists sometimes find their best resource in the courts of law, and the public health has to go by the board—as shown by legal decisions in one or two states. It is astonishing how ready judges sometimes are to decide medical questions of which they can not have, as their decisions show, any real knowledge. A rather odd development of the antivaccination activity is shown in the contention of the Iowa homeopaths in favor of the internal administration of the virus as a prophylactic against smallpox. We do not know how universal in that school is the faith in this method, but we can hardly believe that an educated homeopath would advocate it. A little education of the public ought, it seems, to serve to make it unpopular. We have all heard of the man who mistook a vaccine point for a toothpick, and of the consequences which he suffered for his mistake. When taken internally, antitoxin and vaccine are usually digested and thus destroyed, but one can easily see what may happen where any internal abrasions or ulcerations exist. The results would probably not be comfortable, and might be excessively dangerous. Probably, however, our homeopathic friends are using it in "high potency," in which case, of course, there will result only negative harm. It will be interesting to observe how the courts decide the Iowa dispute.

THE CHARITY WORK OF PHYSICIANS.

The calculation has been made that the value of the free medical and surgical services, given in one Philadelphia hospital during a year and calculated according to the usual rates of compensation, amounted to \$500,000. Supposing it to be only half this amount, which is probably nearer the truth, it is a large sum. This is the contribution of a limited number of physicians—probably forty or fifty—to charity. This is only one of the hospitals of a large city. If the hospitals of the whole country were taken into account, the aggregate

1. "Military and naval detachments have been called on to restore order. Thus far seven persons have been killed and thirty others wounded. It is believed that the opposition to vaccination is only a pretext for disorder and that the disturbances are really instigated by discontented politicians."—Cabled news item from Rio Janeiro.

gate amount given by physicians to charity would rise up well into the millions. If the dispensary services were also reckoned in, to say nothing of the private charity practice of which nearly every medical man has his share, the figures would be still more formidable. If any other occupation in life can make a similar showing of unrequited service it has not yet been heard from, and it is probably safe to say it will not be found. This, too, is service done for the public as well as for the individual, and makes the hospital physician, as it were, a sort of unrecognized quasi public official. Of course, it may be said that those who do this work derive a certain advantage from it, in that they obtain additional experience and reputation, and are thus aided in building up a really remunerative practice. That such motives influence them to a certain extent need not be denied, but it does not alter the fact that the public is the gratuitous recipient of a vast amount of unpaid-for service exacted from a class that is by no means the best remunerated otherwise. There is, moreover, a genuine altruistic motive in many of the cases, as well as a scientific ambition to contribute to the sum of human resources against disease. There are few people who have as much sense of responsibility in their work or to whom the success of the work is of more importance than conscientious physicians. Hence the desire to extend their observations and to gain additional experience by hospital practice. Even private charity practice is not always due to pure benevolent impulse—though we believe that this enters more or less into its motives in most cases—but it may be actuated by the same reasons as those given above; these, however, are creditable in themselves. We have no reason to blush for the record of the medical profession, and while self-praise is morally unhealthy, an occasional reminder of its well-doing is not always amiss. We need not fancy ourselves all William McClures nor coddle ourselves in the contemplation of our own excellencies, but it is well worth remembering that our profession is one that deserves respect, and to let this fact make us the more anxious to keep our profession thus respectable.

Medical News.

GEORGIA.

Convict Physician.—Dr. L. F. Harvin, Atlanta, who is serving a life sentence for murder, has been made physician of the West Holmes and Coffey convict camps, near Valdosta.

Ill and Injured.—Dr. Abner W. Calhoun, Atlanta, is seriously ill with ptomain poisoning.—Dr. J. William Anderson, Clinton, is critically ill at his home.—Dr. W. Monroe Smith, Atlanta, was seriously injured in a runaway accident November 2.

A Brave Physician.—Dr. E. B. Elder, house physician at the Macon Hospital, defeated the plans of a party of men who supposedly wanted to lynch a wounded murderer in the hospital, by confronting the party, informing the members that they could not enter the hospital and emphasizing his statement with a revolver.

ILLINOIS.

Protest at Proposed Removal.—Members of the Sangamon County Medical Society lodged a violent protest November 14 against the proposition to remove the office of the *Illinois Medical Journal* from Springfield to Chicago.

Hospital Opened.—The remodeled St. Joseph's Hospital at Paris, which has accommodation for thirty patients, and already has applications from twenty patients, was formally opened November 19. The hospital is under the charge of the Benedictine Sisters.

Cost of State Charities.—The report of the State Board of Charities shows that the per capita expense of maintenance at the various state hospitals for the quarter ended September 30 was as follows: Illinois Charitable Eye and Ear Infirmary, \$45.63; Hospital for Insane Criminals, Chester, \$60.40; Illinois Hospital for the Incurable Insane, Bartonville, \$33.02; Illinois Western Hospital for the Insane, Watertown, \$35.56; Illinois Southern Hospital for the Insane, Anna, \$35.94; Illinois Central Hospital for the Insane, Jacksonville, \$34.41; Illinois Eastern Hospital for the Insane, \$32.44, and Illinois Northern Hospital for the Insane, Elgin, \$37.60.

Warning to the Public.—A German with various aliases, among them Hans von Unwerth, Dr. A. J. Roeder, Dr. Troebner, Dr. Erosius, is asking people in Chicago and Evanston to aid on the plea that his wife recently died and left in his care three small children, and that he is without work. He has twice recently given the address "224 Sixty-third Street," which has been found to be false. From the description furnished the Bureau of Charities believes he is an impostor known to have operated in this city in other years, and therefore announces that he is about 5 feet 10 inches tall, weighs 135 to 140 pounds, has blonde hair, blue eyes, small hands, pale smooth face, and wears a light gray suit. He claims to be an engineer, a linguist, a musician, etc.

Chicago.

Donation to Memorial Institute.—Mr. Otto Young has donated \$100,000 to the endowment or building fund of the McCormick Memorial Institute for Infectious Diseases.

Addition to Hospital.—Through the munificence of Mrs. R. H. McElwee of Lake Forest, the capacity of the Mary Thompson Hospital for Women and Children will be doubled. She bears the entire cost of the erection of a new three-story addition, to contain an operating room, wards and private rooms.

More Deaths.—Although there were 470 deaths from all causes reported during the week ended November 19, or 66 more than for the week previous, the mortality rate is still satisfactorily low. The excess was caused chiefly by Bright's disease, from which 23 more deaths occurred, and by bronchitis, consumption and pneumonia, from each of which there was an increase of 9 deaths.

Must Pay for Bread Pills.—A Chicago medical "institute" dispensed considerable alleged advice and medicine through central Illinois and took promissory notes in payment in many cases. An injunction secured by 194 of the victims to prevent collection of the notes on the ground that they had been deceived with bread pills and sugar pills has been dissolved in Moultrie County and the case is appealed to higher courts.

Increase in Communicable Diseases.—Except typhoid fever, all the contagious and infectious diseases show an increase in the number of cases reported over those of the previous week—diphtheria from 85 to 92; scarlet fever, 27 to 31; smallpox, 12 to 21; chicken-pox, 1 to 7. The number of new typhoid fever cases reported was only 7 as against 12 the previous week. Total number of all contagious and infectious cases reported, 166, was 15 per cent. more than during the previous week and 55 per cent. more than for the corresponding week of last year.

Staff Examinations for County Hospital.—The recent order of the Cook County Board reducing the number of the attending staff of Cook County Hospital and requiring all applicants for position on the staff to submit to an examination, thereby placing them under civil-service rules, has been productive of much in the way of hard feeling and dissension. A board to conduct the examination was named, consisting of 42 individuals, 38 of whom belonged to the regular school, 2 to the homeopathic and 2 to eclectic. A number of practitioners, chiefly of the homeopathic and eclectic schools, filed a petition November 17, asking an injunction restraining the county authorities from placing members of their profession at Cook County Hospital under civil service. The granting of this injunction stopped the plans for the examinations, which were to begin November 18. In spite of this injunction the president of the Board of County Commissioners has received applications from more than 600 physicians who are desirous to take the examination. The latest development is a petition signed by a number of physicians asking the commissioners to rescind their original motion calling for the examination.

INDIANA.

Anonymous Gift.—An unknown benefactor has presented \$1,000 to the Home Hospital, Lafayette, to be applied toward the purchase of new equipment for the institution.

Anti-Spitting Ordinance Wanted.—The Fort Wayne Medical Society decided, November 8, to inaugurate a crusade against tuberculosis and to attempt to secure an ordinance against spitting on sidewalks and in public places. A committee to map out the details of the crusade will be appointed, to consist of eight practicing physicians, seven citizens and the executive heads of the various charities organizations of the city.

No Osteopaths Licensed in the State.—It is stated that the action of the Elkhart County Medical Society in having one of its members file a criminal complaint against an osteopath for practicing without a license, has brought out the fact that none of the 40 osteopaths in the state has secured a license, because the license requirements provide that all applicants must be graduates of schools of four-year courses while osteopathic schools have but three-year courses.

October Sickness and Death.—The most prevalent malady in October was tonsillitis. Typhoid fever maintains the same position of second place it occupied in September. The order of prevalence was: Tonsillitis, typhoid fever, bronchitis, diarrhea, scarlet fever, influenza, pneumonia, diphtheria, pleuritis dysentery, inflammation of bowels, cholera infantum, measles, puerperal fever, whooping cough, cerebrospinal meningitis. Diphtheria and scarlet fever appeared in epidemic form in several places. The severest outbreak occurred in the Miami County Orphan Asylum at Mexico, where there were 56 cases, with 3 deaths. Antitoxin was freely used and all known precautions were rigidly enforced. Smallpox increased as compared with the corresponding month of last year, the increase in cases being 60, and the increase in deaths 17, but the area invaded was less. Two deaths from hemorrhagic smallpox occurred. Both cases were diagnosed as typhoid fever. The total deaths numbered 2,702, an annual rate of 12.3 per 1,000. The rate for October, 1903, was 12.0. Of the total deaths 12.5 per cent. were of children under 1 year of age, and 25.5 per cent. were over 65. Some important causes of death were: Pulmonary tuberculosis, 334; typhoid fever, 164; diphtheria, 17; scarlet fever, 11; whooping cough, 16; pneumonia, 113; diarrheal diseases, 204; influenza, 4; puerperal fever, 6; cancer, 103; violence, 148; smallpox, 18. The city death rate was 15.4 per 1,000; the county rate, 10.1 per 1,000.

KANSAS.

Diphtheria.—For October and up to November 15, 80 cases of diphtheria, with 11 deaths, have been reported. Of the cases 27 occurred in Topeka, with 3 deaths, and 22 in Wichita, with 2 deaths.

Meffert Decision Affirmed.—The Supreme Court of the United States, on November 14, affirmed the decision of the Supreme Court of Kansas in the case of Dr. William M. Meffert of Emporia, Kan., whose license was revoked by the state medical board on the charge of improper conduct. The state courts sustained the validity of the act.

Contagious Diseases.—During the quarter ended September 30, 109 cases of diphtheria, with 24 deaths; 168 cases of scarlet fever, with 18 deaths; 353 cases of typhoid fever, with 82 deaths, and 173 cases of smallpox, with 3 deaths, were reported to the State Board of Health. Since receiving the quarterly reports epidemics of diphtheria in Lyon and Jewell counties have been reported, and 6 cases in Labette County; 50 cases of typhoid fever in Crawford County; 2 cases of smallpox at Neodesha and 3 cases in Kiowa County.

Kansas City Will Be Sanitary.—The council of Kansas City has passed an ordinance submitted by the Wyandotte County Medical Society, which gives the mayor power to appoint the members of the Board of Health, which is to consist of two regular practicing physicians and one veterinary surgeon, each to be a graduate of a reputable school. The mayor is to select the three members from six physicians and three veterinary surgeons to be recommended by the Wyandotte County Medical Society. The members of the board are to serve without pay and will hold office for two years.

MARYLAND.

Endows Hospital Ward.—George W. Navy of Baltimore has endowed the Baby Memorial ward in the new Cambridge Hospital.

Cambridge Hospital.—The Cambridge Hospital was dedicated November 17. A steamer was provided for the Baltimore guests and a very large number of physicians attended. Lunch and supper were provided for them on the boat by the authorities. The exercises were held in the open air in front of the building. Addresses were made by Judge Henry Lloyd, president of the board of directors, by the governor and by Dr. Howard A. Kelly. The building was then inspected. To date it has cost \$70,000, and about \$5,000 more will be needed for furnishing. The funds were provided by the state, county and individuals, the largest individual donation being \$30,000 by the late John E. Hurst of Baltimore. The cornerstone was laid May 26, 1903. The hospital began in a rented house in December, 1898, and has hitherto been known as the "United Charities Hospital," the name now held having been suggested by Mr. Hurst. The building is of brick, in colonial style, with three stories and basement. It is 136 feet long and 51 feet wide in the center, with wings 36 feet wide. There are porches at the front and ends. The operating room is on the third floor. There is steam heating and lighting, and there are accommodations for 60 patients, 16 rooms being provided for private patients. Dr. Thomas S. Cullen is the visiting surgeon and Dr. Henry O. Reik, specialist in diseases of the eye and ear. The local staff consists of Drs. Bruce W. Goldsborough, John Mace, Guy Steele and P. E. Hines.

Baltimore.

Martenet Memorial.—A window in memory of the late Dr. Jacob Fussel Martenet has been placed in Appold M. E. Church.

Bequests.—The late Dr. Charles H. Potter left \$20,000 in reversionary bequests to the Presbyteryian Board of Relief for Disabled Ministers and the Widows and Orphans of Deceased Ministers.

Personal.—Dr. Henry R. Carter, United States Marine Hospital Service, chief quarantine officer of the Isthmian Canal Commission, arrived in Baltimore from Panama November 17 and started the next day on his return with his wife and children.—Dr. Lloyd Noland, who was appointed one of the resident surgeons at Panama by the canal commission, has taken up his residence on the isthmus.—Dr. Daniel Jenifer has been appointed assistant physician at Bayview Asylum.

MICHIGAN.

Unlicensed Practitioner Fined.—"Dr." B. H. Ling, Germfask, was found guilty of practicing medicine without a license and was fined \$10 and costs, with the alternative of 60 days in the county jail.

To Educate Nurses.—The will of the late Elbridge M. Fowler, who recently died in Pasadena, Cal., gives \$10,000 to Grace Hospital, Detroit, to aid in the work of educating worthy young women to become nurses.

Cocain Kills Student.—Douglass M. Graves, a student at the Detroit College of Medicine, died at his boarding house in Detroit, November 9, from an overdose of cocaine, to the use of which he is said to have been addicted.

October Mortality.—The total number of deaths for October was 2,565, corresponding to an annual rate of 12.0 per 1,000. This rate was lower than that for September (12.7), and also lower than that for the corresponding month of the previous year (12.5). There were 483 deaths of infants under one year of age; 152 deaths of children aged 1 to 4 years, and 789 deaths of elderly persons aged 65 years and over. Important causes of death were as follows: Tuberculosis, 229; typhoid fever, 67; diphtheria, 27; scarlet fever, 3; measles, 4; whooping cough, 9; pneumonia, 109; diarrhea and enteritis, under 2 years, 168; cancer, 146; accidents and other violence, 195. Deaths from pulmonary tuberculosis and pneumonia increased for October as compared with the preceding month, but there was a large diminution in the number reported from diarrheal diseases. Typhoid fever showed a very slight increase over September. There were two deaths reported from smallpox during the month.

NEBRASKA.

Neal Hospital Sold.—Neal Hospital, Nebraska City, has been sold to the Sisters of Charity, who will open it as a public hospital early next year.

Ira Reinstated.—Dr. George W. Ira, resident physician at the Santee Indian Agency, who in the course of the policy of reduction in expenses of Indian offices was removed from office in July last, has been reinstated.

Council Bluffs, Not Omaha.—Health Commissioner Dr. John B. Ralph, Omaha, notifies us that the item "Disease Closes School" in THE JOURNAL of November 12 is incorrect, as Omaha has no Bloomer school, and Council Bluffs has a school of that name. Omaha has an increase in the number of cases of diphtheria as compared with last year, but it has not been thought necessary to close any school buildings on account of the disease.

NEW YORK.

A New Assignment.—Dr. Robert C. Lamb, who has been superintendent of Dannemora State Hospital for four years, has been appointed superintendent of Matteawan State Hospital, vice Dr. Henry E. Allison, deceased.

Criticism of Secretary Resented.—The authorities of the Post-Graduate School and Hospital, of Beth Israel Hospital, Babies' Hospital and of Lebanon Hospital have resented the criticisms which Robert W. Hehberd, secretary of the State Board of Charities, is credited with having made that these institutions were deficient in fire protection, sanitation, provisions and facilities for recreation. Mr. Hehberd says there was no censure of institutions intended, but that attention had been called to some defects. A list of institutions that would receive reports of inspection had been read, and the inference might have been made that they were the subject of censure.

Buffalo.

Personal.—Dr. Floyd S. Crego has sailed for Europe.—Dr. Edmond E. Blaauw has returned from Europe.—Dr. Stephen Y. Howell has returned from Florida.

Much and Severe Typhoid.—Many additional cases of typhoid are appearing and the individual cases show a severe form of infection, with numerous hemorrhages and other complications.

Polyglot Medical Journal Club.—A new club known as the Medical Journal Club has been formed, which will meet monthly, abstract and discuss interesting papers as they appear in the leading medical journals of all countries and in all languages.

October Health.—The monthly report of the Department of Health for October shows a death rate of 14.24 per 1,000 per annum. The following were the principal causes of death: Consumption, 36; cholera infantum, 11; cerebrospinal meningitis, 6; diphtheria, 7; typhoid fever, 19; debility, 43; cancer, 27; apoplexy, 7; meningitis, 7; cardiac dilatation, 8; endocarditis, 6; myocarditis, 7; valvular disease of the heart, 25; bronchitis, 11; pneumonia, 39; appendicitis, 3; gastroenteritis, 8; diabetes, 4; nephritis, 21, and violence, 32. The total deaths were 451, as compared with 442 for October, 1903.

New York City.

Bequests.—Under the will of the late Mrs. Sarah B. King, Mt. Sinai Hospital will receive \$10,000 and Montefiore Home \$5,000.

Award Declared Inadequate.—Dr. J. Harvie Dew, who sued the estate of Oliver W. Buckingham for \$55,000, has been awarded by the referee \$10,000 for continuous services for five years and \$10,000 for providing a home for the patient for three years. Dr. Dew says he will appeal, as the award is inadequate.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended November 12, 362 cases of diphtheria, with 27 deaths; 299 cases of tuberculosis, with 154 deaths; 201 cases of scarlet fever, with 8 deaths; 100 cases of typhoid fever, with 21 deaths; 59 cases of measles, with 3 deaths; 77 cases of varicella; 1 case of smallpox, and 11 deaths from cerebrospinal meningitis.

Report on Subway Air.—The preliminary report of Dr. Chandler of Columbia University to Health Commissioner Darlington has been made public. The conclusion reached is that the air of the subway is entirely satisfactory, that there is no cause for complaint in the present and no need for alarm as to conditions in the future. The analyses of 50 samples of air taken at various stations and under various atmospheric conditions show that the average percentage of oxygen is 20.55. This percentage shows that carbon dioxide is not present in any appreciable quantity. The Board of Health will continue investigations for some time to come before passing final judgment on this matter.

OHIO.

Personal.—Dr. Wylie McLean Ayres, Cincinnati, sailed from New York November 15 for a stay of three months in Switzerland.—Dr. Alvin H. Carr, Reading, was attacked by high-waters near Pleasant Ridge November 13 and severely injured.

Thirty Years Old.—At the thirtieth annual meeting and banquet of the Mahoning Valley Medical Society, held at Youngstown November 21, Dr. Roswell Park, Buffalo, was the guest of honor and read a paper on "Diseases of the Gall Bladder and Bile Ducts."

Post-Graduate School Opens.—The Cincinnati Polyclinic and Post-Graduate Medical School opened with a reception at the new building, 911 Race Street, November 22. The following make up the staff: Surgery—Drs. Henry A. Ingalls, Travis Carroll, Herschel D. Hinckley and Earl Harlan. Medicine—Drs. Frank L. Ratterman and William E. Kiely. Ophthalmology—Drs. Oscar W. Stark and Theodore A. Christen. Rectal Diseases—Dr. Louis J. Crouse, and Laryngology, Otolaryngology and Rhinology—Drs. Adolph Morgenstein, William C. Harris and Thomas V. Fitzpatrick.

Condemns Political Methods in State Institutions.—The following resolutions were adopted at the first meeting of the Tenth Council District of the Ohio State Medical Association, held in Columbus, November 15:

In view of the notoriety recently given the Ohio Hospital for Epileptics at Gallipolis, Ohio, be it

Resolved, That this association condemns all political methods in dealing with the benevolent institutions of Ohio and calls on the chief executive to uphold all competent and worthy medical officers of the state, and not to permit the interference of any person for political reasons; and further, that this association will not support any administration that so misuses the benevolent institutions; and be it

Resolved, That a copy of these resolutions be sent to Governor Myron T. Herrick and to the superintendent of the Ohio Hospital for Epileptics.

PENNSYLVANIA.

Personal.—Dr. J. M. Brown, Huntingdon, head of the relief department of the Philadelphia division of the Pennsylvania Railroad, had a cerebral hemorrhage November 14 and is critically ill.

Dr. Care Reinstated.—By order of the judicial council of the Medical Society of the State of Pennsylvania, to which he appealed, Dr. James R. Care, Norristown, who was expelled from the Montgomery County Medical Society three years ago for the alleged offense of having written a letter criticising the Charity Hospital, has been reinstated to all rights and privileges of the society.

Railroad First-Aid.—Medical boxes to be used for first aid to the injured by the Pennsylvania Railroad are being sent out to various points from Altoona. The boxes are wooden and oblong. Each is sealed, with written instructions on the outside. Inside is a tin box securely sealed, with further instructions. When the inner box is once opened it must not be used again, but must be returned to Altoona that it may be fumigated and additional materials inserted. The box contains rubber bandages, compressors and other materials used for first-aid to the injured.

Philadelphia.

Bequest.—By the will of Eliza W. S. P. Field, the Maternity Hospital of the university receives \$4,000 in trust.

Faculty Changes in the University.—The trustees of the university have made Dr. Leo Loeb assistant professor of pathology and Dr. Philip S. Stout, assistant demonstrator of pathology.

Report of Jefferson Maternity.—The twelfth annual report of the Jefferson Maternity Hospital shows that 304 patients were treated during the past year, and that 136 children were cared for. The receipts for the year were \$6,411.12 and the expenditures \$4,582.50, leaving a balance of \$1,828.62, of which \$1,000 was transferred to the building fund.

Mütter Lecture.—The Mütter lecture on surgical pathology for 1904 will be delivered in the hall of the College of Physicians of Philadelphia, at Thirteenth and Locust streets, Friday, December 2, at 8:30 p. m. by Dr. George H. Monks, Boston, on "Studies in the Surgical Anatomy of the Small Intestine and Its Mesentery." Physicians are cordially invited to be present.

Health Report.—Diphtheria continues to increase despite the efforts of the authorities. This week's record of new cases revealed 119, an increase of 42 over the preceding week. The

major portion of the sufferers are school children. The total number of cases of contagious diseases reported was 249, with 18 deaths, as compared with 239 cases and 10 deaths for the previous week. Deaths from all causes numbered 401, a decrease of 22 from those of last week and a decrease of 8 over the corresponding period of last year. Diseases of the respiratory tract caused 124 deaths.

"Test Case" Fails.—Dr. J. A. McKee was arrested on the charge of issuing a false certificate of vaccination. It was alleged that he had given a certificate without examining the arm of a patient whom he had successfully vaccinated three years before. The health authorities, who caused his arrest, asserted that the law requires that individuals must be vaccinated every two years. On account of the indiscriminate issuance of vaccination certificates the health authorities used this as a "test case." It was found, however, that no specific two-year law of vaccination had been established, and the accused, therefore, was discharged.

GENERAL.

Trachoma in Honolulu.—The health authorities in Honolulu are taking measures to combat the outbreak of trachoma and Dr. W. L. Moore has been appointed special medical examiner of schools.

Yellow Fever in Cuba.—Yellow fever is said to have broken out in Cuba. The cases now reported are the first since the disease was stamped out during the American occupancy of the island in 1900.

Funds for the Study of Tuberculosis.—The National Association for the Study and Prevention of Tuberculosis, which has its headquarters in the United Charities Building, New York City, has issued an appeal for contributions to a fund of \$50,000.

Pan-American Congress.—Dr. Henry P. Newman, American secretary of the section on gynecology and abdominal surgery of the Pan-American Medical Congress, is in the South with headquarters at the New St. Charles Hotel, New Orleans. He writes that arrangements for getting to Panama from that port are ideal. Dr. Rudolph Matas, 2255 St. Charles Avenue, New Orleans, is American secretary of the section on general surgery. He writes that, by a change of schedule, the steamer of the United Fruit Company will sail from New Orleans Wednesday, December 28, in time to reach Colon Monday, Jan. 2, 1905, in time for the congress. The rate for the round trip on this boat is now \$50, half the regular rates. Dr. Newman states that the southern physicians are enthusiastic over this meeting and he thinks that it will be a great success.

The Pneumonia Commission.—The commission organized under the authority of the Department of Health of New York City to investigate pneumonia has secured the co-operation of hospitals in Baltimore, Washington, Chicago, St. Louis, Kansas City, San Francisco, Buffalo, Helena, Minneapolis, Denver and twenty other cities equally scattered and in Montreal, Canada. These hospitals will carry on the field work and will report on specially prepared blanks. The laboratory work will be carried on in Boston, Philadelphia, Saranac Lake and at three laboratories in New York City. Twenty thousand cases will be studied in the six months which began November 1. The central laboratory will be at the headquarters of the Department of Health of New York City. The commission will study the occurrence and virulence of the pneumococcus and the organisms related to or resembling this in the human mouth in health and in disease; the evidence of variation in virulence of the pneumococcus; the occurrence of the pneumococcus in children's hospitals, homes and asylums, with a study of the bacteria of mouths before and after an outbreak of pneumonia; the vitality of the pneumococcus under various conditions; the study of mouth disinfection and the study of the air in public places, especially in reference to its dust content. The first six months of this year showed a death rate of 19.6 per cent. of the total number of deaths due to pneumonia. The same period in 1903 showed a death rate of 16.5 per cent. due to this cause. The commission will probably make an examination of subway workers and surface car men with the object of ascertaining the effects of these employments on the health of these men.

CANADA.

Vaccination in Lumber Camps.—Lumbermen are said to be guarding against possibilities of smallpox outbreaks by compelling their men to be vaccinated before going into the camps.

One concern, which has already sent 300 men into camps in its New Ontario limits, required them all to be vaccinated.

St. John Vital Statistics.—There were 751 deaths in the city of St. John, N. B., during the year ended Oct. 31, 1904, as compared with 777 for the previous year. Tuberculosis caused 108 of the number, 19 more than in 1903. There were 100 cases of diphtheria reported, with 11 deaths; scarlet fever, 58 cases, 2 deaths; measles, 67 cases, 1 death; typhoid fever, 20 cases, 6 deaths; smallpox, 1 case, no death.

FOREIGN.

Tuberculosis a Reportable Disease.—The United States Public Health and Marine-Hospital Service reports that the Birmingham (Eng.) city council authorized the health officer to request physicians to notify the health department of all cases of phthisis which came under their observation in Birmingham. The council has no authority to compel this notification, but by promising that the information would be confidential, the system has been successfully carried out. As a supplementary step, a tuberculosis inspector will be appointed, at a salary of £100 (\$486) per annum.

Russian Quarantine Regulations.—From the public health reports we learn that the Russian Board of Medicine has elaborated regulations to be put in force in case the cholera epidemic should spread as far as Moscow. For this purpose the town is divided in sections, and all the cases, should the disease appear, are to be carefully registered and all dwellings are to be disinfected. It has been decided to make experiments with anticholeric lymph, and to distribute among the population pamphlets containing directions as to the precautionary measures to be adopted in order to check a spread of the epidemic. The towns of Baku and Saratow are declared to be infected with cholera.

From the Seat of War.—A telegram from Professor Zoega von Manteuffel, dated Mukden, October 19, says: "We have passed through the greatest battle the world or history has ever known. We are alive and well." An official dispatch states that during two weeks in October Mukden received 775 wounded officers and 27,887 wounded privates, 168 sick officers and 3,224 sick privates. After they had been duly cared for and fed they were forwarded to hospitals beyond. General Trepow adds to his report a few words of appreciation of the tireless devotion of the surgeons. The quarters where the wounds were dressed were frequently under fire. The authorities have ordered another lot of physicians in Russia to report at the seat of war. This leaves a large district in Russia temporarily without medical aid. A large consignment of antidyenteric serum has recently been forwarded to the active forces.

Smallpox in India.—Smallpox is endemic in the Bombay presidency, according to the last report of the United States Public Health and Marine-Hospital Service. There being no jurisdiction over the movements of infected persons, either by road or boat, in Lind province, the disease spreads readily. In a very severe outbreak in the town of Malegao there was great opposition to vaccination on the part of a class of local weavers, and great difficulty in obtaining early notification of the disease from neglect on the part of the people in reporting cases. Parents in the jungle districts of Kanara and Dharwar object most strongly to vaccination, especially of infants under one year of age; thus many children escape vaccination permanently. The preventive measures were those habitually adopted, viz.: On the notification of outbreaks, vaccination and revaccination is offered to the people, and as much vaccination work performed in and around the affected area as possible. Isolation and disinfection methods are at present impracticable. Owing to notification being non-compulsory, frequently the only intimation received by the deputy sanitary commissioner is the return of deaths from smallpox, by which time the disease has obtained a firm hold on the village. In the city of Bombay notification is compulsory and vaccination is required before the age of six months. Disinfection of quarters where cases have occurred is regularly carried out.

Medical Organization in Belgium.—The Federation of Medical Societies in Belgium held its annual meeting October 27. The president, Dr. Merville, editor of the *Gazette Méd. Belge*, remarked in the course of his address that one of the federated medical societies was in the habit of sending to the office of the Federation a copy of all the programs, notices, etc., sent by its secretary to its members. He commented on the value of the information thus obtained, the central office being thus kept in touch with what is going on in this local society. He

suggested that each of the local societies should instruct its secretary to place on its mailing list the names of the secretaries of all the other local societies. The extra expense and trouble would be trifling in comparison with the benefits to be derived by being thus kept in touch with each other. In many instances this interchange of ideas would prove an inspiration and stimulation and the research of one might supplement that of another, instead of several working on the same task. The assembly adopted the following resolution among others: "The surgeon shall present a global bill for every operation, the amount including the sums to be paid to his aids and to the attending physician for their intervention in the operative act. The physician attending the patient afterward and giving the after-care shall present his account separately." In the discussion beforehand Dejaque remarked that the lay press might comment on this resolution in a way to travesty the upright intentions of the medical body, and he urged those physicians who had entrée to the lay editorial sanctums to place the matter in the proper light. The president suggested that the officers of the Federation might take the initiative in the matter, and his suggestion was approved.

LONDON LETTER.

Dairyman Held Responsible for Typhoid Germs in Milk.

A verdict given against the Aylesbury Dairy Company, one of the largest firms engaged in the sale of milk in London, is of far-reaching importance, applying, as it does, an old principle in law to a new set of circumstances. In July last year there was an epidemic of typhoid fever in Ealing, a London suburb. Among the victims was a woman who died. She had partaken of milk supplied by the Aylesbury Dairy Company. Her husband, believing that the milk was the source of the disease, sued the company for damages. His counsel pointed out that the company, in their advertisements, guaranteed that their milk was free from disease germs. He also proved that part of the company's supply was drawn from a farm where there had been a case of typhoid fever. If the milk had been polluted then he contended that there had been a breach of warranty. There was some difference in the expert evidence as to the contamination of the milk. Dr. Thresh, examiner in state medicine at the University of London, said that there was a suspicion as to the milk, but the proof was far from conclusive. Evidence was given that in June, July and August, 1903, 21 cases of typhoid fever occurred in this suburb and in 12 the milk was supplied by the defendants. For the defense it was shown that elaborate precautions were taken by the company to insure the purity of the milk. The judge instructed the jury that if a purveyor sold food injurious to health he was liable. The jury found a verdict for \$530, the amount of expense to which the woman's husband had been put. It is thought by health officers that the decision will do much good by making dairy companies more particular.

Identification by Teeth Casts.

A dentist has called attention to the value of teeth casts in identification—a means which does not seem to have previously been used. He relates the following example: A gentleman went to Africa to shoot big game. Soon a newspaper report appeared that he had been murdered by the natives. His property was large, but probate would not be granted on the basis of the newspaper report. His brother went to Africa and was shown the spot where the murdered man was said to be buried. The skeleton was found and brought to England. But how could it be identified? The probate court remained inexorable. It occurred to a relative that the man had consulted a dentist and the skull was brought to him. He had supplied the missing man with a set of artificial teeth and kept the cast of his mouth. Comparison of this with the skull at once proved his identity beyond doubt and probate was granted forthwith. The dentist insists that, as in the case of finger prints, no two persons' mouths are alike and that a mouth may be identified by a cast taken years ago even though teeth have subsequently been destroyed or the gums lost, as in a skeleton.

Plague in Natal.

Mr. Ernest Hill, health officer of Natal, has issued a report on the outbreak of plague in that colony. The first case occurred in Durban on Dec. 4, 1902, and the last in the same town on Aug. 15, 1903. In all there were 221 cases, of which 162 were fatal—a mortality of 73 per cent. Of this number 201 cases, with 145 deaths, occurred in Durban alone. The disease was principally spread by infested rats and mice. High value is attached to Haufkine's method of preventive inoc-

ulation and some good results were apparently obtained from Yersin's serum. The report gives the results of some valuable bacteriologic researches by Mr. Watkins-Pitchford, assisted by Dr. L. G. Haydon. Some of the most notable experiments were those concerning the vitality and virulence of the plague bacillus. Rodents were confined in boxes carefully protected from all possibility of outside contamination. The boxes were first infested by rats suffering from the disease; when these died healthy rats, after the lapse of a month, were introduced and contracted the disease. When two months elapsed before the introduction of another batch of healthy rats the experiments proved negative. Attempts to transmit the disease to the domestic animals, after the method of Professor Simpson in Hong Kong, proved negative. It is concluded that the strain of bacillus used in Hong Kong has a wider pathogenic range than that used in Natal, and that domestic animals did not in the latter place play a part in the transmission of the disease. The writers insist on the untrustworthiness of microscopic appearances in the diagnosis of plague. To come to a trustworthy conclusion cultural characteristics and the virulence of the organism must be tested.

Correspondence.

The Passing of the Red-Light Treatment of Smallpox.

PHILADELPHIA, Nov. 16, 1904.

To the Editor:—In May, 1903, I published in THE JOURNAL¹ an article in which the value of the red-light treatment of smallpox so stoutly championed by Finsen, was questioned. The theoretical objections to the acceptance of Finsen's claim were discussed in detail and the unfavorable results of the treatment of two cases of smallpox in a well-equipped red-light room were given. Finsen replied to this article and criticised the methods employed and the deductions drawn.

Since this time Dr. Nelson D. Brayton² of Indianapolis published the absolutely negative results obtained in the treatment of 300 cases of smallpox in red-light wards. In the *London Lancet*, July 30, 1904, there appears an article³ on "The Red-Light Treatment of Smallpox," by Dr. T. F. Ricketts, medical superintendent of the Smallpox Hospital of the Metropolitan Asylums Board, and J. B. Byles, assistant medical officer of the Joyce Green Hospital. These men, who have had large experience in smallpox, treated 13 cases of smallpox in a thoroughly equipped red-light room. Seven of the cases were placed in the room on the second day of the eruption; no objection can, therefore, be made that the cases were received too late. Suppurative fever and suppuration were not prevented. The authors state, "We can not agree that the treatment has any of the merits which have been claimed for it." Indeed, these English physicians of experience rather regarded the red light as harmful. "We thought the treatment had an unfavorable effect on the general condition of the patient. The tendency to mental symptoms (delirium, headache, restlessness, etc.) seemed more marked." In concluding the authors said: "We venture to appeal to Dr. Finsen, who has done so much for suffering humanity, to cease to lend the weight of his authority to support a method of treatment which, if it is inefficacious, must necessarily be inhuman."⁴

During a visit to Copenhagen this summer I was told by Dr. Reyn of the Light Institute that the Empress of Russia had given instructions to have the red-light treatment thoroughly tested in one of Russia's smallpox hospitals.

Dr. Finsen has recently died and a noble and useful life has been cut short. Finsen's work in the application of actinic rays of light to the treatment of skin diseases, particularly lupus, entitles him to a prominent place in the history of medicine. The use of red light or, rather, the exclusion of actinic rays of light in the treatment of smallpox, will soon be forgotten.

1. May 2, 1903, p. 1183.

2. July 25, 1903, p. 233.

3. Abstracted in THE JOURNAL, August 20, '04, p. 573.

4. EDITOR'S NOTE.—Finsen's reply to the report of Ricketts and Byles is reviewed in this issue of THE JOURNAL, foreign abstract 12, p. 1665.

Finsen was obviously deceived, as were likewise some other physicians who used the red-light treatment in smallpox, through inexperience with this disease and a consequent inability to distinguish between the natural course of smallpox of different degrees of severity and a modification the result of treatment. I was shown this summer a temperature chart of one of Finsen's published cases of smallpox. There was distinct secondary fever beginning on the sixth day of the eruption; this had not been interpreted as such, but had been attributed to a parotitis. Physicians with the largest experience in smallpox are agreed that there is no known remedy which can abort or modify the course of the variolous eruption. The liability to error in interpreting the value of therapeutic agents is especially great in those diseases which from time to time vary greatly in severity.

JAY F. SCHAMBERG, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ANTIKAMNIA FOR THE PUBLIC.

DR. W. W. GOLDEN, secretary of the West Virginia State Medical Association, has forwarded us a letter, circulars, etc., which were handed him by a non-medical friend and which he asks us to publish. We have on several occasions called attention to the fact that the medical profession has been doing its share to help the antikamnia people to bring their various combinations to the attention of the public. Of course, to use physicians for this purpose is a cheap way of advertising, as newspaper rates are pretty high, especially when a firm attempts to cover the whole country. With over 100,000 physicians as agents, without pay, the expense of promotion is minimized immensely. We can not but admire the Antikamnia Chemical Company in the wisdom they have shown; their method of "promotion" is an excellent one, and others are following their footsteps. The following is the letter referred to:

St. Louis, U. S. A., Oct. 17, 1904.

Mr. H.:—We are pleased to enclose a sample of "Antikamnia Tablets" for Pain. A sample of something good is a "good thing" to keep about the house, or, for convenience, in your pocket or purse. Antikamnia Tablets will relieve all headaches, muscular pains, neuralgias, the grippé, insomnia and women's aches and ills, where sell them in any quantity or in our regular "Vest-Pocket Boxes" as below.

Sincerely yours,
The Antikamnia Chemical Company,
Frank A. Ruf, Prest. and Treas.

On the letterhead are such legends as the following: "Vest-Pocket-Boxes," "Sent direct by mail on receipt of 25 cents, if your druggist can not supply them," "Order a 'Vest-Pocket-Box' of 'Antikamnia Tablets' so as to have them on hand in time of Pain." Stuck to the letter is an artistic picture of a poor wretch evidently suffering from neuralgia of the face with a hint that antikamnia is for facial neuralgia. From the circulars accompanying the letter we clip the following:

"There are numerous important uses for Antikamnia Tablets, of which many may be uninformed. Before starting on an outing, everybody, and this includes tourists, picknickers, bicyclers, and, in fact, anybody who is out in the sun and air all day, should take a five-grain Antikamnia Tablet at breakfast, and avoid entirely that demoralizing headache which frequently mars the pleasure of such an occasion. This applies equally to women on shopping tours, and especially those who invariably come home cross and out of sorts, with a wretched 'sightseer's' headache." The nervous headache and irritable condition of the business man is prevented by the timely use of a ten-grain dose. Every bicycle rider, after a hard run, should take a bath and a good rub-down and two five-grain Antikamnia Tablets on going to bed. In the morning he will awake minus the usual muscular pains, aches and soreness. As a preventive of the above conditions, Antikamnia is a wonder, a charming wonder, and one trial is enough to convince."

They quote, or rather misquote, from an article by Dr. John H. McIntyre, published in THE JOURNAL of the American Medical Association some thirteen years ago, the object evidently being to make it appear as though this journal endorsed the use of antikamnia. The pathetic part of the whole matter comes from the fact that directions are given for the use of antikamnia and codain in practically every disease to which flesh is heir; there is no hint anywhere, so far as we can discover, of the danger accompanying the use of acetanilid and codain.

USE OF SUGGESTION—THE STATUS OF THE LIBERAL HOMEOPATH.

NEW YORK CITY, Nov. 14, 1904.

To the Editor:—Can you advise me whether the consensus of professional opinion is for or against the recommendation, to suitable patients, of such therapeutic methods as mental science or Christian Science? In other words, should we consider solely the welfare of the patient or should we consider how the recommendation of a certain measure, while beneficial to one, may, through our having recommended it, work harm to others. 2. Kindly tell me if homeopathic medical colleges are to-day teaching homeopathy. 3. Is not a man a fraud who claims to be a homeopath and yet does not practice homeopathy? J. J. N.

ANSWER.—The answer to this query naturally divides itself into two parts. For instance, certain patients may be benefited by the application of the therapeutic methods of mental healing, etc., while it might be highly inadvisable to place those patients in the care of such individuals as in a given locality happen to be practicing "mental science," etc. In other words, it may be proper, and even desirable, in a given case that the physician himself apply the methods of the healers or else refer the patient to a physician experienced in the application of suggestion. As the exponents of the various "healing" cults are ignorant of the natural sciences on which modern medicine is based, and as they are always either self-deluded or dishonest, it is difficult to imagine circumstances that would justify the reference of a patient to one of them. 2. Homeopathic colleges still teach some modification of homeopathy. In many of them the subject occupies only a small portion of the curriculum. 3. This is a question of casuistry. How many people are that they "claim to be"? If the man who "claims to be a homeopath and yet does not practice homeopathy," at the same time believes himself to be a homeopath, it would be using unadvised strong language to call him a fraud. If he deliberately pretends to be what he knows he is not, he, of course, is a fraud. The charitable attitude under any such circumstances can do us no harm.

CURE OF INGROWING TOENAIL.

MEXICO, Nov. 11, 1904.

To the Editor:—I have a patient who has been troubled for two years with an ingrowing toenail. The nail has been taken off twice by physicians in the States, but the condition is gradually growing worse. The nail extends down into the tissue at least one-quarter of an inch, only the side next the second toe being affected. There is a continual discharge of pus and small pieces of nail have several times come out of the bottom of the toe. Naturally the man is much discouraged from the previous results and wants the very best thing done this time. Kindly give your best opinion. I have treated several cases before by the various methods commonly used, but I have not had good results in this case. W. J. E.

ANSWER.—Failure followed the removal of the nail because the matrix was not removed with the nail. A very successful and satisfactory way of treating ingrowing toenails is to remove that part of the nail which becomes imbedded in the flesh together with its portion of the matrix. Under local or general anesthesia begin at the free border of the nail and cut longitudinally, extending through the nail to the root, removing only that portion of the nail which is giving rise to the trouble. After removing this portion of the nail cut out a wedge-shaped piece, including all of the matrix, back to the root, which has been uncovered. The wedge should include all of the tissues down to the phalanx. The tissues then fall together and primary union usually results. If care be taken to remove all the matrix back to and including the root, the relief will be complete as well as permanent.

DURATION OF LICENSE TO PRACTICE.

CRAWFORDSVILLE, IND., Nov. 21, 1904.

To the Editor:—On page 1662 of THE JOURNAL, Nov. 19, 1904, in reply to question asked by "T," you state that a license issued to practice medicine in 1895 in Indiana, "entitles the holder to practice medicine in Indiana without an examination." You are in error in this statement. Any license issued prior to March 8, 1897, confers no legal right to practice medicine in any of its branches in Indiana. All licenses issued prior to March 8, 1897, were revoked by the present law. Please make correction.

W. T. GOTT, M.D.,
Secretary of the Indiana Board.

INTERNAL VACCINATION.

OHIO, Nov. —, 1904.

To the Editor:—Kindly give through your Queries and Minor Notes columns the value of the internal administration of antitoxin, both as a preventive and a curative measure. VERTAS.

ANSWER.—So far as known the internal administration of antitoxins has no preventive and curative effect because the digestive juices destroy the antitoxins before they can be absorbed. See editorial in this issue.

EPIDURAL INJECTIONS.

CAMPELLSPORT, WIS., Nov. 12, 1904.

To the Editor:—Please explain Cathelin's epidural injections.

F. H. RUSSELL.

ANSWER.—Cathelin's epidural injections are injections of cocaine outside the dura between it and the vertebral arches. This method has been claimed to be less dangerous than the subarachnoid method. It has been found useful not only for Anesthesia, but also in urinary incontinence and night pollutions. Numerous articles dealing with the method have been abstracted in THE JOURNAL, vol. xxxvii, pp. 150 and 793; vol. xxxviii, p. 1282; vol. xli, pp. 287 and 399.

WANTS A SKELETON ARTICULATED.

GRAND JUNCTION, COLO., Nov. 15, 1904.

To the Editor:—Where can I send a skeleton to have it articulated?
DR. U. S. ABBOTT.

Marriages.

RAYNOR S. FREUND, M.D., Butte, Mont., to Miss Sue McLanahan, at Butte.

HERBERT FOX, M.D., to Miss Emma Louise Gaskill, both of Philadelphia, November 9.

LOUIS BROWN, M.D., St. Louis, Mo., to Miss Mabel Martin of Peoria, Ill., November 15.

EYERETT W. GOULD, M.D., to Miss Alice E. Williams, both of New York City, November 10.

CHARLES W. BAILEY, M.D., to Miss Josephine Ida Groesbeck, both of Hebron, Ill., November 3.

T. SNIVELY DUNNING, M.D., Columbia, Pa., to Miss Elizabeth Christina Nittinger, November 9.

TULLY O. HARDESTY, M.D., Kampsville, Ill., to Miss Kathryn Killum of Winfield, Mo., September 20.

WILLIAM H. GREEN, M.D., Farnhamville, Iowa, to Miss Bertha Marohn, at Des Moines, Iowa, November 9.

FRANK WINFIELD LAIDLAW, M.D., Hurleyville, N. Y., to Miss Sylvia Coddington of Loch Sheldrake, N. Y., October 26.

PHILIP STANLEY CHANCELLOR, M.D., Santa Barbara, Cal., to Miss Emma Elise Matthiessen of La Salle, Ill., November 23.

Deaths.

Henry Munson Lyman, M.D.

Dr. Henry M. Lyman, for many years a professor and senior dean of Rush Medical College and one of the most prominent practitioners of the west, died at the home of his daughter in Evanston, Ill., November 21, after an invalidism of four years, aged 68. The cause of his death was angina pectoris. Dr. Lyman was born in Hilo, Hawaiian Islands, Nov. 26, 1835, and was graduated from Williams College, Massachusetts, in 1858, as valedictorian of his class. He commenced the study of medicine at Harvard University Medical School, Boston, but graduated—again as valedictorian—from the College of Physicians and Surgeons in the City of New York, in 1861. After a short term as interne in Bellevue Hospital, he entered the Army and served as acting assistant surgeon from 1862 to 1863, being on duty in the military hospitals of Nashville, Tenn. In 1863 he established himself in practice in Chicago, paying especial attention to diseases of the nervous system. From 1871 to 1876 he was professor of chemistry in Rush Medical College; from 1876 to 1877, professor of diseases of the nervous system; from 1877 to 1879, professor of physiology and of nervous diseases, and from 1889, professor and emeritus professor of the theory and practice of medicine in the same institution. He was also professor of medicine in the Northwestern University Woman's Medical School from 1880 to 1888. He was attending physician to Cook County Hospital, Chicago, from 1867 to 1876, and to the Presbyterian Hospital from 1884 until his retirement. He became consulting physician to St. Joseph's Hospital in 1890. Dr. Lyman's society affiliations included the Chicago Pathological Society, of which he was president in 1876; the Illinois State Medical Society, the American Neurological Association, of which he was president in 1892-1893; and the Association of American Physicians, of which he was president in 1891-1892. His chief contributions to the literature are his works on "Artificial Anes-

thesia and Anesthetics," published in 1880; "Insomnia and Other Disorders of Sleep," in 1886; a "Text-Book of the Theory and Practice of Medicine," in 1892, and numerous articles in the literature.

T. M. Drown, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1862, died in St. Luke's Hospital, Bethlehem, Pa., one week after an operation for an intestinal tumor, November 16, aged 62. Dr. Drown served as surgeon in the Civil War and subsequently studied in the School of Mines at Freiberg and the University of Heidelberg and became, in 1869, instructor in metallurgy in Harvard University; from 1874 to 1881 he was professor of analytical chemistry in Lafayette College. In 1885 he filled a similar position in the Massachusetts Institute of Technology, becoming president of Lehigh University in 1895. Dr. Drown was one of the charter members of the American Institute of Mining Engineers and its secretary for 13 years.

Duncan Campbell MacCallum, M.D. McGill University, Montreal, 1850, M.R.C.S. England, 1851; demonstrator of anatomy at McGill University, 1854 to 1856; professor of clinical surgery, 1856 to 1860; professor of clinical medicine and medical jurisprudence, 1860 to 1868; professor of midwifery and diseases of women and children, 1868 to 1883, and emeritus professor thereafter; a frequent contributor to the medical literature; one of the founders of the *Medical Chronicle*; visiting physician to the Montreal General Hospital from 1856 to 1887, and then consulting physician; in charge of the University Lying-in Hospital from 1868 to 1883 and afterward its consulting physician, died November 13 at his home in Montreal after a short illness, aged 80.

Francis M. Casal, M.D. Rush Medical College, Chicago, 1864, a member of the American Medical Association, formerly of Pittsfield, Ill., died recently at his home in Santa Barbara, Cal. At a meeting of the Santa Barbara County Medical Society, of which Dr. Casal was one of the oldest and most beloved members, held November 9, resolutions of sorrow at his death and sympathy with his household were unanimously adopted.

James L. Bryan, M.D. University of Maryland, Baltimore, 1849, a veteran of the Mexican War; for about 32 years school commissioner of Dorchester County, Maryland, and largely instrumental in establishing the school system there after the war; who gave up practice and founded the Cambridge Military Academy, died at his home in Cambridge, November 6.

William McClellan Reber, M.D. Jefferson Medical College, Philadelphia, 1863, a prominent physician and citizen of Bloomsburg, Pa., died at Wilkesbarre City Hospital from peritonitis November 18, aged 61. He was a member of the American Medical Association and of the state and local medical societies.

W. H. Carter, M.D. College of Physicians and Surgeons, New York City, formerly in the United States Navy and a member of the Kansas legislature in 1882, died at his home near Cottonwood Falls, Kan., November 13, from Bright's disease, aged 60.

Hunter A. Bond, M.D. Bellevue Hospital Medical College, New York City, 1891, first assistant physician at Manhattan State Hospital, member of the Medico-Psychological Society, and of the Medical Society of the County of New York, committed suicide at Petersburg, Va., November 14.

William R. Gibson, M.D. University of Edinburgh, Scotland, for 15 years a practitioner of Bradford, Pa., died at the State Hospital for the Insane, Warren, where he had been a patient for about eight months, November 7, aged 49.

Edward Thomas Gagen, M.D. King and Queen's College, Ireland, 1880, formerly of Baker County, Oregon, committed suicide at his apartments at Los Angeles October 31, while dependent on account of heart disease, aged 46.

Thomas S. Hopkins, M.D. Medical College of the State of South Carolina, Charleston, 1845, a Confederate veteran, at one time surgeon at Andersonville prison, died at his home in Thomasville, Ga., November 12, aged 87.

John W. Hensley, M.D. Rush Medical College, Chicago, 1867, formerly secretary of the Illinois State Medical Society, died at his home in Peoria November 14, from paralysis after an illness of ten days, aged 68.

James J. Healey, M.D. College of Physicians and Surgeons in the City of New York, 1872, once president of the Essex North Medical Society, died at his home in Newburyport, Mass., November 11, aged 56.

Thomas S. Duckett, M.D. Jefferson Medical College, Philadelphia, 1836, who represented Prince George County in the legislature in 1845, died at his home in Bladensburg, Md., November 12, aged 89.

Lewis Washington Knight, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, died at his home in Nashville, Tenn., November 2, after an illness of six weeks, aged 88.

James P. Burchfield, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1862, of Clearfield, Pa., died at Williamsport, Pa., November 8, after an illness of two days.

James Poulson, M.D., an ex-Confederate soldier, for a number of years a practitioner of Texas, who retired several years ago to the eastern shore of Virginia, died at Onancock, November 15, from an acute affection of the throat, aged 65.

G. S. Mostellar, M.D. Medical Department Illinois College, Jacksonville, a surgeon in the Mexican War, died at the home of his son in Pittsburg, Kan., November 11, aged 82.

George Henry Jefferson, M.D., one of the oldest physicians of Trigg County, Kentucky, died at the home of his son in Linton, November 2, from heart disease, aged 73.

Mell R. Hackedorn, M.D. Bellevue Hospital Medical College, New York City, 1870, died at his home in Galion, Ohio, November 16, after an illness of two days, aged 58.

Isaac F. Cowan, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1860, died at his home near Metuchen, N. J., November 10, aged 80.

Marion L. Amick, M.D. Cincinnati College of Medicine and Surgery, 1869, died at his home in Cincinnati November 15, after an illness of two weeks, aged 61.

William A. Huddleston, M.D. Atlanta (Ga.) Medical College, 1880, died at his home in Wetumpka, Ala., November 8, from lung disease, after a long illness.

Benjamin Franklin Keith, M.D. Rush Medical College, Chicago, 1858, died at his home in Edwardsport, Ind., November 5, from Bright's disease, aged 79.

William Ratliffe Brandon, M.D. New Orleans School of Medicine, 1857, died at his home in Como, West Feliciana Parish, La., November 2, aged 70.

Charles E. Daniels, M.D. Illinois. 1876, a pioneer physician of South Dakota, died at his home in Milbank, November 13, from apoplexy.

Jerome T. Whelpley, M.D. Illinois, 1887, one of the oldest physicians of southern Illinois, died at his home in Cobden, November 10.

J. M. Browder, M.D. Cincinnati College of Medicine and Surgery, 1889, died at his home in Celina, Ohio, October 25, aged 74.

William F. Van Kirk, M.D. Jefferson Medical College, Philadelphia, 1868, died at his home in Grafton, W. Va., November 12.

L. P. Jones, M.D. Tulane University, New Orleans, recently killed his wife and then shot himself, at his home in Benjamin, Texas.

Thomas H. Cooper, M.D. Detroit College of Medicine, 1898, of Orion, Mich., died at his early home in Canada November 1.

Benjamin F. Sides, M.D. Jefferson Medical College, Philadelphia, 1872, died at his home in Furniss, Pa., November 17.

John Hawes, M.D. Louisville Medical College, 1893, died at his home in McBean, Ga., November 12, from typhoid fever.

Alicia Jane Howard Koch, Ohio, 1865, died at her home in Indianapolis, November 12, after an illness of six months.

W. K. Dangeliewicz, M.D., died at his home in Shamokin, Pa., November 1, after an illness of four weeks, aged 60.

A. J. Hodge, M.D. University of Nashville Medical Department, 1874, died recently at his home in Cuero, Texas.

Lyman W. Henry, M.D. Indiana, 1897, of Burnettsville, Ind., died at Battle Creek, Mich., October 29, aged 87.

B. C. Cook, M.D. Medical College of Georgia, Augusta, 1857, died at his home in Long Cave, Ga., October 11.

William B. Bolton, M.D. Illinois, formerly of Canton, Ill., died at Cuba, Ill., November 10, aged 79.

T. C. Conklin, M.D. Illinois, 1888, died suddenly at his home in Farmington, Ill., November 9.

J. D. Drane, M.D., died at McCool, Miss., October 13.

Book Notices.

THE MEDICAL NEWS VISITING LIST, 1905. Weekly (Dated for 30 Patients); Monthly (Updated for 120 Patients per Month); Perpetual (Updated for 30 Patients Weekly per Year); 60-Patient (Updated, for 60 Patients Weekly per Year). The Weekly, Monthly and 30-Patient Perpetual Contain 32 Pages of Data and 160 Pages of Classified Blanks. The 60-Patient Perpetual Consists of 272 Pages of Blanks Alone. Each in One Wallet-shaped Book Bound in Flexible Leather, with Flap and Pocket, Pencil and Rubber, and Calendar for Two Years. Price, \$1.25. Thumb-letter Index, 25 cents extra. By mail, postpaid, to any address. Philadelphia and New York: Lea Brothers & Co.

PHYSICIAN'S POCKET ACCOUNT BOOK. By J. J. Taylor, M.D., 4109 Walnut St., Philadelphia. Containing Obstetric, Vaccination and Death Records and Cash Accounts. 4 1/2 x 6 3/4 Inches. Over 244 Pages. Leather. \$1.00. Also bound in manila boards with separate leather case. Price of case and two manila books, \$2.00. Subsequent manila books to use in the case, 60 cents each; two for \$1.00; three for \$1.40. Also large size for desk or office use, \$4.00. Philadelphia: Published by the Author.

THE MEDICAL RECORD VISITING LIST OF PHYSICIANS' DIARY FOR 1905. New Revised Edition. Bound in Flexible Leather, with Flap and Pocket, Pencil and Rubber. Price, \$1.25. New York: Wm. Wood & Co.

These three are neat, compact and well-bound pocketbooks for the recording of the names of patients and the services rendered day by day for a year. The two visiting lists contain in addition the usual summaries, the comparisons of scales, urinalysis rules, guide for emergencies, dosage and obstetric tables, etc. The pocket account book is especially devoted to the keeping of physician's accounts in ledger form and is so arranged that it shall be a book of original record, each patient's name being in a separate place. The two visiting lists are spaced by days and each day's record is by itself.

TEXT-BOOK OF HUMAN PHYSIOLOGY, Including Histology and Microscopic Anatomy, with Especial Reference to the Practice of Medicine. By Dr. L. Landis, Professor of Physiology and Director of the Physiological Institute in the University of Greifswald. Tenth Revised and Enlarged Edition. Edited by Albert P. Brubaker, M.D., Professor of Physiology and Hygiene in the Jefferson Medical College. Translated by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic. With 324 Illustrations. Cloth. 17, 1927. Price, \$7.00. Philadelphia: J. P. Blakiston's Son & Co., 1904.

This is the fifth English and the tenth German edition of this work. The part devoted to the circulation is complete: abnormal conditions, abnormalities in the heart sounds, murmurs, etc., are contrasted with the normal condition. Directions are given for transfusion of blood. The action of the ductless glands and the influence of their secretions on the circulation are only briefly mentioned. The pituitary body is not mentioned at all in connection with acromegaly. Electricity in relation to physiology is discussed at some length, as are the methods of making blood examinations and urinalysis. The section on the physiology of the organs of special sense is complete and practical.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN, For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., Professor of Skin, Genito-urinary and Venereal Diseases, Rush Medical College, Chicago, and Frank Hugh Montgomery, M.D., Associate Professor of Skin, Genito-urinary and Venereal Diseases, Rush Medical College, Chicago. Seventh and Revised Edition. Illustrated with 107 Engravings and 34 Plates in Colors and Monochrome. Cloth. Pp. 938. Price, \$4.50. Philadelphia and New York: Lea Brothers & Co., 1904.

The fact that seven editions of this work have been demanded is sufficient evidence of its high standard. The new chapters added on general pathology of the skin, radiotherapy and phototherapy, as well as the chapters on some of the rarer skin diseases, add materially to the value of this volume over preceding editions. The bibliographic references show evidence of the most careful research of dermatologic literature and are of great value to dermatologists. The revision and enlargement which this edition has undergone brings it up to date and keeps it in the front rank as a text-book for both students and practitioners.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN DISEASE. By Alda Frances Pattee, Graduate Boston Normal School of Household Arts. Second Edition, Revised and Enlarged. Cloth. Pp. 312. Price, \$1.00. Published by the Author, 32 W. 39th St., New York City, 1904.

The second edition of this practical little work on dietetics shows evidence of careful revision. It possesses value to the physician as a reference book, to the nurse as a text-book and handbook and to the housewife who wishes to exercise care in the matter of diet. It is simple, brief and practical.

Miscellany.

Indexing of Current Medical Literature Abroad.—In Russia the *Russkii Vrach* makes a specialty of carrying the complete index of the prominent medical journals of the world, with a line or two of descriptive text with each title, but no abstracts in this department. In Germany the *Deutsche medizinische Wochenschrift* follows this plan, but has recently inaugurated the system of classifying the titles by subjects, and thus it is impossible to learn the actual contents of any one journal except by going over the entire list. Unless very ably edited, as in this *Wochenschrift*, this system would cause many mistakes, as an improper classification would cause the title to be lost. The *Münchener medizinische Wochenschrift* follows practically the system in use in THE JOURNAL, but restricts it to German periodicals. It is supplemented by semi-occasional reviews of current literature in France, England and eastern and southeastern Europe, abstracts being given of the articles deemed important, but no mention of the titles of other articles. This does not differ materially from the system followed in THE JOURNAL, by which the foreign journals not included in the Index are reviewed and abstracts of the important articles are published as Miscellany. In France the *Semaine Médicale* aims to publish the bibliography of the leading articles in current periodical literature, giving the titles alone, classified, but as it devotes only a given amount of space to it and uses large type, there is not room for a complete list. A number of the specialist journals abroad publish a full index of articles on their specialty, the *Annales de Dermatologie* having adopted the convenient device of printing the classified bibliography on the back of the advertising pages and in the shape of cards, which can be cut out and arranged in a card catalog without further ado. The *British Medical Journal* and the *Lancet* make no attempt to index periodical literature, the former devoting merely four pages in each issue to abstracts without any attempt at system even in these. The German periodical literature is overwhelmingly larger than any other. This is due in large part to the fact that when a Russian, Japanese or Scandinavian physician has a communication to make to the world of science he sends it to some German periodical at the same time as he publishes it in his home journal. Physicians in the Latin countries of both continents send their communications to the French journals in the same way. The publishing facilities of the larger journals are so superior to those of the home periodicals that the communication generally appears complete in the former, while it is still dragging as a serial through the latter or has not yet seen the light, or it may be published simultaneously in two or more countries to obtain a wider circle of readers. A number not long ago of the *Deutsche med. Wochenschrift* is a striking example of this cosmopolitanism. The issue for June 9, No. 24, contains 12 original articles—one each from Russia, England, Norway, Holland, Hungary, Roumania, Egypt, Poland, Colombia, two from Italy and one from New York—the contributions of a single month.

Treatment of Bright's Disease by Restriction of Salt.—Widal's communication last year on the effects of "dechloridation" in kidney disease was rapidly followed by others demonstrating the benefits of the same measure in certain cases of cardiac edema and in heart affections in general. Huchard called attention to the fact that the polyuria induced by digitalis is accompanied by polychloruria, and Merklen found further that the polychloruria induced by this drug vanished with the edema. The action on certain ascitic effusions of therapeutic restriction of the intake of salt has also been established. Vincent, Laufer, Liossier and Hayem have since published accounts of its favorable action in certain cases of hyperchlorhydria. Jaquet has reported a favorable influence on the coryza of albuminuric subjects, and Ravant has recently published that its action is most beneficial in certain cutaneous affections accompanied by exudation. Widal bases this mode of influencing Bright's disease on the discovery that in certain cases the kidneys become more or less impermeable to sodium

chlorid. Under normal conditions an average of 15 gm. a day is ingested, and almost the entire amount is eliminated by the kidneys. In some of his tests he found that 30 gm. of sodium chlorid were thus eliminated through the kidneys in twenty-four hours. When the kidneys become impermeable to the sodium chlorid its retention in the tissues attracts the water into them by physical affinity. The kidneys may develop this partial or total lack of permeability for sodium chlorid long before any of their other eliminative functions are impaired. It is detected by daily determination of the chlorids in the urine, a very simple task, not necessitating the elaborate technic of analysis of the different chlorids, etc. The balance between the salt ingested and that eliminated through the kidneys is thus easily determined. The salt with which the food is seasoned is weighed beforehand each day, and the patient is weighed every morning at a given hour after having urinated. The amount of salt in meat, vegetables, unsalted bread, etc., amounts to about 1.5 gm. If 10 gm. of salt are used for seasoning he is thus taking 11.5 gm. He is weighed every morning, and if he increases in weight constantly or variably water is evidently being retained in the tissues to hydrate the salt not eliminated by the kidneys, and edema may be expected soon. If by restricting the amount of salt ingested to 5 gm. the patient's weight remains stationary, it is evident that his kidneys are able to eliminate this amount of salt. By testing the patient thus from day to day it is possible to establish the salt balance and watch it gradually return to normal. The efficacy of milk in kidney disease is due to its lack of salt, but it is no longer necessary to "burn the house down to get roast pork." The desired result can be attained by a diet as varied as the subject may desire, provided it contains only the proper amount of salt which his kidneys are able to eliminate at the time. The capacity of eliminating salt varies with the condition of the kidneys, and treatment by reduction of the intake of salt, of course, acts only on this element of the kidney affection. It does not pretend to cure the entire syndrome, as the chloruremia is by no means all the uremia. The physician may, however, rest assured in every case that this alimentary restriction of salt is perfectly harmless and without any inconveniences for the subject with Bright's disease. There is always enough salt naturally in the various articles of food to suffice for the physiologic needs of the organism. The amount taken above this is from an acquired taste, and is actually an abuse of this substance. A healthy man can tolerate this extra amount without harm, but any one with kidney disease should pay unceasing attention to the salting of his food, and should always avoid an excessive amount, as he never knows at what moment it may become exceedingly injurious to him. The above is a summary of Widal's address presented at the first meeting of the newly organized Société de l'Internat. at Paris, April 28, bringing the subject of dechloridation—of which he is the father—down to date.

State Boards of Registration.

COMING EXAMINATIONS.

New Mexico Board of Health, Santa Fe, December 5. Secretary, R. D. Black, M.D., Las Vegas.

Board of Medical Registration of the State of California, San Francisco, December 6. Secretary, Charles L. Tisdale, M.D., San Francisco.

Ohio State Board of Medical Registration and Examination, Columbus, December 13-15. Secretary, Frank Winders, M.D., Columbus.

State Medical Examining Boards of Delaware, Wilmington and Dover, December 13-15. Secretary, P. W. Tomlinson, M.D., Wilmington.

The Medical Examining Board of Virginia, Richmond, December 13-16. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, December 14-17. Secretary, J. McP. Scott, M.D., Hagerstown.

Missouri State Board of Health, St. Louis University, St. Louis, December 19-21. Secretary, W. T. Morrow, M.D., Kansas City.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, December 21-22. Secretary, J. F. Kennedy, M.D., Des Moines.

Oklahoma Medical Examining Board, Guthrie, December 28. Secretary, E. E. Cowdrick, M.D., Enid.

Arkansas October Report.—Dr. J. P. Runyan, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock Oct. 11, 1904. The number of subjects examined in was 7; the total questions asked, 70; percentage required to pass, 75. The total number of persons examined was 20, of whom 15 passed and 5 failed. Among those who passed were 4 undergraduates and one person who did not give year of graduation. Among those who failed there were 2 who did not give date of graduation, 1 undergraduate and 1 not specified who attained a grade of 10. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
University of Maryland.....	(1879)	79	
Arkansas University.....	(undergraduate)	75	
Baltimore Medical College.....	(1898)	83	
Med. Dept. Vanderbilt University.....	(1901) 91,	1891	76
Memphis Hospital Medical College.....	(1892)	76	
University of Nashville.....	(undergraduate)	76	
Nashville Medical College.....	(1869)	77	
Louisville Med. Coll.....	(undergraduate)	77	
Rush Medical College.....	75, 1904	83	
University of the State of New York.....	(1894)	81	
University of West Tennessee.....	(undergraduate)	83	
Med. Dept. Ft. Worth University.....	(1902)	79	
University of Leipzig.....	(1894)	81	

College.	Year Grad.	Per Cent.
Illinois Medical College.....	(undergraduate)	55
Barnes Medical College.....	(1898)	73
Memphis Hospital Medical College.....	(—)	61
University of Tennessee.....	(—)	63
College unknown.....	(—)	10

Kansas October Report.—Dr. G. F. Johnston, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka Oct. 11-13, 1904. The number of subjects examined in was 11; total questions asked, 90; percentage required to pass, 75. The total number examined was 33, of whom 24 passed and 9 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Miami Medical College.....	(1882)	81	
Creighton Medical College.....	(1895) 82, (1896) 75,	1903	79
Gross Med. Coll. Denver.....	(1903)	76	
Kansas City Medical College.....	(1904)	77	
Northwestern University.....	(1903) 85, (1904)	85	
University of Michigan.....	(1869) 83,	1904	85
Rush Medical College.....	(1902) 78,	1904	79
Eclectic Med. Inst., Cincinnati.....	(1896) 80, (1897)	81	
Eclectic Med. Univ., Kansas City.....	(1904)	85	
University of Nashville.....	(1903)	75	
Berling Med. Coll., Chicago.....	(1904)	75	
University of Minnesota.....	(1904)	75	
Ensworth Medical College.....	(1896) 75, (1899) 75,	1904	77
Barnes Med. Coll., St. Louis.....	(1903)	85	
College of P. and S., Chicago.....	(1904)	84	
Cornell University.....	(1903)	85	

College.	Year Grad.	Per Cent.
University of Louisville.....	(1888)	74
Univ. Med. Coll., Kansas City, Mo., (1893) 73, (1903) 71, (1904) 74		
Ohio Medical College.....	(1880)	53
Eclectic Med. Inst., Cincinnati.....	(1900)	73
Rush Medical College.....	(1889)	71
Chicago Homeo. Med. Coll.....	(1904)	72
Louisville Med. Coll.....	(1904)	66

District of Columbia July and October Reports.—Dr. William C. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports the examinations held at Washington, July 14 and October 13, 1904. The number of subjects examined in was 17; total questions asked, 80; percentage required to pass, 75. At the July examination the total number examined was 49, of whom 43 passed and 6 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Columbian University, (1902) 82.69, 87.84; (1903) 89.54, 79.09, 80.31; (1904) 83.53, 90.31, 87.97, 91.84, 85.53, 77.66, 87.50, 91.16, 79.51, 91.91, 91.37, 89.19, 89.53, 88.78, 88.75, 82.81, 81.75, 88.06, 88.87, 88.97, 88.97.			
Georgetown University, (1902) 7.84, (1904) 94.09, 94.37, 90.56, 84.53, 82.41.			
Howard University.....	(1902) 76.41, (1904) 81.59, 91.91		
Kansas Medical College.....	(1904)	83.34	
Kentucky School of Medicine.....	(1891)	90.62	
McGill University, Montreal, Canada.....	(1904)	91.53	
Medical College of Virginia.....	(1898)	91.12	
New York Homeopathic Medical College.....	(1904)	86.31	
University of Maryland.....	(1904) 85.81, 78.50		
University of Michigan.....	(1904)	84.78	

College.	PASSED.	Year Grad.	Per Cent.
Howard University, (1903) 68.47.....	(1904) 73.72, 71.69,	69	
University of Maryland.....	(1904)	52.75	
University of Virginia.....	(1904)	72.59	

The general average for all representatives of the Columbian University at the July examination was 86.6; for all representatives of Georgetown University, 87.4.

At the October examination the total number examined was

19, of whom 17 passed and 2 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Columbian University, New York City.....	(1901)	88.50	
Columbian University, (1904) 91.60, 81.85, 83.16, 87.53, 84.12, 91.19, 84.12.			
Georgetown University, (1902) 88.04, (1903) 86.75, (1904) 94.56, 91.06, 80.66			
Howard University.....	(1904)	79.04	
National University.....	(1903)	93.013	
Rush Medical College.....	(1901)	87.569	
University of Michigan.....	(1902)	89.094	

College.	PASSED.	Year Grad.	Per Cent.
Georgetown University.....	(1904)	67.544	
Woman's Medical College of Pennsylvania.....	(1904)	73.944	

The general average for all representatives of Columbian University, at the October examination, was 86.6; for representatives of Georgetown University who passed, 88.2.

Washington Report for January and July, 1904.—Dr. C. W. Sharples, secretary of the Washington State Board of Medical Examiners, reports the examinations held January and July, 1904. The total number examined was 182, of whom 135 passed and 47 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Coll. of P. and S. of San Francisco.....	(1891)	81	
Cooper Medical College.....	(1850)	77	
McGill University.....	(1902)	86	
Toronto Univ. Med. Faculty, (1892) 71, (1899) 84, (1903) 91			
Trinity Medical College, (1897) 80, (1901) 83, (1902) 81, (1903) 75, 82, (1904) 81.			
Colorado School of Med. (State Univ.).....	(1903)	73	
Gross Medical College.....	(1896)	79	
Univ. of Georgetown.....	(1891) 81, (1897) 77, (1903) 78, 80		
Atlanta Coll. of Eclectic Med. and Surg., (1889) 72, (1894) 82			
Univ. of Heidelberg, Germany.....	(1903)	82	
Univ. of Amsterdam, Holland.....	(1887)	83	
American Med. Missionary Coll.....	(1900)	81	
Beane Coll. of Eclectic Med. and Surg., (1888) 78			
Coll. of P. and S., Chicago, (1878) 89, (1892) 82, (1902) 84, (1903) 76, 81, (1904) 88.			
Northwestern Univ. Med. School, (1887) 92, (1896) 83, (1902) 84, (1903) 92, (1904) 78, 84, 85, 87, 87.			
Rush Medical College, (1890) 70*, (1896) 75, (1894) 78, (1899) 89, —; (1901) 80, (1902) 83.84; (1903) 78, 86.			
The Chicago Homeopathic Med. Coll., (1894) 82; (1902) 85, (1904) 82, 83.			

College.	Year Grad.	Per Cent.
Indiana Medical College.....	(1902)	83
Univ. of Iowa Med. Dept.....	(1875) 75; (1904) 83	
Kioto Medical College, Japan.....	(1883)	75
The Kansas Medical College.....	(1886)	82
Kentucky School of Medicine, (1896) 88; (1897) —; (1899) 74, (1903) 75.		
Louisville Medical College.....	(1898)	75, 82
Baltimore Medical College.....	(1903)	87
Med. Dept. of Johns Hopkins Univ.....	(1904)	81
Univ. of Maryland School of Medicine.....	(1900) 79, (1904) 91	
Harvard Univ. Medical School.....	(1901) 84, (1903) 82	
Detroit College of Medicine, (1888) 70, —, (1892) 87, (1897) 76, (1902) 82.		
Saginaw Valley Medical College, (1899) 76, —, (1903) 85		
University of Michigan, (1877) 71*, (1893) 73, (1897) 86, (1899) 86, (1902) 82, 87; (1904) 83.		
Med. Dept. Hamline Univ., (1897) 80, (1900) 78, (1903) 88		
The College of Homeopathic Medicine and Surgery of the University of Minnesota, (1903) 85.		
The College of Medicine and Surgery of the Univ. of Minn., (1882) 81, (1893) 76, (1897) 76, (1903) 82, 84, 86; (1904) 78.		
Barnes Medical College, (1882) 23*, (1898) 79, (1904) 83		
Kansas City Medical College.....	(1879) 75, 70*	
Missouri Medical College, (1873) 70*, (1896) 81, (1904) 85		
St. Louis Coll. of Physicians and Surgeons.....	(1904)	89
St. Louis College of Medicine.....	(1882) 82	
University Med. Coll. of Kansas City.....	(1886)	78
Lincoln Medical College.....	(1897)	71
The John A. Creighton Medical College, (1902) 91, (1904) 79		
Albany Medical College.....	(1901)	85
Belleuve Hospital Medical College, (1876) 82, (1890) —, (1896) 83, (1899) 84.		

College of Physicians and Surgeons in the City of New York.	Year Grad.	Per Cent.
Long Island College Hospital.....	(1904)	—
Syracuse University, College of Medicine.....	(1896)	87
Med. Dept. of Western Reserve University.....	(1903)	86
Miami Medical College.....	(1904)	84
Ohio Medical University.....	(1891) 80	
Starling Medical College.....	(1895)	82
Univ. of the State of Oregon, Med. Dept., (1903) 81, (1904) 80, 83		
Willamette University, Medical Department.....	(1904)	77
Dept. of Med. of the Univ. of Pa., (1882) 87, (1902) 91		
Hahnemann Medical College.....	(1902) 78, (1903) 86	
Jefferson Med. Coll., (1896) —, (1891) 83, (1897) 82, (1903) 81		
Vanderbilt University, Medical Department.....	(1884)	87

College of Physicians and Surgeons in the City of New York.	Year Grad.	Per Cent.
California Medical College.....	(1902) 62, 67, (1904) 73	
Trinity Medical College.....	(1902) 72, (1903) 73	
Gross Medical College.....	(1900)	63
University of Paris, France.....	(1897) 61, (1900) 70	
Georgia College of Eclectic Med. and Surg.....	(1882)	59
College of P. and S., Chicago.....	(1902)	38
Harvey Medical College, Chicago.....	(1904)	70

*Averages not recorded.

College.	PASSED.	Year Grad.	Per Cent.
California Medical College.....	(1902) 62, 67, (1904) 73		
Trinity Medical College.....	(1902) 72, (1903) 73		
Gross Medical College.....	(1900)	63	
University of Paris, France.....	(1897) 61, (1900) 70		
Georgia College of Eclectic Med. and Surg.....	(1882)	59	
College of P. and S., Chicago.....	(1902)	38	
Harvey Medical College, Chicago.....	(1904)	70	

†Average of 75 per cent. is required for passing. Others must attain an average of 75 per cent.

Rush Medical College.....	(1897)	72
Indiana Medical College.....	(1904)	70
Univ. of Iowa, Medical Dept.....	(1904)	72, ↑
Kioto Medical College, Japan.....	(1893)	45
Kansas Medical College.....	(1899)	63
Louisville Medical College.....	(1898)	—†
University of Louisville.....	(1900)	74, ↑
Univ. of Maryland, School of Medicine.....	(1904)	68
Saginaw Valley Medical College.....	(1903)	70
University of Michigan.....	(1904)	61
Wayne Medical College.....	(1903) 67, (1904)	67
Basworth Medical College, St. Joseph, Mo.....	(1904)	64
Hahnemann Med. Coll., Kansas City Univ.....	(1902)	67
Kansas City Med. College, (1896) 62, (1898) 61, —†, (1900)	—†	59
Missouri Medical College.....	(1892) 63, (1896)	63
Central Medical College.....	(1900)	70
University Med. Coll., Kansas City.....	(1898)	42
Lincoln Medical College.....	(1902)	58
Omaha Medical College.....	(1880)	50, 64
Eclectic Med. Inst., Cincinnati.....	(1900)	72
Pulte Medical College.....	(1904)	60
Starling Medical College.....	(1895) 66, (1901)	70
Willamette Univ., Med. Dept.....	(1904)	70
Univ. of Penn., Med. Dept.....	(1897)	69
Chattanooga Medical College.....	(1904)	69
Univ. of Tennessee, Med. Dept.....	1889	66
Name of College illegible.....	(1875)	24

The following questions were asked:

NERVOUS DISEASES.

1. Name three prominent symptoms of locomotor ataxia. 2. Of what condition is choked disc (optic neuritis) the most prominent and most valuable symptom? 3. What is aphasia? Also state in a general way with the function of what part of the brain its presence indicates. What part of the cerebrum is defective? 4. Make a differential diagnosis between the "Status Epilepticus" and uremic convulsions. 5. What are the two most prominent symptoms of Meniere's disease? 6. Give in general terms the prognosis of the following diseases, for ultimate recovery (but not as regards life and death): (a) migraine, (b) chorea, (c) locomotor ataxia, (d) infantile palsy, (e) cerebral palsy of infancy, (f) paralysis agitans. 7. Give the symptoms of the acute stage (or onset) of infantile palsy. 8. What is the result of apoplexy and the prognosis of the condition? 9. What facial condition is often associated with mastoid disease, and why? 10. What is sciatia? Give its etiology and symptoms.

MATERIA MEDICA.

1. Describe the action of digitalis on the heart and on the kidneys. 2. What are diuretics? Give names and doses of five. 3. Give the method of action of sulphate of zinc and apomorphia, in producing emesis. 4. Give the minimum and maximum doses for an adult of—(a) tincture of opium, (b) tincture of belladonna, (c) fluid extract of colchicum root, (d) fluid extract of gelsemium, (e) powdered digitalis, (f) extract of hyoscyamus. 5. What ratio does hypodermic dosage bear to that by the mouth? What ratio does rectal dosage by the mouth? 6. Illustrate the action of each. 6. What are two indications for the administration of strychnin? Indicate the proper dose. 7. Give the symptoms of carbolic acid poisoning and the treatment of the same. 8. What is the indication for Fowler's solution? How does it act? Why and why? 9. Name four preparations of mercury, their doses and therapeutic indications. 10. Name five hypnotics and their doses.

MEDICAL JURISPRUDENCE.

1. Differentiate in a blood stain: (a) mammalian, 1., menstrual, 2. hemorrhage, (b) human, 2. What is atelactasis, how demonstrated, and what does it prove? 3. What is *contre coup*? 4. Bullet wound: Describe point of entrance and point of exit. 5. What is the difference in appearance of: (a) antemortem contusions and lacerations, (b) postmortem contused and lacerated wound. What is the cause of difference? How demonstrate that death was caused by: (a) carbolic acid, (b) strychnia, (c) arsenic. 7. A stain is supposed to be caused by spermatic fluid. Give full demonstration. 8. Describe burns of various degrees. 9. Differentiate eruption caused by croton oil from that of measles, smallpox or other eruptive diseases. 10. Outline your method of performing a postmortem examination of the thorax.

ANATOMY.

1. Inferior carotid triangle: (a) boundaries, (b) contents, (c) relation of vessels. 2. Popliteal space: (a) boundaries, (b) contents, (c) relation of contents. 3. Describe origin and distribution of great sciatic nerve. 4. Give the nerve supply of the hand. Describe shoulder, knee or hip joint. 6. Describe the anterior abdominal wall. 7. Locate and describe the thyroid gland, with its most important relations. 8. Locate four of the principal motor centers in the cerebrum. 9. What structures would be seen on a cross section of the body at the level of the twelfth dorsal vertebra? 10. Describe the gall bladder and the bile ducts. Give their relations.

OBSTETRICS.

1. Name the bones of the pelvis. Give the diameter of the inlet and of the outlet. 2. What are the symptoms of pregnancy? Describe etiology; symptomatology and management of threatened abortion. 3. Give management of the normal antipartum parturient and the puerperal period. 4. What is prolapsus funis? How would you manage the same? 5. What is hydrocephalus? How would you recognize and manage the same? 6. Describe the placenta previa and your method of managing the same. 6. Give etiology, symptoms and management of a case of puerperal eclampsia. 7. How would you manage a case of retained placenta? 8. What do you understand by glass concretion of the management? How is it recognized and how overcome? 9. What is phlegmasia alba dolens? Give symptoms, etiology and management. 10. Differential diagnosis between pregnancy and pelvic tumor.

PRACTICE.

1. What is chronic bronchitis? Give its causes. 2. Name the normal pulmonary sound in auscultation of the different regions of the thorax. 3. Name the variations of the voice, sound in pathological conditions of the lungs and their causes. 3. What are complications, prognosis and treatment of acute rhinitis? What is chronic

rhinitis and its pathologic anatomy? 4. Give causes and diagnosis of gastric ulcer. 5. Define hyperchlorhydria (hyperacidity), causes, symptoms, diagnosis and treatment. 6. Define Argyll-Robertson pupil and name the disease in which it is one of the diagnostic symptoms. 7. What is angina pectoris, its causes and with what conditions is it associated? 8. What are the varieties of aneurism of the aorta? Give symptoms and diagnosis. 9. What are the symptoms and physical signs of aortic regurgitation? When uncompensated? 10. What are symptoms, diagnosis and treatment of leucocythemia?

DISEASES OF THE EYE AND EAR.

1. Give diagnosis, treatment and prognosis of trachoma. 2. Give diagnosis and treatment of chalazion. 3. Describe the mechanism of accommodation, and how is accommodation measured? 4. Give etiology, prognosis and treatment of glaucoma. 5. Give causes and diagnosis of sympathetic ophthalmia. 6. Describe the normal appearance of the membrana tympani. 7. Give the diagnosis and treatment of acute otitis media. 8. Give cause, symptoms and treatment of eczema of the auditory canal. 9. What are the symptoms and treatment of necrosis of the ossicles? 10. Give diagnosis and treatment of aural polypus.

CHEMISTRY.

1. Describe and fully explain the chemistry of Fehling's sugar test. 2. Name three chemical tests for albumin. 3. Distinguish between ionic and ous terminations. 4. Give formula of nitrate of silver and test for same. 5. What is an acid? Give names and formulae of three used in medicine. 6. Write a chemical equation. 7. Define specific gravity. 8. Give difference between chemical and mechanical compounds and an example of each. 9. Give a simple method of estimating the amount of uric acid in urine. 10. Roughly estimate the total amount of solids in urine.

DISEASES OF WOMEN.

1. Define dysmenorrhoea; give common causes. 2. Differentiate between uterine fibroids and carcinoma of the uterine body. 3. Give diagnosis and treatment of specific vaginitis. 4. Describe operative treatment of perineal fistula. 5. Give the technical operation for the relief of retroversion. 6. How would you prepare the abdomen for celiotomy? 7. Give diagnosis of hydro-salpinx. 8. Give causes and treatment of severe uterine hemorrhage. 9. Give symptoms and treatment of cystocele. 10. How do you treat an incomplete abortion?

ELECTRIC MATERIA MEDICA.

1. What are the properties of lobelia inflata? (b) What tissues are influenced by it? (c) When is it indicated? 2. What are the five indications for remedial agents? (b) What classes of agents would you give to meet them? 3. Name five diaphoretics? (b) Name five diuretics. (c) Name five hepatics. 4. Give treatment you would employ in a case of emphysema of the chest of three months duration in a child of ten years old. 5. Give treatment of a case of acute pleuritis with effusion. 6. Give treatment for catarrhal gastritis. 7. What agents would you employ in cerebrospinal meningitis? 8. Give symptoms and treatment of capillary bronchitis. 9. What would constitute the course of treatment of articular rheumatism? 10. Name five vegetable nontoxic nerves.

SURGERY.

1. How would you prepare the patient and field of operation for a laparotomy? What physical conditions would contraindicate general anesthesia? 2. Define a benign and a malignant tumor. Name three types of each. Give prognosis and frequent location of each of the latter. 3. Give prognosis and treatment of a non-united fracture of a long bone. 4. Give prognosis and treatment of penetrating wounds of the abdomen. 5. Give the etiology and pathology of the so-called hip joint disease. Give the symptoms and treatment of an incipient case. 6. Differentiate between an intracapsular fracture of the femur and a dislocation of the head of same. 7. Give symptoms and diagnosis of fracture of the base of the skull. 8. At what age of infancy would you advise an operation for talipes; also cleft palate. 9. Give differential diagnosis between backward dislocation of the ulna and fracture of the humerus near the condyles. 10. Give the differential diagnosis between inguinal hernia and hydrocele.

DISEASES OF CHILDREN.

1. Give the best method of preparing cow's milk for a child one month old. How often do you feed and how much do you give at a time? 2. Give the symptoms and course of cerebrospinal meningitis. 3. Give the etiology, symptoms, course and treatment of infantile atrophy (marasmus). 4. Give etiology and treatment of tetanus neonatorum, and how is it prevented? 5. Give the etiology, symptoms and treatment of acute gastroenteric intoxication. 6. In a normal child what are the indications for weaning? 7. Describe the appearance of the tongue and pharynx in scarlet fever. Give three common sequelae of scarlet fever and the means of prevention of each. 8. Give the differential diagnosis between diphtheric and follicular tonsillitis. 9. Give the complications and sequelae of follicular tonsillitis. 10. What is your opinion of the condition sometimes called membranous croup?

PREVENTIVE MEDICINE.

1. How is the infection of yellow fever disseminated, and how may it be prevented? On what does the infection of anthrax depend, and what is the method of prophylaxis? 3. What is glanders? How is it disseminated? What is its prophylaxis. 4. What is the source of infection of bubonic plague, its mode of distribution, and its prophylaxis? 5. Scarlet fever? Give (a) method of dissemination? (b) are fomites dangerous in scarlet fever? If so, what would be the period of infection, if not disinfected?

PHYSIOLOGY.

1. Name the functions of the Rolandic region, and the order of its subdivisions, from above downward. 2. Describe and give the function of: (a) Red blood cell, (b) leucocyte, (c) fibrin. 3. Give the physiology of the fetal circulator. 4. Name the different types of respiration? What is meant by tidal, complementary, reserve and residual air? Give volume of each normally. 5. Name digestive ferments. Give complete digestion of starch, protein and fat, and the products of the final circulator. 6. Name the different types of respiration? What is meant by tidal, complementary, reserve and residual air? Give volume of each normally. 5. Name digestive ferments. Give complete digestion of starch, protein and fat, and the products of the final circulator. 6. Name the different types of respiration? What is meant by tidal, complementary, reserve and residual air? Give volume of each normally. 5. Name digestive ferments. 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through the heart. What is cause of first heart sound? Of second heart sound? 3. What do you understand by metabolism? 10. Give the functions of the tracts of the spinal cord as seen in a transverse section of the cervical region. Of the dorsal region.

HISTOLOGY.

1. Classify and describe ciliated epithelia, and give location of each. 2. Describe a cross section of long bone. 3. How does heart muscle differ from voluntary muscle in structure? 4. Describe the lymph glands. 5. Describe the wall of an artery. 6. Give structure of a cross section of fallopian tube. 7. Does the nerve sheath or investing membrane cover the nerve axis at its termination?

HOMOEOPATHIC MATERIA MEDICA.

1. Differentiate between the mental symptoms of hyoscyamus and stramonium. 2. Describe eye symptoms requiring argemone nitricum. 3. For what kind of troubles would you give *viola odorata*? 4. Give three remedies most frequently required in diphtheria, with indications for each. 5. Give three characteristic indications for muriatic acid. 6. What is the chief field of action for *agaricus muscarius*? 7. Differentiate between *cannabis indica* and *cannabis sativa*. 8. For what is *bariata caru* used? 9. Give three most important remedies for diabetes mellitus. 10. What is the chief characteristic for *cuprum metallicum*?

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Nov. 19, 1904:

Leach, Charles, asst.-surgeon, sailed for Tokyo, Japan, on special detached duty.

Porter, Ralph S., asst.-surgeon, granted fifteen days' leave of absence.

Smart, Robert, asst.-surgeon, granted one month's leave of absence about November 21, with permission to apply for fourteen days' extension.

Appel, A. H., surgeon, ordered to return to Manila, P. I., for assignment to duty.

George, James, asst.-surgeon, left Fort Sheridan, Ill., with Troops I and K, Eleventh Cavalry, en route to Fort Des Moines, Iowa.

Wolven, F. Homer, contract dental surgeon, granted leave of absence for two months.

Kellogg, Preston S., contract surgeon, granted leave of absence for one month.

McMillan, Clemens W., contract surgeon, granted an extension of ten days to his leave of absence.

Brewer, Isaac W., contract surgeon, granted leave of absence for one month.

Bell, Leonard P., contract surgeon, granted an extension of one month to his leave of absence.

Whipney, Jean C., contract dental surgeon, granted an extension of one month to his leave of absence.

Branch, Frederick D., contract surgeon, relieved from duty at Fort Ethan Allen, Vt., and ordered to duty at Fort Wood, N. Y.

Hansen, Morris J., contract surgeon, granted an extension of one month to his leave of absence.

Havard, Valery, asst.-surgeon general, sails on special detached duty for St. Petersburg, Russia.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Nov. 19, 1904:

Fitts, H. B., surgeon, ordered to the *Buffalo*.

Parker, E. G., P. A. surgeon, detached from the *Buffalo*, November 26, and ordered to the Naval Station, Tutuila, Samoa, and also to additional duty on the *Adams*, sailing from San Francisco December 1.

McLarty, C., pharmacist, detached from the Navy Yard, Norfolk, Va., and ordered to the *Solace* temporarily, and thence to the Naval Hospital, Yokohama, Japan.

Brook, F. W., pharmacist, detached from the Naval Hospital, New York, November 25, and ordered to the Navy Yard, Norfolk, Va.

Farenholt, A., surgeon, detached from the *Monterey* and ordered to the *Raleigh*.

Young, R. M., asst.-surgeon, detached from the *Oregon* and ordered home.

Webb, U. R., asst.-surgeon, detached from the Naval Station, Cavite, P. I., and ordered home.

Mayers, G. M., asst.-surgeon, detached from the *Raleigh* and ordered home.

Hoen, W. S., asst.-surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the *Oregon*.

Dykes, J. R., asst.-surgeon, detached from the *Rainbow* and ordered to the Naval Station, Cavite, P. I.

Cowan, J., pharmacist, retired, detached from the Naval Station, Port Royal, S. C., and ordered home.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Nov. 16, 1904:

Gassaway, J. M., surgeon, granted leave of absence for four days from November 23.

Young, G. B., P. A. surgeon, granted leave of absence for one month, or so much thereof as may be necessary on account of sickness.

Grubbs, S. B., P. A. surgeon, granted leave of absence for six days from November 14.

Anderson, J. F., P. A. surgeon, granted extension of leave of absence for the seven days from November 16.

Currie, D. H., P. A. surgeon, to proceed to Merced, Cal., for special temporary duty.

Steuer, E. M., asst.-surgeon, granted leave of absence for four days from Nov. 9, 1904, under Paragraph 191 of the Regulations.

Hallett, E. B., A. A. surgeon, granted leave of absence for two days from November 23.

Stegurs, H. H., A. A. surgeon, granted leave of absence for thirty days from December 2.

Cook, B. J., A. A. surgeon, granted leave of absence for eighteen days from November 19.

Davis, H. E., pharmacist, Department letter of Oct. 13, 1904, granting leave of absence for fifteen days from Oct. 26, 1904, amended so that said leave shall be for twelve days only.

BOARD CONVENEED.

Board convened to meet at the Marine Hospital, Port Townsend, Wash., Nov. 21, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon J. H. Oakley, chairman; P. A. Surgeon D. E. Robinson, recorder.

PROMOTIONS.

Asst.-surgeon Dunlop Moore commissioned as P. A. surgeon, to rank as such from June 4.

Asst.-surgeon Carroll Fox commissioned as P. A. surgeon, to rank as such from July 27.

Asst.-surgeon Matthew K. Gwyn commissioned as P. A. surgeon, to rank as such from August 8.

Asst.-surgeon Chas. W. Yoge, commissioned as P. A. surgeon, to rank as such from July 27.

REMOVAL.

C. E. D. Lord removed from the position of asst.-surgeon in the Public Health and Marine-Hospital Service, Nov. 15, 1904.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Nov. 19, 1904:

SMALLPOX—UNITED STATES.

Illinois: East St. Louis, Nov. 5-12, 8 cases, 1 death.

Michigan: Detroit, Nov. 6-13, 3 cases; at 50 places, Oct. 29-Nov. 5, present.

Missouri: St. Louis, Nov. 5-12, 13 cases, 1 death.

New York: New York City, Nov. 5-12, 1 case.

Ohio: Cleveland, Nov. 6-12, 1 case.

SMALLPOX—FOREIGN.

Austria-Hungary, Prague, Oct. 22-29, 13 cases.

Brazil: Bahia, Oct. 8-15, 11 cases, 3 deaths; Para, Oct. 1-21, 29 cases, 4 deaths.

France: Lyons, Oct. 22-29, 3 cases.

Great Britain: Leeds, Oct. 22-Nov. 5, 4 cases, 1 death; London, Oct. 22-29, 1 case.

Russia: Moscow, Oct. 15-22, 2 cases.

Turkey: Oct. 22-29, Alexandretta, 1 case; Beirut, present; Constantinople, Oct. 23-30, 20 deaths.

YELLOW FEVER.

Cuba: Santiago, Punta de Sal, Nov. 8, 1 case.

Mexico: Coatzacoalcas, Oct. 29-Nov. 5, 3 cases, 2 deaths.

Venezuela: LaGuayra, Oct. 22, present.

CHOLERA.

Persia: Tabris, Sept. 27-Oct. 2, 209 deaths.

Turkey: Bagdad and vicinity, Sept. 17-Oct. 1, 272 cases, 216 deaths.

PLAGUE—INSULAR.

Hawaii: Honolulu, Nov. 11, 1 death.

PLAGUE—FOREIGN.

Brazil: Bahia, Oct. 8-15, 3 deaths.

Egypt: Alexandria, Oct. 8-14, 2 cases, 1 death.

India, Karachi, Oct. 8-16, 9 cases, 11 deaths.

Mauritius: Aug. 5-Sept. 8, 31 cases, 20 deaths.

Medical Organization.

NEW ORGANIZATION WORK IN INDIANA.

BY J. N. M'COORMACK.

In accordance with plans made by the council of the Indiana State Medical Society, I have recently, as the representative of the American Medical Association, visited and addressed meetings of the county society officers and representative members in nine of the thirteen council districts of that state.

As this is in a measure an extension of my duties in organization work, evolved as a seeming necessity in lieu of something better, which is probably to be adopted in other states, and as the experience was as interesting and instructive to me as it could have been to any of the others participating in these gatherings, and as the account may be made of practical value to others, it may be proper that the results of the trip and the impressions gained, go before the profession of the entire country.

The itinerary was so planned by the council that it was easy to go from district to district in regular order, and with the least possible travel and expense, but the place of meeting within the district, and all details as to arrangements, were left to the discretion of the individual councilor. In some districts two meetings were held, one at one end of the district in the afternoon and another at the other end in the evening, but

usually some central and easily accessible place was selected and but one meeting held.

The date being fixed by the council, when the place was decided on, the councilor would send a cordial invitation to every reputable physician in the district, whether a member of his home society or not, to attend and take part in the meeting. This invitation was supplemented by special efforts on the part of officers of county societies looking to the same end, and the telephone was often effectively used on the eve of the meeting. In such invitations physicians were informed that the meeting was solely in the interest of the county society and of the individual physician, and that after my talk on the necessity, methods and advantages of organization, all present would be invited to make criticisms and ask such questions as would make the meeting a practical consultation between those informed and interested, as to the conditions and needs of the profession in each county. As a result of these combined efforts the attendance was large in some districts, and in all of them it was fairly representative, and I was able in a personal way, and with more or less effect, to reach the profession in nearly every county.

It was soon found here, as in other states, that the plans, purposes and possibilities of such a real and comprehensive organization of the profession as would make each county society an active, living force for the practical every-day benefit of every doctor and individual within the jurisdiction had been realized by few even of the officers, and sometimes only imperfectly by the councilor himself. When these were unfolded and made plain to them, and they learned what had actually been done elsewhere by a union of all the forces at the command of a harmonious profession, the interest and enthusiasm were most encouraging.

The criticisms and inquiries were abundant and intelligent, and often very far-reaching and instructive. These indicated clearly that while a society existed in nearly every county, many, probably a majority, existed only in name, the meetings being infrequent, the attendance small and irregular—and the influence on the profession and community unimportant. It was nearly always easy to detect the obstacles in the way of complete organization, as they were usually on the surface, and the remedy often indicated itself on a frank statement of the conditions. In some instances the county officers, and especially the county secretary, were not active or tactful, and in a few instances the councilors had fallen short of their duty.

On the other hand, many strong, and some almost ideal, county societies were discovered which had done better work than those in any other state so far visited by me. At Valparaiso, as an adjunct to the county society, a regular post-graduate course of instruction had been carried on for three nights of each week during the whole of last winter, and they had just completed arrangements for a similar course for the present season. This included an excellent course in anatomy, with demonstrations on the cadaver, and a practical course in chemistry. The society had become incorporated so that it could legally obtain ample anatomic material from one of the state prisons. It is hardly necessary to say that there was little trouble in maintaining the interest and attendance in such a society.

The society at Michigan City had worked out another problem which confronts the profession in many sections of this country. As a result of the dissensions which had come down to them as an inheritance from their forbears, fees had been so reduced as to seriously impair the usefulness of the profession. Even with those in most active practice the income was so small as to interfere with equipment and progress. Two years ago the profession was so organized that every licensed physician in the city, after full and patient consideration and conference with lay friends, agreed to a fair and equitable schedule of fees, which at once put them on a well supported basis, the night fees being placed high enough to prevent such calls except when actually necessary, and I was informed in the presence of the entire faculty that in the entire two years not a complaint had been made in or out of the profession, either in regard to this action or in carrying it out. Of course, this was not done as a society, but it was the direct outgrowth of the harmony and spirit of co-operation made possible by organization, and the benefits both to the profession, which was better supported, and to the community, which was better served—were so evident that there was no trouble in keeping up the attendance and interest in that county society.

The advantages of a district society, meeting annually, for an interchange of opinions and plans, was well illustrated in these two counties. Although adjacent to each other, neither

one knew what the other was doing along the lines here outlined until they were brought together to meet me. Each expressed the intention of taking immediate advantage of the experience the other had gained, and the representatives from the other counties had the benefit of all of it plainly set forth as in practical operation. If the councilor district societies meet only once a year, half-way between the meetings of the state societies, and merge their proceedings into those of the county societies for that month, and have no dues, they have a distinct and useful place in our plan.

The hospitality of the Indiana physicians was constant and most gracious. Dinners, lunches or smokers for all in attendance were provided everywhere, and at South Bend an elaborate banquet was arranged. At Muncie a most pleasant innovation was made by the invitation of the wives and daughters of physicians to the dinner.

All in all the visit, while exacting and laborious, was a profitable and instructive one to me, and must result in good. I have since gone on similar itineraries which have been arranged for me in Wisconsin and Kansas, after which the other four districts in Indiana will be visited, as well as two or three counties in that state where special difficulties have been encountered.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Southern Surgical and Gynecological Association, Birmingham, Ala., December 13-15.

Western Surgical and Gynecological Association, Milwaukee, Wis., December 28-29.

American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Oct. 19, 1904.

The President, Dr. John E. Murphy, in the Chair.

Diabetes.

DR. EDWARD F. WELLS said that this disease is characterized by hyperglycemia and glycosuria, probably due to hypoglycolysis, from insufficiency of the pancreatic internal secretion. Glycosuria and diabetes are not synonymous. He mentioned the alimentary, nervous, renal, adrenal and diabetic forms of glycosuria. The essential cause is insufficiency of internal pancreatic secretion.

DISCUSSION.

DR. ARTHUR R. ELLIOTT stated that definite lesions of the pancreas have been found in 50 per cent. of cases of diabetes which have come to autopsy. Several authors have reported instances of undoubted pancreatic diabetes, in which there was no emaciation, but exceptions to the rule are so rare that Dr. Elliott reported two cases.

CASE 1.—C. M., a schoolgirl, aged 21, consulted him in April, 1903. In November, 1901, sugar was first discovered in the urine; intense thirst, polyuria, polyphagia and menstrual irregularity were the symptoms at that time. The patient's normal weight was 142 pounds, and during the first eighteen months which elapsed after the discovery of the glycosuria, she gained eighteen pounds, attaining a maximum of 150 pounds, in spite of a strict dietary. When she consulted Dr. Elliott her weight was 148, she was of firm musculature, possessed a high color, well-rounded body curves and looked the picture of health. She complained of polyuria, excessive thirst and appetite, fatigue, dryness of skin and mucous membranes. There were numerous small furuncles and troublesome pruritus vulvæ; urine 82 ounces; specific gravity, 1.036; 3 per cent. sugar; diætic acid and acetone were present. The patient remained under observation until a few days before her death from diabetic coma, December, 1903. During the period the glycosuria fluctuated between 1.5 and 3 per cent. Acetone and diætic acid were constant urinary ingredients, betaoxybutyric acid being first positively demonstrated in May, 1903. At no time did the body weight suffer, and at the time of the patient's death stood at 142. No autopsy was procurable.

CASE 2.—F. E., at the time of consultation, was passing 136

ounces of urine, containing 6 per cent. of sugar. There were traces of acetone, but no diacetic acid. Her normal maximum weight is 160 pounds, which, at the time of consultation, was reduced to 141. Regulation of the diet caused a rapid elevation of the body weight to 155 pounds. The patient has been under continuous observation for six months. Sugar elimination ranges between 1 and 2 per cent. on a limited starch diet (100 grams per diem). For the past two months acetoneuria has been pronounced and diaceturia pretty constant; coma prodromes have once or twice developed. Despite the serious nature of the case and the probability of an early termination, the patient's weight has risen to 155, and she has the appearance of being in excellent health.

DR. JAMES B. HERRICK referred to the common teaching that a saccharine urine is one of high specific gravity. As a result many insurance companies direct their examiners to test for sugar only when the specific gravity is over 1015 or 1020. One should not fall into this error, but should remember that many a urine in true diabetes may for days and weeks at a time have a specific gravity of no more than 1018 or 1020. There are conditions under which the urine may have a much lower specific gravity than this and still be a saccharine urine. Von Noorden calls attention to the fact that preceding the period of glycosuria there is frequently a period of polyuria without sugar, and also following the period of glycosuria, when sugar is disappearing from the urine, there may still be an increased quantity, but of low specific gravity. If we happen to catch a patient just as the glycosuria is coming on, in the period of preglycosuric polyuria, or just as glycosuria is disappearing, we may find that a urine of low specific gravity contains sugar. Furthermore, the drinking of large amounts of water lowers the specific gravity, so that the patient may pass urine containing considerable sugar which still has a specific gravity of 1018 or 1020. Chronic interstitial nephritis, which occurs in the course of diabetes, lowers the specific gravity of the urine, and if a patient presents himself with the cardiovascular changes of this condition, with albumin and casts in the urine, the urine being of low specific gravity, we may carelessly forget to examine for sugar, so that we should make it a routine practice, even when we find a urine of low specific gravity, to test for sugar.

There is a certain type of diabetes that has a peculiar periodicity about it. He believes that we occasionally see sugar disappear from the urine spontaneously, even though the patient is rather careless as regards diet. The importance of recognizing this fact is seen when a patient consults a physician and says he has diabetes, and has been treated for it, and when one examines the urine he finds it sugar-free. It is easy for one physician to say that the other practitioner was mistaken in regard to the diagnosis, and to tell the patient that he is not suffering from diabetes. There is occasionally an unexplained periodicity about glycosuria as a part of true diabetes, just as in certain cases of nephritis for days at a time albumin is absent from the urine.

DR. FRANK BILLINGS stated that since studying Opie's contributions, not infrequently he has been able to elicit a history in these patients of disease of the gall tracts. He believes that there is a place for the surgeon in the treatment of diabetes, and specially in that form of the disease associated with the presence of gallstones in the gall tract, or a continued infection of the gall tract which can be removed by drainage. He agrees with Dr. Wells and others that "once a diabetic, always a diabetic," but he does not agree that this necessarily means that we should give a prognosis to patients of early death, because a patient, when once acquainted with his condition, may, by rigidly adhering to the hygienic treatment mapped out by his physician, live longer than his neighbor who has no diabetes. Two years ago von Noorden brought out as a therapeutic food test a combination of starches, chiefly in the form of oatmeal, of fats in the form of butter, and albumin in the form of egg albumin. For an individual weighing 150 pounds, von Noorden advises the use of 300 grams of oatmeal, to be mixed with 250 grams of butter, and 100 grams of egg albumin, the oatmeal to be steamed or boiled, and while hot to

have the butter intimately mixed with it, and finally the whites of a sufficient number of eggs to measure about one hundred grams or three ounces to be mixed with them. One would think this mixture would be unpalatable to the patient, or indigestible, but the speaker said the contrary is true. So far he has used it in hospitals and private practice on seven patients, and no complaint has been made that it was disagreeable to the palate or dissatisfied them. Immediate improvement occurred in five; in two there was no improvement. In all apparently the conditions as to acidosis, presence of diacetic acid and acetone in the urine, were rather increased than decreased. In five of the patients not only was the acidosis increased, but the per cent. of sugar was either diminished or became immediately almost absent. A young man from the West, who suffered from diabetes, passed 3,000 c.c. of urine in twenty-four hours with 2 per cent. of sugar, but within thirty-six hours from the time he began the meal the urine was without a trace of sugar. While there was in the first twenty-four hours a little reaction with the appearance in the urine of a trace of sugar, still, while the patient was under observation in the hospital for ten days, the urine was practically sugar-free.

Dr. Billings placed a child on this diet early in June of this year; until September the sugar entirely disappeared from the urine and the child gained nine pounds in weight. After being two months on this diet she began to complain and wanted something else to eat. The mother allowed the child bread in place of oatmeal, with egg and a light diet, and immediately the sugar began to appear in the urine. The child was again put back on the von Noorden diet, and the sugar disappeared. Not only has he used it since von Noorden's announcement for a therapeutic test, but as a steady diet for a month longer in some individuals, with not only the disappearance of the sugar, but improvement in the nutrition of the patient.

The good physician watches his patients carefully, measures the urine, and if he finds that on a rather strict diet the patient is losing weight, he adds to the diet something which will enable the patient to increase in weight rather than to continue a diet which means less sugar, but less in weight of the individual, for invariably as an individual decreases in weight there is coincidental with it, but not related to it in any way, acidosis and increase in diacetic acid and acetone, and consequently the case passing on toward coma.

DR. ALFRED C. CROFTAN said that a radical change of front has occurred within the last few years in regard to the administration of carbohydrates and sugars in diabetics. Many cases of acetonuria, diabetic and otherwise, will stop excreting acetone and its precursors and congeners, if a certain amount of carbohydrate is given. In cases of severe acidosis, particularly in patients who have been on a carbohydrate free diet for a long time, it is good practice, in impending coma, to give sugar. He goes further than that, and in extreme cases of coma, in which one is resorting to hypodermic or intravenous injections of sodium bicarbonate and alkalis, he has been in the habit of injecting directly into the veins, together with carbonate solution, a sugar, preferably levulose, and he believes in some cases that the recovery from the coma was due in part to the administration of this carbohydrate. He does not believe, however, that the statistics of the von Noorden diet are so favorable as those mentioned by Dr. Billings. In his experience he has had some good results, and one bad one, and believes the poor result was attributable in part to the administration of the oatmeal. After stopping the oatmeal, sometimes a large amount of acetone is found in the urine which is out of all proportion to that found in any other disease accompanied by acetone. One need not be afraid of this. Not only oatmeal, but any of the ordinary starches, such as potatoes, rice or bread, can be utilized largely in this sense, provided care is taken to give a particular carbohydrate alone. He warns patients to take either oatmeal alone, or potatoes or rice alone, but not to take rice and oatmeal together, or oatmeal and potatoes together. The same effect is produced in some cases by the single administration of one carbohydrate.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Oct. 26, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Typhoid Fever Complicated by Appendicitis.

DR. MOSES BEHREND reported a case of typhoid fever of a rather severe type; in the third week of the disease the patient developed symptoms of perforation which at operation were found to be those of appendicitis. He recovered from an operation and ten days afterward was tapped for pleurisy with effusion. About fourteen days after this he developed pneumothorax. The patient made a fine recovery.

DISCUSSION.

DR. L. J. HAMMOND said that he thought that the case illustrating the fact, now generally admitted, that appendicitis occurring in the course of typhoid fever is entirely coincident, and in no way connected with the typhoid process, and that the majority of cases of appendicitis occurring in the course of typhoid fever are recurrent attacks. Given a case of typhoid fever with the early symptoms of pain, rigidity and other symptoms of appendicitis, one should suspect the presence of a large amount of adhesions, and if the symptoms are severe the surgeon is justified in operating at once. The removal of the appendix, breaking up of adhesions and liberation of the coil of intestines will lessen the possibility of typhoid perforation.

DR. W. H. TELLER considers that notwithstanding the fact that the mucous coat presented all the symptoms of typical catarrhal appendicitis, the condition was that of preperforative typhoid, with involvement of the peritoneal covering of the appendix by extension and not a case of pure appendicitis.

DR. J. ALLISON SCOTT stated that there are several varieties of inflammation of the appendix in typhoid fever. Reviewing the literature of the perforation of the bowel, and collecting statistics of the hospitals of London and suburbs and of the Pennsylvania Hospital, he has found 382 cases of perforation, seventeen of which were in the appendix alone and due to ulceration from within. There is another type, in which during the course of the typhoid fever, or during the convalescence, acute inflammations of the appendix have been set up, not due to ulceration within the appendix, but from the appendix becoming gangrenous and perforating in the ordinary form of appendicitis. Dr. Scott is inclined to believe that if cases of perforation of the bowel are studied carefully it will be found that the appendix is involved more frequently than is thought.

DR. ASTLEY P. C. ASHHURST believes that there are several varieties of appendiceal inflammations during typhoid fever. That they may be distinguished by the different symptoms he does not think is possible. In the early stage of typhoid fever there may be constant pain, vomiting and a certain amount of shock, with rigidity over the appendix. At operation there may be found infiltration of the appendix and an appendicitis, the probability being that these are only typhoid lesions in the appendix. Later, the same conditions may be present through perforation of ordinary inflammation of the appendix. The inflammation, he believes, will so obscure the typhoid lesions that to distinguish one from the other would hardly be possible.

DR. BEHREND declared his belief that the case was one of pure appendicitis, due to the extension of the inflammation resulting from a case of pure typhoid fever. As interesting facts connected with the case Dr. Behrend stated that of five nurses connected with the case, one contracted typhoid fever and recovered while another contracted appendicitis and died from peritonitis. The patient's wife contracted typhoid fever and recovered.

The Trend of Modern Prescription Writing.

DR. M. CLAYTON THRUSH read a paper on this subject which will be printed in full in THE JOURNAL.

DISCUSSION.

DR. S. SOLIS-COHEN asked what Dr. Thrush meant by "therapeutic incompatibility." Aconite and digitalis, or nitroglycerin

and strychnin are to a certain extent incompatible, yet under some circumstances may be given together. He also asked the meaning of the expression "proprietary preparation." Squibbs' ether, he said, is a proprietary preparation, and so is antikamnia, yet there is a considerable difference between the two.

DR. THRUSH replied that by therapeutic incompatibility he meant the combination of those ingredients which from a therapeutic standpoint were directly antagonistic, and in which the action of the drugs would be particularly antagonistic. He had met two instances in which aconite and digitalis had been used, but he felt that it had been done for a certain object. The question of proprietary preparations was one considerably confused in the minds of all. His reference was to those preparations of which the chemical or pharmaceutical composition is known, but which are dispensed by some particular chemical manufacturer, who has a copyright for that preparation which no one else can use.

The Relation of the Physician to the Bureau of Health.

DR. S. W. NEWMAYER said that in the word "co-operation" are gathered all the duties of the physician to the bureau of health. There should be no need of legally calling some physicians to account for failure to report cases of contagion in order to set an example to other physicians. He made a plea for a more accurate and an earlier diagnosis by laboratory methods, and for a postgraduate course in the clinical diagnosis of the more common communicable diseases. The bureau of health, he believes, should have under its supervision a series of lectures and demonstrations by competent teachers, which physicians should be invited to attend. It should be compulsory for all medical students to attend lectures on contagious diseases and to see cases in the city hospital. There should be given to each graduating class one or more lectures on the duties of a physician to the bureau of health, explaining what diseases to report and the best means to protect the public. To lessen the mortality from tuberculosis there should be a practical and concerted plan of education, as well as a report of cases of tuberculosis. Every physician should impart the principles of domestic hygiene to those to whom he is called in his daily work. The consideration of simple lessons on contagious diseases should be borne in mind by physicians having the revision of school text-books. To lessen the infant mortality, largely caused by impure milk and improper food, the physician, trained nurse and even the public should be taught a few practical and simple tests for impurities in milk.

DISCUSSION.

DR. EDWARD MARTIN, director of public health, said that the desire of the bureau of health is to help the medical profession, to act as its agent, and not as a foreign intervention. The bureau asks the help of the profession and is ready to give its assistance in return. He referred to the corps of young men instructed in the work, every man of which had been a hospital resident, had had a special course in contagious diseases and, in other directions, had been fitted for the work. Dr. Martin said that one can not teach all men tact and judgment; one can make many men wise, but can not make all men sensible. The underlying spirit of every man in the corps, however, he said, is to help, and to stand by the profession, and not to interfere.

DR. RANDOLPH FARIES stated that many cases of contagious diseases are never reported, because the families can not employ a physician. These usually come under notice by accident. The solution of this problem is of vital importance.

DR. KATE W. BALDWIN said that she would be grateful for the solution of this problem; many such cases appear at the dispensaries and it is almost impossible to make cultures and to watch the patients. They have no family physicians, and they are frequently found playing with other children in the alleys, and are found to have diphtheria.

DR. ANDREW A. CAIRNS said that it is contrary to the methods of the bureau of health for a medical inspector to examine a patient. The only examination required is at the termination of the disease, when the inspector is to see all cases before ordering fumigation; any mistakes between the medical inspec-

tor and the attending physician should be corrected as early as possible.

DR. HENRY BEATES said that he thinks it possible to devise some ethical means to establish the proper relation of the physician to the bureau of health.

DR. ANDREW A. CAIRNS stated that there are only two diseases on which the bureau of health requires the medical inspectors to make diagnoses: smallpox and chicken-pox, and that if a medical inspector makes himself obnoxious it is not done under orders.

DR. WALTER S. CORNELL referred to the methods of disinfection of houses and of the giving of antitoxin at the hands of the bureau of health.

DR. HENRY BEATES pointed out as important the need for some rule or law by which a responsible physician, the moment he is in contact with an infectious disease, can control the family until the board of health can act.

DR. I. VALENTINE LEVI said that the fact that the board of health should carry out the disinfection, unless the physician obtain special permission to do so, has been the source of much trouble between the medical inspector and the physician. The family physician tells the family to burn some sulphur and that the board of health will not need to do anything, and when the medical inspector appears and insists that the house be disinfected he gets all kinds of beautiful appellations. In one instance the medical inspector was reported to the central office as doing everything possible against the medical profession. He felt that the physician should tell the patients that the house must be disinfected by the board of health, unless he orders otherwise.

DR. S. SOLIS-COHEN regards as important the question of what is to be done with patients suspected of having diphtheria, until a culture is made. He believes it the duty of the physician, whether in his office or in the dispensary, to disinfect the throat promptly when there is any question in diagnosis. His experience with the board of health and its inspectors leads him to declare that there need be no trouble if both sides are willing to act as human beings who recognize their own liability to make mistakes. Occasionally an officious or tactless inspector has done or said something in the household of a patient to which he felt he could take reasonable objection, but he has always found that communication with the superiors of such a man has been the means of having him so instructed that he does not repeat the error elsewhere. He believes that each physician should be prompt and unsparing in the direct report to the chiefs of the bureau of health, of any dereliction, or seeming offense, on the part of their inspectors. Sometimes it will be found that the physician has been misinformed by the patients. He feels that the bureau of health is deserving of all the support and advice that can be given by the medical profession.

DR. JAY F. SCHAMBERG agreed with Dr. Cohen that there are many instances in which both patients and physicians are misrepresented. He knows that the average ability of the members of the board of medical inspectors in the detection of contagious diseases is of a very creditable standard, and is bound to increase. He believes that the medical profession has full confidence in the bureau of health, and that the subject should be approached with a little more charity on both sides.

Travel Notes.

XVII.

MADRAS MEDICAL COLLEGE AND GOVERNMENT GENERAL HOSPITAL.

NICHOLAS SENN, M.D.

CHICAGO.

CALCUTTA, INDIA, Sept. 17, 1904.

India with its 300,000,000 inhabitants has only four medical colleges, located at Madras, Calcutta, Lahore and Bombay. All of these medical schools are in affiliation with the respec-

tive universities. On recommendation of the medical faculties the universities confer the degrees, but the medical schools receive no financial aid from the universities and set their own standards of requirements for admission and graduation. All the medical schools are patterned after those of the United Kingdom as to requirements for admission, graduation and methods of teaching. From information obtained from different sources I find that the great stumbling block of the Indian medical student is language. A knowledge of Latin is a *rara avis* and the meaning of ordinary English words is hard for them to express and comprehend. The teachers find this imperfect knowledge of the English language the greatest drawback in ingrafting their ideas into the minds of the students. The number of medical students in the different institutions at the present time is about 2,000. Very few Mohammedans study medicine; the great majority of students are Hindus and Parsees. The Hindus are said to be the brightest students. The classes have increased in size very rapidly during the last few years, so rapidly, indeed, that space and equipment in all of the schools have become entirely inadequate. From what I have seen of the students in the different medical colleges I have become impressed with their lively, cheerful dispositions and their earnest devotion to their work. The teaching force, as a rule, is inadequate in number in all the schools, and in consequence the men are overworked. I will give only one striking instance of this kind. Lieutenant-Colonel Dimmock of Bombay is director of the Jamsetjee-Jeejeebhoy Hospital, principal of Grant Medical College, and professor of obstetrics, gynecology and diseases of children. Enough work for five men under ordinary circumstances. The men of the Indian medical service who are engaged in medical teaching are overworked and underpaid, and they are the men who do more for India than any other class of men.

MADRAS MEDICAL COLLEGE.

The Madras Medical College was originally established as a medical school in 1835 (Fig. 1). The classes received their instruction at first in rooms adjoining the quarters of the surgeon general of the general hospital. The main building of the school was opened in 1836 and then consisted of four apartments—a theater or lecture room, a library, a museum and a laboratory. The school commenced with a teaching force of seven, 10 medical apprentices and 11 native medical pupils. Private students were first admitted in 1838. They obtained, in common with government students, a free education. In 1851 it became a college, and in 1857 it was placed in the list of affiliated institutions. The buildings were altered and enlarged in 1867. In 1885 separate anatomic buildings were erected, to which were added a theater with a dissecting room for the pupils of the hospital assistant department and a museum in 1887-88. Separate buildings for biologie and hygienic laboratories followed. In 1875 the college admitted on its rolls three new classes of students—viz., candidates for the degree of licentiates in medicine and surgery, for the new grade of civil apothecary, and female students. The system of free education for the students of the college department was abolished a year before this department had been closed, in order to allow the professors to devote themselves to the teaching of subordinates for the service of government. For the second time the hospital assistant department was transferred to the auxiliary medical school at Rayapuram in 1903. The principal of the college at the present time is Lieut.-Col. J. Maitland, M.D., I.M.S., F.M.U. The teaching staff consists of 23 professors and assistant professors, and the number of students is 400. Major G. G. Gifford, I.M.S., is professor of surgery, and Miss V. Adams, M.B., lecturer in midwifery to female students. The calendar of the college for 1904-1905 contains the following regulations:

DRESS—FOR NATIVES ONLY.

1. The typical dress.—Turban, a long or short coat buttoned up to the neck, trousers, socks and English shoes. Underclothing according to choice, but where the material of the coat is not washable, e. g., tweed, a linen collar should be

worn, and, if the coat does not button up to the neck, collar and tie must always be worn, whatever the material. The Parsee hat and Burman head cloth are, for the purposes of these regulations, to be regarded as turbans.

2. Modifications permissible. (a) Students who wear a "tuft" or who shave the scalp, must wear a turban which must conceal the tuft when it is present. (b) Students who dress their hair after the European fashion may wear caps, but indoors, if their dress is otherwise European, the cap

cepted by the syndicate as equivalent thereto. The course of training for this class extends over five years, and the fees charged for tuition are:

	Rupees.	
For the first year of study.....	100	(\$32.00)
For the second year of study.....	155	(49.60)
For the third year of study.....	155	(49.60)
For the fourth year of study.....	100	(32.00)
For the final year of study.....	100	(32.00)

Or if paid in one sum on joining college, 500 rupees, equivalent to about \$160.

The course for the L.M. and S. degree extends over four years and the fees charged for the whole course if paid in advance amount to 470 rupees (\$150). The candidates for these degrees are obliged to pass only three examinations. The first examination includes one course in each of the following branches: Anatomy, physiology, chemistry, practical chemistry, practical pharmacy, histology. The second includes one course in medicine, surgery, materia medica and therapeutics, general pathology, practical pathology and bac-



Fig. 1.—Madras Medical College and Government General Hospital.

must be removed. (c) A cap when worn must be black and may have a lace border, but not otherwise decorated—and no caps are allowed to be worn on ceremonial occasions, such as prize distribution, etc. Mohammedans may be allowed to wear the fez on ordinary occasions, but not at ceremonial observances. (d) Any student may wear a dhoti or mundu; he must then go barefooted indoors or wear socks and European shoes. The latter are recommended, as the feet are apt to get soiled or inoculated with septic matter either in the hospital wards, dissecting rooms or out-patient rooms.



Fig. 2.—Another view of Madras Medical College and Government General Hospital.

3. All articles of dress, whatever the material, must be clean.

This dress regulation must certainly interest our American students, as even with these restrictions the sight of a class of students of the medical colleges of India is a very much checkered and picturesque one, probably made up of more colors than the checkered coat of Joseph. The candidates for the M.B. and C.M. section must have passed the first examination in arts of this university, or an examination ac-



Fig. 3.—Chondrosarcoma of humerus and scapula. Successful interseapular amputation performed by Captain Niblock, I. M. S. of Madras.

teriology, hygiene, practical hygiene, medical jurisprudence, minor surgery. The third and final examination includes mid-wifery and diseases special to women and the newborn child, ophthalmology, mental diseases and operative surgery. The examination test for the degree of M.B. and C.M. is much more severe. Provision is made for the education of military pupils for the Indian subordinate medical department, colonial apprentices, apothecaries, male and female, and chemists and druggists. As an inducement for diligence on the part of the students the Madras Medical College offers annually nine medals, eleven prizes and ten scholarships.

MADRAS GOVERNMENT GENERAL HOSPITAL.

This institution is intimately connected with, and in fact is, the clinical part of the Madras Medical College (Fig. 2), all of the attending physicians and surgeons being members of its faculty. The hospital is made up of a number of two-story pavilion buildings around a capacious square court orna-

mented with tropic trees, shrubs and flowers. The buildings harmonize with each other. It can accommodate 450 patients. The amount and variety of clinical material in this institution is simply enormous. The operating theater, while not up to all of the modern requirements, is one of the best in India. Chloroform is the routine anesthetic. The favorite suturing material is silk and silkworm gut, as the use of absorbable sutures has given rise to many disappointments. Binioid of mercury is the favorite antiseptic for hand and surface disinfection and sterilized gauze is used for dressing wounds. I found a great many emergency cases in this hospital, fractures and accidental wounds, as well as a number of cases of abscess of the liver recently operated on. Among the most important cases was a man who was admitted into the hospital a few days previously with a strangulated inguinal hernia of four days' standing. Professor Giffard performed the operation. The bowel was gangrenous. Enterectomy was done, the continuity of the bowel restored by suturing and the pa-

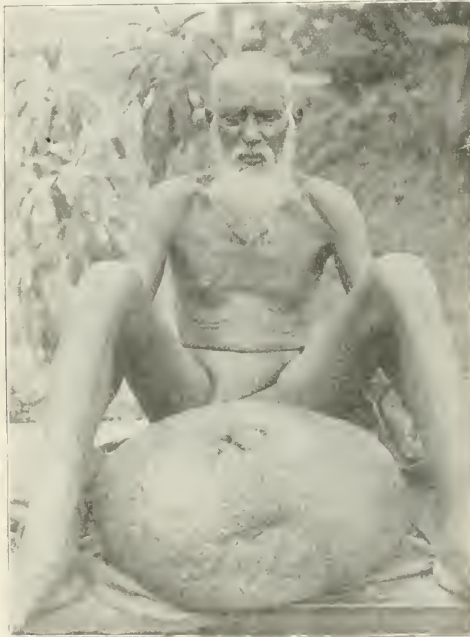


Fig. 4.—Elephantiasis of the scrotum weighing 61 lbs. Photograph used by courtesy of Captain Niblock, I. M. S.

tient is recovering without having shown any untoward symptoms since the operation. Although inguinal hernia is met with quite frequently in Madras, femoral hernia is very rare, only one case being admitted to the hospital during the past 20 years. (Giffard.) Elephantiasis of the scrotum is very frequently operated on in this hospital (Fig. 4). Lieut.-Col. Maitland has performed this operation 160 times with most excellent immediate and remote results. Stone in the bladder is very common in this part of India. Crushing is the favorite operative procedure. Many surgeons, among them Professor Giffard, prefer to perform the operation through a median perineal incision instead of the urethra and in case the stone is too large to be removed by this method it is extracted either whole or in fragments through a suprapubic incision.

CARCINOMA IN INDIA.

An unusual number of cases of cancer of the mouth find their way into this hospital and its frequency is attributed by

the surgeons to betel chewing. Two pathologic forms are distinguished, the papillomatous and ulcerative, the latter being much more malignant and pursuing a very acute course. Capt. W. J. Niblock, I.M.S., surgeon Government Hospital, has contributed a very important article to the literature of "Cancer in India," published in the *Indian Medical Gazette*, May, 1902. The paper is based on the clinical records of this hospital. He has the following to say regarding betel chewing as a cause of carcinoma of the cheeks and jaws: "On looking at Table 1A one can not avoid being struck very forcibly by the enormous number of patients shown as admitted for carcinoma of the cheek and jaws. Carcinoma of the cheek alone accounts for almost one-third, and carcinoma of the cheek, jaws and tongue taken together for more than one-half of the total admissions. The cheek is the part most commonly affected in Hindus and Mohammedans, males and females. The disease affects the buccal surface of the cheek, generally commencing opposite the teeth of the lower jaw and spreading with varying rapidity. The frequency of carcinoma in this situation is, in my opinion, due to the chewing of 'betel,' a common habit in this country, and indulged in, I believe, by almost all classes of natives. 'Betel,' as used in the Madras presidency, is said to be made up of the following parts: (a) The essential constituents, viz., 'betel' leaf, areca nut, and caustic lime (chunam). (b) Condiments, such as cloves, nutmeg, cardamoms, eubeds. Dry powdered cocoanut and oil are also sometimes added. The above components are mixed in varying proportions, rolled up in a betel leaf, and placed in the mouth. They are then chewed and rolled about by the tongue and cheek for a period varying from 10 to 30 minutes and then spat out."

I can testify from observation to the universal use of betel both in India and Ceylon. Carcinoma of other parts of the body appears to be more rare than in our country. The tables of Capt. Niblock show, for instance, that 513 cases of carcinoma of the mouth were admitted to the General Hospital during 10 years, 1892-1901, and only 44 cases of carcinoma of the breast and 19 of the lip. Concerning the latter location he says: "Epithelioma of the lip, it will be noted, is comparatively rare, and, so far as my experience goes, affects both lips with equal frequency. The rarity of carcinoma in this situation is no doubt explainable by the fact that smoking from a pipe (or at any rate a clay pipe) is not indulged in by natives of this country." The comparative frequency of carcinoma of the upper lip referred to by Capt. Niblock stands almost isolated as a clinical observation and constitutes a very important contribution to the topography of carcinoma as it is observed in India. Hundreds of cases of carcinoma of the lower lip have come under my observation and only a single case of carcinoma of the upper lip (Fig. 3).

ABSCESS OF THE LIVER.

In visiting any of the large hospitals in India one is sure to find a few cases of abscess of the liver, and yet Capt. W. J. Niblock says the disease is not so frequent as is generally supposed. (Notes on operations for abscess of the liver, ascites, and gallstone. *Indian Medical Gazette*, November, 1903.) In looking through the reports of the Madras General Hospital, he found that, during the ten years, 1893-1902 inclusive, only 154 cases were operated on and during the last three years the average annual admissions were at the rate of 63,591. Of the 154 cases recorded, 21 were shown to be multiple, all of whom died. There were 53 deaths among the 133 other cases, several of which were, however, probably multiple, as some of the surgeons who performed the operations made no distinction between single and multiple abscesses in their records. Capt. Niblock reports the result of 29 cases of abscess of the liver operated on by himself from March 25, 1899, to Sept. 21, 1903. All the patients were males, their ages ranging between 14 and 70. The racial distribution was as follows: Hindu, 29; Eurasian, 3; European, 5; Mussulman, 2. Out of the 29 cases five were multiple, all of whom died. Among the remaining 24 there were six deaths, that is, the mortality was 25 per cent. All of the abscesses con-

taining less than 20 ounces of pus at the time of operation recovered. In the treatment of this affection the author of the paper emphasizes the importance of a preliminary exploration of the liver by means of a long needle and syringe.

His directions for exploring the liver are as follows: "If a distinct prominence be felt or seen, the needle is first introduced at that situation. Where no such prominence exists, the needle is usually introduced into the liver through the ninth or tenth intercostal space. After the liver has been pierced, the piston of the syringe is drawn back for an inch or so, leaving a vacuum. Should pus now enter the syringe, the latter is detached, leaving the needle sticking in the liver to act as a guide. If no pus be found, the needle is gently pushed upward, inward and slightly backward, this being the most likely direction in which to strike pus. It is gradually withdrawn if no pus is found, and reintroduced in another direction. Five or six different parts of the liver are thus carefully explored before the case is sent back with a negative result." The exploration is made under an anesthetic and if pus is found the operation is performed at once. After resection of about two inches of the ninth or tenth rib in the axillary line the liver is exposed by an incision. If adhesions are present the liver is incised at once; if there are no adhesions a strip of gauze is carefully packed all around the proposed line of the visceral incision. Sutures are never used, as they tend rather to favor than prevent the escape of pus into the serous cavities. With a small scalpel the capsule of the liver is incised. If the abscess is deeply situated a sinus forceps is pushed through the liver substance into the abscess, followed by the index finger and the needle is then withdrawn and one or two Keith's glass drains inserted. After evacuation of the pus one or two large fenestrated rubber drains are substituted for the glass drains and a large aseptic absorbent dressing applied. Washing out of the cavity with antiseptic solutions is abstained from, although the operator has seen good results from the use of a solution of quinin, 1 in 60 to 1 in 80, as advised by Capt. L. Rogers, I.M.S.

The nursing in the Madras General Hospital is in charge of 28 trained female nurses, 51 male ward attendants and 21 female ward attendants. Twelve female nurses resigned during the year and gave their reasons for this step as follows: Left to be married, 6; left to train as midwife, 1; retired on pension, 2; retired on account of ill health, 2; retired for private reasons, 1.

The amount of available clinical material of this hospital is something enormous. During the last year the institution cared for 60,842 out-patients and 7,177 in-patients. The total number of deaths that occurred in the hospital was 644. Among the most frequent causes of death we find malaria, 48; dysentery, 46; tuberculosis, 83; diseases of liver, 38; diseases of the urinary organs, 40. Cholera is credited with 5 deaths. Only 5 deaths occurred from septic diseases acquired in the hospital. They were as follows: One case of sapremia, 1 case of septic peritonitis after enterectomy, 1 case of erysipelas after operation on tubercular glands of the neck, 1 case of cancrum oris occurring in a patient suffering from malaria, and 1 case of gangrene of the leg following the puerperal state in a debilitated woman.

Forty-eight deaths occurred in cases of septic diseases acquired outside of the hospital, namely, 16 from tetanus, 9 from cancrum oris, 9 from cellulitis, 3 from gangrene, 2 from sloughing after extravasation of urine, 1 from sloughing of scrotum, 1 from sloughing phagedena of the penis, and 7 from septicemia (two puerperal).

The total number of operations performed was 6,281, with a mortality of only 1.9 per cent. Among the more important operations were 43 for elephantiasis of the scrotum, with one death; 8 suprapubic cystotomies for stone, with 4 deaths, 1 death following a median perineal operation and 2 litholapaxies, with 1 death; 61 operations for hemorrhoids without mortality, 7 by ligature, 3 by excision and 51 by clamp and cautery; 10 operations for extravasation of urine, with 1 death; 700 operations for hydrocele by tapping, tapping with injection, incision and eversion of sac, excision of parietal

part of sac and incision and drainage; 31 castrations without a death; 5 operations for prolapse of the rectum, with 1 cured, 2 relieved and 2 deaths; 26 operations for strangulated hernia, with 9 deaths, and 102 radical operations, with 3 deaths; 31 operations for abscess of the liver, with 3 deaths, and 15 exploratory punctures of the liver, with 1 death from hemorrhage; 6 exploratory laparotomies, with 2 deaths; 3 operations for intestinal obstruction, with 2 deaths; 5 excisions of the appendix, with 1 death, and 5 incisions for appendiceal abscess, with 1 death; 6 amputations of the thigh, with 1 death, and 10 amputations of the leg, with 1 death.

A few of the operations are of sufficient interest to entitle them to a more extended notice here.

ANEURISM OF COMMON AND EXTERNAL CAROTID ARTERIES.

The patient was a Hindu, aged 22 years. The pulsating swelling was first noticed a year ago and measured three inches in diameter at its widest part. Patient suffered from severe pain in the region of the swelling and on the right side of the head, slight dysphagia, paralysis and wasting of the right side of the tongue. The common carotid was ligated below the omohyoid, October 20. The pulsations in the swelling facial and temporal arteries ceased at once and never returned. The swelling steadily decreased in size, but as the progress was too slow to satisfy the patient it was later incised at his urgent request, the coagulated blood removed and, as no hemorrhage attended the operation, the wound was sutured without making provision for drainage and healed by primary intention.

HYDATID CYST OF TIBIA.

Operator, Captain Niblock. The patient, a Hindu ryot, aged 30, was admitted to hospital for a tumor of the upper end of the right tibia. He gave a history of the swelling commencing seven months before and gradually increasing; also of indefinite pain and weakness in the leg for two years. Pain never severe. The tumor on examination was hard, smooth, and fairly regular in outline, no eggshell crackling. The tumor was diagnosed as possible myeloid sarcoma, but on being incised it was discovered to be a hydatid cyst, containing about 10 ounces of fluid. The cyst wall was removed thoroughly and the bony shell of the cyst broken and turned inward so as to partially fill the cavity. He left the hospital cured in four months.

RHINOSCLEROMA.

The patient was an Eurasian, 21 years old, fireman by occupation, resident in India since birth, spent most of his time at Bhunda Ekhand, Jhansi. Admitted on July 30, suffering from most typical rhinoscleroma, affecting nose, palate and pharynx. No history of any member of his family ever having suffered from a similar complaint nor has he ever seen the disease in any other person. Three years ago he first noticed a small hard pimple on the skin of the right side of the nose about the middle; at the same time he suffered from occasional attacks of epistaxis. The hemorrhage stopped entirely after six months and has never recurred. The growth slowly but steadily extended until the greater part of his nose became affected, and then involved the upper lip, soft palate and pharynx. Captain Cornwall, I.M.S., isolated the bacillus, from which he made pure cultures and also rhinosclerum, which was tried without success. Large doses of carbolic acid and iodoform administered internally proved likewise useless. Partial excision and applications of formalin, and more recently the x-rays, have been tried, under which treatment the disease appears to have become stationary.

There are no gynecologists connected with the Madras General Hospital, the attending surgeons being in charge of all surgical cases regardless of sex. The hospital has nine private rooms, for which the patients are charged from 2 to 5 rupees a day (.64 to \$1.60).

Bubonic plague cases occasionally find their way to Madras, but the sanitary precautions are so stringent that the disease has never gained a foothold here. Every stranger who arrives at Madras by boat or railway is kept track of by the police for 10 days, the maximum limit of the period of incubation of bubonic plague.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Yeast.

Wainwright, in the *Central States Medical Magazine*, discusses the therapeutic application of yeast and quotes liberally from the French observers, who have experimented extensively with yeast in the treatment of various conditions. The author gives the following description of the physiologic action: Yeast is not sensibly affected by micro-organisms. It is found necessary, in order to provide the most advantageous medium for the development of yeast in the digestive tract, to give a liberal supply of sugar with yeast. After ingestion it is found that the motor activity of the stomach is decreased, that the production of hydrochloric acid is retarded, but that pepsin is present in sufficient quantities.

Large quantities produce diarrhea, vomiting, fever and coma. This is probably due to the evolution of carbonic acid gas and the poisonous effects of this gas. In animals abdominal distension and asphyxia are observed. Among the diseases attributed to the effects of alcoholic fermentation are dilatation of the stomach, acute gastrointestinal catarrh and chronic gastritis. It is recommended that yeast is efficacious in the acute and chronic forms of gastroenteritis of adults, in dysentericoid enteritis, and also in the gastrointestinal troubles accompanying typhoid fever, and likewise in gastroenteritis of children. The following method of the administration was used:

About a dessertspoonful of fresh yeast dissolved in from 50 to 60 grams (two ounces) of boiled water. After the administration of a purgative this was introduced, at a temperature of 98 F., through a rectal tube, into the bowel, and caused to be retained as long as possible. The yeast was introduced three times daily. Subsequently, for convenience sake, a teaspoonful of dried yeast was used in place of the fresh preparation.

Yeast has been used in cases of glycosuria with very great amelioration in the symptoms and distinct reduction in the amount of sugar excreted. In habitual constipation very favorable results have been obtained by the use of yeast. Either fresh yeast, simply dried at a temperature of 86 F., or yeast the vitality of which has been destroyed by an hour's subjection in an oven to a temperature of 298 F., was used. The dose of the former is 7½ grains, to be taken per os twice or thrice daily; of the latter 3½ grains.

The favorable action is said to manifest itself from the second day, and to continue for some time after the cessation of the treatment.

Some flatulent distension and occasionally slight colic may occur, but these are said to be avoided, or, at least, diminished, by the use of the sterilized yeast. The results of the use of yeast in furunculosis have not always been satisfactory. Some cases of pneumonia are reported as cured. Favorable results are reported in the treatment of otitis externa furunculosa with beer yeast.

Kempf, in the *Indiana Medical Jour.*, says that yeast poultice is one of the best antiseptic applications for various septic conditions such as gangrene, ulcers, erysipelas, eczema, and as an application for infected tissues after extensive injury. The poultice is prepared by taking a quart of beer yeast and mixing it with one pint of finely sifted cornmeal. The mixture is then placed near a fire until it rises. With the dough thus formed two ounces of finely powdered charcoal is incor-

porated. The writer reports six cases with very excellent results.

Eczema.

Leeds, in a communication, gives the following formula, which has given good results in the treatment of this condition:

R. Pulv. sulphuris	ʒiv	16
Cupri sulphatis	ʒiii	8
Hydrargyri oxidi rubri.....	ʒi	4
Vasellini albi	ʒvi	120

M. Sig.: Apply every night, allowing it to remain ten minutes, then remove with warm, soft water and castile soap.

Chronic Nephritis.

Moore, in the *Clinical Review*, recommends the following, which has given him excellent results in increasing elimination and overcoming the drowsiness of impending uremic coma:

R. Sodii benzoatis	ʒiv	16
Tincturæ limonis	ʒi	30
Aquæ dest., q. s. ad.....	ʒvi	180

M. Sig.: Tablespoonful in half glass of hot water on arising in the morning, or as required.

Acne Vulgaris.

Hunt, in the *Jour. of Med. and Surg.*, outlines the treatment of this condition as follows: Prolonged bathing in hot water will effect a cure in the less severe cases. The water should be soft and the applications should be made with a soft sponge. The water should be as hot as can be borne and the sponge applied to the face at least five minutes, moderate pressure being used. This bathing should be done night and morning. After sponging, the face should be dried with a soft towel and bay rum applied freely. In the more severe cases the following may be used:

R. Saponis viridis	ʒiiss	45
Alcoholis	ʒi	30
Spiritus odorati	ʒiii	8
Aquæ dest., q. s. ad.....	ʒvi	180

M. Sig.: Rub into the skin at bedtime and wash off in the morning. If this proves too stimulating it may be omitted for a day or two and some mild oil used on the skin. The inflamed and unsightly follicles should be opened and contents expressed.

Hygiene in Maternity.

Hanson, in an article on this subject in the *Columbus Medical Journal*, recommends that the following articles of diet should be avoided during the pregnant state: Soup made from vegetables growing under ground; salt pork, with or without beans, in any form; boiled dinners, ham, veal, duck, liver, kidneys, hash, meat-mixed salads, corned beef; any canned meats or soups, mackerel, dried fish or salt meats, except codfish; bananas, tapioca, breakfast cereals, mince pie, suet pudding, fruit cake—in fact, any kind of cake; tea or coffee, and especially if they have been boiled.

Ringworm.

The *Clinical Review* recommends the use of formalin in this affection and states that it is best given with glycerin in the following formula:

R. Formalini	m. v	30
Glycerini	ʒiii	8

M. Sig.: Apply locally.

Remove all grease from the scalp, or part affected, by turpentine, followed by soap and warm water. Then apply the above solution, and continue the application several times for about an hour, so as to allow an opportunity for the preparation to penetrate into the deeper parts of the diseased follicles.

Bronchitis.

Yeo recommends the use of antimony for this condition, and states that it should be given in small and frequent doses early in the disease, when the membrane of the bronchial tubes is dry and tumid, and the skin is hot and dry and the pulse hard. It is well to combine antimony with other diaphoretics. From 10 to 20 minims of the wine of antimony may be used for adults, and from 5 to 10 minims for children. The following combination is advised:

R. Vini antimonii	.....3ii	8
Spiritus etheris nitrosi	.....5iv	16
Liq. ammon. acetatis	.....3ii	60
Tincturæ camphoræ comp.	.....3ii	8
Aquæ dest. q. s. ad.	.....5viii	240

M. Sig.: Two tablespoonfuls every three or four hours.

Bisulphid of Carbon in the Treatment of Tuberculosis.

Professor Coronilas of Athens, Greece, discussed this subject recently before the Chicago Medical Society. His results and conclusions are based on the observations made in Greece and France since 1892 of cases treated by this method. The point he especially emphasized was that the hypodermic use of this remedy exerts a favorable influence on the white corpuscles. The use of the same remedy by intratracheal instillations is also recommended. The author has treated 66 cases, including pulmonary tuberculosis, in several stages; lupus, spondylitis, anal fistula and tuberculous peritonitis. His conclusions are as follows:

1. That the bisulphid of carbon as administered by him has no disagreeable results.
2. It has a strong action against the bacillus tuberculosis.
3. Because of its parasitic antizymotic, antiseptic and inoffensive action it is capable of penetrating all tissues and in this manner cures tuberculosis.
4. It should not remain unknown, but should take its place in therapeutics as one of the specifics of our time capable of doing immense service to suffering humanity.

Diarrhea.

Scott, in the *Central States Med. Magazine*, states that the following combination has proved valuable in the treatment of acute diarrhea of adults:

R. Benzonaphthol	.....gr. ii	12
Bismuthi salicylatis	.....gr. v	30
Resorcini	.....gr. ii	12

M. Ft. Chart No. i. Sig.: One such powder every three hours.

Tonsillitis.

The *Med. Times and Hospital Gazette* recommends the following formula:

R. Tincturæ guaiaci ammon.	.....
Tincturæ cinchonæ comp., aa.	.....3vi	24
Sodii chloridi	.....5ii	8
Pulv. acacia	.....
Aquæ dest., aa q. s. ad.	.....3iv	120

M. Sig.: Shake well. Add teaspoonful of mixture to wine-glassful of water and use as a gargle three times daily.

Medicolegal.

Criticisms of Questions for Medical Experts.—The Court of Errors and Appeals of New Jersey says that, in the malpractice case of Shoemaker vs. Elmer, where it awarded a new trial, after judgment for the defendant, the only assignments of error of importance related to the admission in evidence, over objection, of three questions propounded to the expert medical witnesses called by the defendant. One question was: "Now, from the statement made by Dr. Elmer as to what the patient said to him as to the cause of the injury, what he said he did in discovering what the injury was, and the treatment as testified to by him, was what he did to discover the cause of the injury and his treatment in conformity with or a departure from the rules of practice of the medical profession?" Another question was: "From the statements as made by the defendant in your hearing as to the plaintiff's statement of the cause of the injury, and his (the defendant's) statement as to what he did to determine the injury and what he did in the treatment of it, was there any want of skill or bad treatment, or malpractice by the defendant?" The court thinks each of these questions inadmissible. It says that they were clearly objectionable, even under the cases relied on by the

defendant to sustain them. Neither of these two questions was limited to, or solely predicated on, the statements made by the defendant in his testimony in the cause. The first question was broad enough to permit the expert to base his reply solely on facts which he might have learned from the defendant off the witness stand, or on those he might have heard him testify to in the cause at the trial, or both. The second question was also broad enough to permit the witness to base his reply either in whole or in part, at his pleasure, on facts derived from the defendant's statements made as a witness or otherwise. Neither of these questions needed further comment. There is no rule of evidence governing the admission of expert testimony which could make these questions thus framed admissible. The third question was somewhat more restricted. It was: "Doctor, from the symptoms and the particulars of the plaintiff's condition and the treatment by the defendant, as testified to by the defendant, do you see any evidence of bad treatment or malpractice, according to the rules laid down in practice by the medical faculty?" To sustain the admissibility of this question, Twombly vs. Leach, 11 Cush. (Mass.), 397, was cited. The court says that case did appear to give support to the admissibility of this question; but it does not commend itself to the court's judgment, and is clearly unsupported by authority. This question was a hypothetical one. It was asked of an expert who was expressing an opinion on facts testified to by another person. The question was so framed that it was not possible to tell which of the facts testified to by the defendant must be taken by the witness as the basis of his opinion. The question permitted the witness to determine what part of the defendant's evidence he would adopt and which reject in reaching his conclusion. It afforded the opposing party no opportunity to object to the assumptions of fact on which the opinion of the witness was asked. Expert evidence should be carefully guarded. It is sufficiently dangerous when carefully circumscribed. It becomes altogether too unreliable when the basis of it is indefinite. The question on which the opinion is expressed should be so clear that the jury will not be left in any doubt about what the actual facts are on which the witness is expressing an opinion. A question should not be so framed as to permit the witness to roam through the evidence for himself, and gather the facts as he may consider them to be proved, and then state his conclusion concerning them. An attempt was made, and the court says it was supported by some authority, to differentiate where the testimony used or the basis of the question is the testimony of but a single witness and is uncontradictory. But the court states that it is unable to see why that should be so. Whether it is contradictory, or involves a different interpretation by different minds, is always problematical. For the expert to remember all the material facts testified to by a single witness, which are to be the basis of his opinion, may be as difficult as to call to mind all the material facts testified to by several witnesses. There should be no loosening of the rule as to the admissibility of this class of evidence. It is undoubtedly very important evidence in many cases, when given strictly within the rule, and its usefulness should not be impaired by raising a doubt as to just what force such evidence should have in the cause. The jury, to estimate properly the opinion expressed, should have the means of showing exactly on what the opinion is based. This court agrees with the view that a medical witness, who has been present during the whole trial and heard all the evidence, should not be permitted to express an opinion on the evidence as heard by him, but that his testimony should nevertheless be taken on a hypothetical question, stating the facts claimed to be established and which are to form the basis of his opinion.

Excessive Sexual Demands as a Ground for Divorce.—The Supreme Court of Iowa says, in *Ridley vs. Ridley*, that when the plaintiff was married she was 54 years old and a widow, and the defendant was nearly 68 years of age and a widower. They lived together about two months, when the plaintiff left the defendant, and thereafter brought this suit, alleging that her life was endangered by the defendant's excessive sexual demands on her. With regard to the evidence, all that the

court says is that the plaintiff testified as to the frequency of the demands, and that the defendant did not deny her statement, nor did he claim that "age had withered his desire." Neither was there a serious question as to the effect on the plaintiff's health. It probably was true that these excesses did not directly affect her lungs, and cause the attack of pneumonia which she suffered after she left the defendant; but that they produced a weakened physical condition, which more readily yielded to that disease, may fairly be inferred. The plaintiff did not claim that she resorted to physical violence to restrain the defendant's ardor, but she protested and resisted as strongly as she could without resorting to extreme force. And the court says that to entitle a wife to maintain an action of this nature it does not apprehend that it is necessary to prove that she engaged in an angry controversy or resorted to extreme physical force every time that she declined the embrace of her husband. If such were the case, the wife's life would be doubly endangered at such times. So, while this was not an extreme case, the court thinks that the plaintiff was entitled to a divorce under the evidence, and affirms a decree in her favor.

Violation of Practice Act One Continuous Offense.—Section 4 of the Kentucky act of May 10, 1886, regulating the practice of dentistry, provides that "any person who shall, in violation of this act, practice dentistry or dental surgery in the state of Kentucky, for fee or reward, shall be subject to indictment by the grand jury of the county in which the offense is committed; and, on conviction, shall be fined in the sum of not less than fifty dollars nor more than two hundred dollars for each offense." The question was raised, in *Wilson vs. Commonwealth*, whether or not the offense denounced by the statute is of such continuous nature as to subject the violator to only one conviction for the whole period of time next before the institution of the prosecution, or is it of such a character as that each act of practice constitutes a separate offense? The Court of Appeals of Kentucky says that it is apparent, upon very slight consideration, that if each time an unregistered dentist pulls a tooth he is subject to a fine of from \$50 to \$200, in a short while these would aggregate so large a sum as to make payment impossible, and, as a result the defendant might lie in jail a large part of his life. Such a conclusion is not to be reached, unless constrained by the very letter of the statute. We are not without high authority, as well as sound reason, against the cumulative construction. So the court decides against it, or that the offense denounced by the statute is of such continuous nature as to subject the violator to only one conviction for the whole period of time next before the institution of the prosecution. The first case cited on the subject is the English one of *Apothecaries Co. vs. Jones*, 1 Q. B. 89, where the court says that there was involved an act similar in principle to the one here under consideration. The apothecaries act of 1815 (55 Geo. III, c. 194, sec. 20) provided that "any person who shall act or practice as an apothecary without a certificate is liable to a penalty 'for every such offense.'" The defendant had practiced as an apothecary without a certificate, and given medical advice and supplied medicine to three different persons at different times on the same day, and it was held that the words "act or practice as an apothecary" were directed against an habitual or continuous course of conduct, and that the defendant was not guilty of a separate offense in attending each of the three persons, and was only liable to one penalty.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.
American Medicine, Philadelphia.

November 12.

- 1 *Transudates and Exudates, with Report on 73 Fluids. Joseph L. Miller.
- 2 Hyperchlorhydria, with Observations on Diet and Gastric Analysis. James R. Arnell.
- 3 The Relations of Ophthalmology to Other Departments of Science. Edward Jackson.

4 Chronic Prostatitis. E. G. Ballenger.

5 *The Results of Treatment of Carcinoma by the Roentgen Ray. J. N. Scott.

1. **Transudates and Exudates.**—Miller presents the results of his investigations into the general characteristics of exudates and transudates, the methods of determining the tuberculous character of serous fluids, the prognostic value of the findings, the present knowledge of cytodiagnosis and his personal observations in examination of fluids obtained from 93 different patients. He concludes that the color of the fluid, its reaction, and the size of the erythrocytes are of little diagnostic value. Nucleoalbumin is usually more abundant in exudates than transudates; however, many exudates fail to show more than a faint trace. On account of the constancy of the salts present, the specific gravity and amount of albumin bear an intimate relation. Fluids from different body cavities of the same individual, or fluids of the same origin in different individuals or successive tapplings of the same cavity may show marked variation in the amount of albumin, probably explained by the permeability of the capillaries, the degree of irritation of the serous surface, the condition of the patient's blood, the tension of the fluid, the amount of absorption taking place, and possibly the blood pressure. Methods of estimating the bulk albumin, as Esbach's or Purdy's, are not applicable to serous fluids. Reuss' formula is the most accurate, simple method for determining the amount of albumin in serous fluids. The diagnostic value of the specific gravity, or amount of albumin is greatly lessened by the frequent presence, simultaneously, of several processes. A hydremia, as a result of anemia or transudation from pressure may lower the specific gravity of an inflammatory fluid. Secondary inflammation, high tension of the fluid, or resorption taking place, may increase the specific gravity of a transudate. At present there is no reliable method for determining the tuberculous character of a serous fluid. The specific gravity of a fluid, when taken for successive tapplings, may be of prognostic value. Epithelial cells in sheets are not infrequently present in fluids of inflammatory origin. The predominance of lymphocytes may be associated with a long-standing simple pleuritis, a hydrothorax or a tuberculous pleuritis. The presence of relatively large numbers of neutrophils in pleuritic fluids may be associated with an acute, simple, or secondary tuberculous pleurisy. The presence of numerous cells, chiefly neutrophils, suggests an acute simple pleuritis. The presence of numerous lymphocytes, with few, if any, neutrophils, indicates that the process is probably a tuberculous one. In ascitic fluids there is little that is characteristic. Neutrophils are usually more abundant in fluids due to portal stasis from cirrhosis than in tuberculous peritonitis. An eosinophilia in one body cavity may occur along with a neutrophilia in another. A study of the cellular elements in fluids from the pleural or abdominal cavities is of comparatively little diagnostic value, either in differentiating transudates from exudates, or in determining the character of the latter.

5. **Roentgen Ray in Treatment of Carcinoma.**—Scott obtains his current from two 12-inch Fessenden machines connected in series to give a 20-inch spark, and a mechanical break of his own construction, consisting of a copper disc with four fans, which revolve and make contact with a copper brush. The break is made under alcohol. This gives a clean, sharp break. It is operated by a motor with a rheostat which gives three speeds of break, one 500 per minute, one 1,000, and one 2,000. He operates a machine of 110 volts direct current through a graduated rheostat in series with coil. He keeps an ampere and volt meter in circuit. To protect himself and parts of the patient not being treated, from the effects of the ray, he uses a metallic box, which he described several years ago. He begins with daily exposures if the case is serious; if not, every other day. Ordinarily the anode of the tube is placed 8 inches from the part to be treated, raying for six minutes, if exposures are daily, and eight minutes if every other day. In a given case he tries to carry out the same technic all through the treatment, regulating the number and duration of the exposures by the reaction obtained. He uses a vacuum corre-

sponding to the depth of growth being treated, employing a self-regulating tube with a small amount of metal in the anode. The cases which respond best are those of slow growth, whether the growth is primary or secondary to an operation. His best results have been obtained in the treatment of recurrent growths of the breast, next primary growths of the breast, then the uterus, stomach and intestines. He cites the following statistics: Cancer of the uterus, 14 cases; two patients well for two years, one had been operated on with recurrence, the other had not. Considerable relief was obtained, lessened hemorrhage and general temporary improvement, in 8 other cases. The remaining 4 either discontinued treatment or there was no apparent improvement. Primary carcinoma of the breast, 11 cases; 4 are well at the end of two years or longer. In 15 patients treated immediately after operation, there has been no recurrence after two years in 10. Of 38 recurrences after operation, 8 are well at the end of two years.

Medical Record, New York.

November 12.

- 6 *Nephrectomy for Tuberculosis of the Kidney, with a Report of Four Cases. H. N. Vineberg.
- 7 The Lymphoid Affections of the Upper Air Tract of Children. Walter F. Chappelle.
- 8 *A Clinical Observation of 116 Cases of Typhoid Fever, with Special Reference to Therapeutic Fasting. R. M. Harbin.
- 9 Treatment of Prolapse of the Umbilical Cord. W. Reynolds Wilson.
- 10 *Formol-Iodin, a Modified Claudius Method for the Preparation of Catgut. Willard J. Stone.
- 11 *Strophanthus in Lobar Pneumonia. C. Am Ende.

6. See abstract in THE JOURNAL, XLII, page 1583.

8. Therapeutic Fasting in Typhoid Fever.—Harbin says that fasting and a restricted diet are indicated in the treatment of typhoid fever because of pathologic conditions, and that such treatment will, to a great extent, eliminate the dangers of sthenic cases. In fact, the proper food management of a case will well-nigh shield it from every danger incident to the course of the disease. What the patient loses in food is more than compensated by a lessened degree of toxemia. Surplus food causes accumulations in the intestine, augments the toxemia, causes diarrhea, and increases the risk of hemorrhage. There always is a greater degree of toxemia in cases complicated by severe gastrointestinal disturbances. Different individuals are affected differently by the specific toxin, robust young adults being more susceptible, while the extreme of ages and the anemic are less so. The author employs cocoa, coffee, egg albumin, peptonoids, and broths of beef, mutton, chicken, oysters, etc., in prescribed amounts, to be given only after the patient has fasted from twenty-four to forty-eight hours. Gelatin is a valuable adjunct in the dietary of the typhoid by adding to the relish of the various liquids, lessening the nitrogenous waste and preventing hemorrhage. A teaspoonful three or four times a day, is ordered, dissolved in a little hot water, and added to any liquid nourishment. When used, emaciation is less rapid. It should be used as a routine in all cases to prevent hemorrhage. In very aggravated cases of diarrhea it may increase tympany, but in these cases it may be used on alternate days in small quantities. Since beginning its use, Harbin has not had a case of intestinal hemorrhage. Milk should be absolutely forbidden, except diluted with from 2 to 5 parts of coffee, cocoa, broths or hot water, because then the danger of curd formation is slight. This plan of dietetic treatment should be continued until the active symptoms are controlled. Fasting in late stages and convalescent stages will cause fever. Nearly all recrudescences are due to dietetic errors. Fasting and restricted diet greatly enhance the effect of hydrotherapy. Harbin reports 45 consecutive cases of typhoid, treated according to his method, without a death. Since using the treatment he has had a mortality of only 3.4 per cent.

10. Formol-Iodin.—In order to increase the tensile strength of catgut, Stone suggests the following modification of the Claudius method: Submerge the raw commercial catgut in an aqueous 4 per cent. formalin solution for from thirty-six to forty-eight hours; then wash in running water for from ten to twelve hours to free the excess of formalin, and then sub-

merge in the iodine solution recommended by Claudius, for eight days before using. The gut should be loosely wound on glass spools and put in the formalin solution. When in the running water, strands from ten to twelve inches long are cut from the spool and put into the iodine solution. The addition of 5 per cent. boroglycerin solution or of glycerin, to the iodine solution, improves the pliability of the catgut without in any way lessening its tensile strength. The boroglycerin, or glycerin, should be sterilized in a container surrounded by boiling water for one-half hour on three successive days. The material is left in the iodine or iodine-glycerin solution until ready for use, when it is removed with sterile forceps, threaded and placed in sterile water. Stone says that catgut so prepared has the tensile strength of silk. It is pliable, not too elastic, knots well, and seems to be the ideal in every way.

11. Strophanthus in Lobar Pneumonia.—Am Ende emphasizes the value of strophanthus in the treatment of lobar pneumonia, to be given immediately on the establishment of a diagnosis; the dosage to vary according to circumstances. In his experience it has brought about a favorable termination of all cases on the fifth day. One case is cited where minimum doses of strophanthus were administered every hour with full doses of aromatic spirits of ammonia, with the result that within about twenty hours the well developed symptoms of the first stage had all disappeared and the patient returned to work four days later.

Boston Medical and Surgical Journal.

November 10.

- 12 Tuberculosis, Its Nature and Prevention. Henry Barton Jacobs.
- 13 The Ideal Doctor. David W. Cheever.
- 14 *The Technic of Resection of the Cecum. Charles L. Scudder.
- 15 Plastic Operations for Resection of the Nasal Septum and Excision of Septal Spurs. A Review. George H. Powers, Jr.

14. Resection of the Cecum.—Every surgeon doing abdominal work, says Scudder, should be familiar with the technic of this operation. The abdomen should be opened by that incision which will render most easily accessible the parts to be operated on. An incision in the right linea semilunaris is satisfactory in most instances. The oblique incision parallel to and above the crest of ileum is also a convenient one. The parts being well exposed, an incision is made through the posterior parietal peritoneum at the outer side of the cecum and ascending colon. The colon is freed from its bed until the hand passes beyond its inner border behind the peritoneum. The branches of the ileo-colic artery are divided and ligated with fine silk by the use of a Cleveland needle. All mesenteric vessels to the cecum and to the ileum, so far as it is decided necessary to remove the ileum, are likewise ligated. This leaves the parts of the bowel to be removed entirely free. A rubber covered clamp is placed on the distal portion of the ascending colon. A clamp without rubber cover is placed near it on the ascending colon. The bowel is divided, between the clamps, sufficient space being left on the proximal end of the ascending colon to permit of the placing of a purse-string suture. The distal divided end of the colon is closed by an over-and-over continuous Pagenstecker linen suture. This suture closes the colon and checks all bleeding from the mucous membrane. The rubber covered clamp is then removed. The closed end of the colon is pushed within the purse-string suture, which is drawn taut and tied, three or four interrupted mattress sutures being then placed over the dimple formed by the puckering purse-string suture. The clamped cecum is held with gauze by an assistant, while two clamps are placed on the ileum, a rubber covered clamp being placed on the proximal portion. The clamp without the rubber cover being placed tightly on the portion to be removed. The ileum is divided obliquely so as to preserve by a good circulation the integrity of the bowel opposite to the mesenteric attachment. A point is selected on the ascending colon or transverse colon at which the divided ileum is anastomosed to the colon. After transverse division of the bowel it may be longitudinally divided opposite the mesenteric attachment, the corners thus formed being rounded off. This gives a larger opening and one less likely to be subsequently constricted. The portion of transverse colon where the

anastomosis is made is isolated by means of the rubber covered clamp, thus checking hemorrhage and occluding the bowel. The suture used is the Pagenstecker linen thread with a straight No. 6 milliner's needle. A bit of omentum is fastened as a plastic over the line of suture. The operation is done practically extraperitoneally, the abdominal cavity being protected by gauze. The parts are washed carefully with salt solution and the abdomen is closed, with the exception of one small wick to the retroperitoneal attachment of the ascending colon. If there is need for speed in finishing the operation, the Murphy button may be used to advantage.

Medical News, New York.

November 12.

- 16 Hepatopostis Complicated by Gastroptosis: A Suggestion as to Treatment. Elsworth Elliot, Jr.
 17 Races and Peoples with Regard to Tuberculosis. John B. Huber.
 18 *The Consumption and Elimination of Water in Dry and Moist Climates, with Special Reference to the Cause of Bright's Disease. William S. Carter.
 19 Infant Feeding and Milk Modification. R. E. Van Gleson.
 20 *Cicatrization—Blood Vessels in Ulcers of the Bladder. G. Kollischer.
 21 Tuberculosis in Our Public Institutions. James Greenwood.
 22 Colloids and Ions. Wm. R. Williams.

18. **Water and Bright's Disease.**—The observations presented in Carter's paper were undertaken with the object of determining the influence of dry and moist climates on the amount of water consumed and the amount given off as urine, and whether or not there is any relation between the prevalence of Bright's disease and the climatic conditions. A careful study of his table of comparison of mortality rates and climatic conditions of different cities shows that there is no relation between the degree of humidity or length of the warm summer season, and the mortality from Bright's disease; nor does the latter bear any relation to the general mortality rate. For instance, in Denver and Boston the conditions of temperature are very similar while there is a wide difference in the humidity, but the proportion of deaths from Bright's disease is practically the same. There appears to be no doubt that Bright's disease is more prevalent in Galveston than in most cities, but it seems highly improbable that the climatic conditions have anything to do with this. Carter believes that there are two causes which seem more plausible than any of the explanations usually given: (1) the excessive use of meats in a climate in which proteins can not be so readily metabolized as in a colder climate; and (2), the failure to recognize and properly manage mild acute infections.

20. **Cicatrization.**—In four cases of ulcerations of traumatic origin which proved stubborn to the usual treatment of curing and canterizing, Kollischer made the rather surprising observation that disagreeable symptoms, such as irritation in the bladder region, frequency of urination and occasional tenesmus, persisted, although the urine was cleared up perfectly and repeated and careful cystoscopic examination proved with absolute certainty that the ulcers had healed and that complete epithelialization of the defects had taken place. It occurred to Kollischer that the persistence of a number of quite large blood vessels in the neighborhood of the healing ulcer might have something to do with the sensation of irritation of which the patients continued to complain even after the ulcers had healed. Therefore, he obliterated these vessels with the pointed galvanocautery of his operative cystoscope, and after the eschar was thrown off, usually within a week, the symptoms had entirely disappeared and the patients were well. The appearance of these vascular loops is similar to the cicatrization loops which appear running to the ulcers in the cornea.

New York Medical Journal.

November 12.

- 23 *A Case of Hodgkin's Disease. John V. Shoemaker.
 24 An Incomplete Report of Two Cases of Chronic Malarial Cachexia. Lionel A. B. Street.
 25 *Observations Drawn from an Experience of 11,000 Anesthetics. Alice Magaw.
 26 Dellium Tremens. Thomas N. Vincent.
 27 Primary Nasal Diphtheria: A Plea for Its Early Recognition and a Report of Three Cases. (Continued.) Anna S. Winer.
 28 *Observations on a Series of 10 Cases of Disability of the Shoulder Joint. Harold W. Jones and Nathaniel Allison.

23. **Hodgkin's Disease.**—Shoemaker's patient was given daily exposures to the x-ray for a period of ten minutes during six days. The high vacuum tube was used, the entire body being exposed. The abdomen, left side and back were alternately treated. The glands began to diminish in size at the end of a week, and at the time of death, which occurred sixteen days after the commencement of the treatment, they were only about one-third their original size. The spleen decreased gradually, and on the day of death it had receded to the costal border. Although the patient developed symptoms of toxemia during the treatment, Shoemaker believes that death may have been but the ordinary termination of the disease. However, he says that in connection with the x-ray treatment of these cases we must bear in mind that there may not be time enough for the procedure to produce any benefit; that there is danger of an x-ray burn, and finally, the danger of a rapid disintegration of the new growths with the production of toxemia.

25. **Experience in Anesthesia.**—Magaw's method for producing anesthesia is the drop method, both for chloroform and ether, but otherwise does not differ from that usually employed. The statistics given are very meager and merely show that out of 11,000 anesthetics there has never been a death, nor has artificial respiration been resorted to in six consecutive years. Her patients are all anesthetized in the operating room while they are being prepared for the operation, thus securing a more rapid surgical narcosis with the use of less anesthetic. Magaw finds the method safer and more satisfactory in every way.

28. **Disability of the Shoulder Joint.**—Jones and Allison describe ten cases having a uniform symptom—complex, and notwithstanding the fact that the original diagnosis varied from paralysis to dislocation, they feel justified in placing them in the same class. In each case, the affection was ascribed to a trauma, although the injury in most cases was a very trivial one, such as reaching upward and backward to press an electric button in the street car; "bruising" the shoulder slightly; "straining" the shoulder while reaching for something, etc. The affection in each case ran a definite course and the authors believe that the lesion was probably circumarticular rather than intra-articular. In the acute stage, fixation afforded complete relief from pain, and, in the majority of instances, freedom from subsequent disability. In the chronic stage, the disability due to the fibrous ankylosis was greatly relieved by manipulation under an anesthetic. The end result depends entirely on the patient's willingness and ability to follow out the exercises which constitute the aftertreatment. About ten weeks' time is required for complete relief from the disability.

St. Louis Medical Review.

November 12.

- 29 *Structures of the Male Urethra. (To be concluded.) A. Ravogli.
 30 Sarcoma of the Humerus: Resection in the Continuity. Charles G. Cumston.
 29. See abstract in THE JOURNAL of November 5, page 1409.

Cincinnati Lancet-Clinic.

November 12.

- 31 *Hospital Construction in American Cities and Towns. A. J. Ochsner.
 32 *What Shall Be Done with the Criminal Insane? John Punton.
 31. Ibid., October 29, page 1326.
 32. Ibid., October 22, page 1250.

Medical Standard, Chicago.

November.

- 33 *Leprosy. David Lieberthal.
 34 *A Case of Adrenal Tumor in the Lower Pole of the Left Kidney. Bayard Holmes.
 35 Rectal Alimentation. Charles J. Drucek.
 36 The Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. Homer M. Thomas.
 37 *Report of a Case of Tetanus Treated with Antitetanic Serum: Recovery. E. E. Montgomery.
 38 Autointoxication and Its Treatment. (To be continued.) Heinrich Stern.

33. **Leprosy.**—Lieberthal reports two cases of leprosy, one of the tubercular variety, the other of the maculo-anesthetic or nervous type. The first case was reported some years ago, the

clinical diagnosis being confirmed by the microscopic demonstration of lepra bacilli in the nodule. The second case is a recent one, occurring in a Chinaman 34 years of age. About ten years ago, without any preceding symptoms, he noticed a discoloration of the skin on the anterior and bilateral aspects of the lower two-thirds of the right limb. The color became lighter and simultaneously the sensibility began to diminish. Gradually the light color changed to brown, which became more decided as time went on. About two years ago he noticed a reddish flat pimple on the left forearm, just below the elbow, which gradually increased in size. In this area the sensibility gradually diminished until now no perception remains. At present, the face is covered with an eruption of lentil to bean-sized irregular spots of a dirty brown color, smooth and shiny; infiltrated and slightly raised. The trunk and upper part of the arms show a copious crop of pinkish, non-infiltrated spots of the same size as those on the face and moderately desquamating. Small red papules resembling syphilides were found on the back and elsewhere. Sensibility was wanting in all the affected parts, although the back of the chest, as well as the inner aspect of the right humerus was hyperesthetic. Nowhere did the area of anesthesia correspond to the distribution of a certain nerve. The soles of the feet and the palms of the hands showed normal perspiration, but were without secretion of sebum. Of the accessible nerves, the ulnars, as well as the crurals, were thickened and slightly hyperesthetic. There was no weakness nor atrophy of the muscles. The superficial as well as the deep reflexes were intensified. The glands above and below Poupart's ligament were enlarged. The mucous membranes of the nose, mouth and throat were perfectly normal. The blood and skin lesions were examined for bacilli without result.

34. Adrenal Tumor.—The case reported by Holmes manifested only the most benign symptoms and the local findings were so obscure that it was impossible to make a correct diagnosis. The abdomen was opened on the left border of the left rectus muscle. The capsule of the tumor was carefully incised and the peritoneum thus liberated was sewed to the parietal peritoneum of the laparotomy wound, thus shutting off completely the peritoneal cavity from the field of operation. The tumor and the kidney, to which it was attached, were delivered through the incision and the tumor carefully enucleated. No large blood vessels were severed, but the oozing from the cut surface of the cortex of the kidney could only be arrested by bringing the capsule on one side against the capsule on the other by three mattress stitches. The kidney was allowed to fall back into its normal position. With the exception of the development of a periappendicular abscess in an old appendicitis scar, the patient made an uneventful and rapid recovery. A microscopic examination of the tumor showed that it was a typical adrenal growth. Holmes emphasizes that this case shows the possibilities of an extraperitoneal operation even for the removal of a very large tumor, although it is possible only when the tumor has slowly grown into the tissues of the mesocolon, and the ventral or right peritoneal surface of the colon has become greatly hypertrophied or enlarged, and the blood vessels of the colon so distorted that a long incision would not, in any way, vitiate the blood supply of this large duct. The results of the operation also show, says Holmes, the necessity of taking advantage of every opportunity to completely remove a neoplasm, no matter how grave the prognosis may be at the time of operation.

37.—Tetanus Cured by Antitetanic Serum.—Montgomery reports a case of tetanus in a boy, aged 14, following an injury of the foot. Ten days after the receipt of the injury the patient began to develop stiffness in the muscles of the jaw, which increased gradually and extended to the other muscles of the body. Thirty-six hours afterward Montgomery administered 20 c.c. of antitetanic serum, 5 grains chloral hydrate and 10 gr. sodium bromid. Within an hour after the administration of the serum the spasms ceased and the muscular rigidity was less pronounced. A second injection of serum, given eighteen hours later, was again followed by general improvement, lasting about twelve hours, when the dose of the serum

was repeated. The patient received in all 140 c.c. of serum and at the end of the second week was so far convalescent that he could be removed to his home.

Canada Lancet, Toronto.
October.

- 39 Presidential Address, Canadian Medical Association. Simon J. Tunstall.
- 40 Functional Heart Murmurs; Their Causation and Diagnosis. Robert D. Rudolf.
- 41 Inflammation of the Lachrymal Apparatus. G. Herbert Burnham.
- 42 Tuberculosis of the Female Urinary Organs. Removal of the Kidney and Ureter. Ernest W. Cushing.
- 43 Use of the X-ray in the Diagnosis of Diseases of the Bones. E. A. Codman.
- 44 Medical Thoughts. James S. Sprague.
November.
- 45 *The Cycle Method of the Treatment of Syphilis. Noah E. Aronstam.
- 46 The Diagnosis of Modified Smallpox. Charles A. Hodgetts.

45. Cycle Method of Treatment of Syphilis.—Aronstam describes the so-called "cyclic" method as consisting of the systematic administration of mercury in variable, changeable and alternate forms, with slight intermissions, wherein tonics and eliminatives are exhibited. The advantages of the method are: 1. It never salivates the patient. 2. No untoward after-effects are discernible. 3. Gastrointestinal disturbances are obviated. 4. Consecutive mercurial dermatoses are not apt to appear. 5. Its greater efficacy, promptness and permanency. 6. It is systematic and thorough. 7. The danger of recrudescence is minimized. 8. The tardy or tertiary phenomena are held in abeyance. Metallic mercury, in the form of mercury and chalk, should be given the preference in the commencement of treatment. It can be administered in doses of from 2 to 5 grains *ter in die*, in conjunction with nuxvomica and hyoscyamus to prevent griping, and some of the easily assimilable iron preparations, if anemia coexists, as follows:

- R. Hydrarg. cum creta, gr. 63.....gm. 4.15
- Extr. nucis vomice, gr. 5.....gm. 0.30
- Extr. hyoscyami, gr. 7.....gm. 0.42
- Ferri lactatis, gr. 20.....gm. 1.30
- M. et it. cap. No. 21. One, *ter in die*, 2 hours after meals, and should be continued for 7 days, after which a bitter tonic in combination with belladonna and arsenic in a vehicle of wine of kola is to be exhibited for about three days.

The author makes use of the subjoined prescription:

- R. Tr. nuc. vom., dr. 1.....c.c. 4.0
- Tr. quassie, dr. 3.....c.c. 12.0
- Tr. belladonnæ,
- Liq. pot. arsenitis, aa. dr. 1.....c.c. 4.0
- Vin. kola, q. s. oz. 4.....c.c. 120.0

M. Sig.: Dr. 2, twice after meals with water. The three days of intermission are termed the short period of repose. In contradistinction to the long period of intermission, to be delineated in detail later on.

The protoiodid of mercury is the form next to be employed. It can be given in doses of from gr. 1/6 to 1/4 t. i. d., either alone or in combination with the tartrate of iron and ammonium. The length of time of administration is one week, to be followed by the tonic mentioned above for three days. Mercuric iodid, gr. 1/12 to 1/8, t. i. d., is then exhibited in the same manner as above, with a similar period of intermission wherein tonics are used. Next, inunctions of mercurial ointment, or, what is better, mercury vasogen (which is said to be metallic mercury with a partially oxidized hydrocarbon base of neutral reaction) may be employed. The most appropriate time for its application is the hour of retiring, and it should be continued for twelve consecutive evenings on twelve separate regions of the body, beginning with the right arm and then the left arm, anterior thorax, abdomen, right thigh and inguinal space, left thigh and inguinal space, right leg, left leg, both hands, both feet, lumbar and sacral regions, and dorsal and cervical areas in the order named, two grams of the ointment being used for each inunction. A warm alkaline bath is ordered immediately on the completion of the course and a three days' tonic repose granted. Fumigation with calomel in 15-grain doses is the next form utilized. Fumigation should be ordered every alternate day for one week, followed by another short period of repose and the administration of tonics and eliminatives. The "mixed treatment" consists of the simultaneous use of the bichlorid or biniodid of mercury and sodium or potassium iodid, preferably the sodium salt. The method is the same as used in the other procedures. When the eliminative treatment is used the patient is put on sodium or potassium

iodid in ascending doses for one week, beginning with one minim of a saturated solution three times a day, and increasing by one minim each subsequent day. If the iodids are not well borne the syrup of hydriodic acid may be substituted, or the potassium iodid may be given in solution by rectum, a few drops of tincture of opium being added to allay rectal tenesmus. The iodid may also be given in conjunction with vegetable alteratives such as stillingia, rumex, lappa, sarsaparilla. This is followed by a three-days repose and tonic treatment. After this, simple or alkaline baths daily for a week are advised, especially the various sulphur spas. All treatment is then suspended and the patient permitted to enjoy a two-weeks rest, when the above method is resumed. Aronstam insists on the strictest observance of general hygiene and appropriate diet. Balneotherapy, either simple or medicated, should supplement the treatment and should be encouraged. After the elapse of the first eighteen months under the above systematic specific medication, a month's repose is granted, after which iodid, in the form of the sodium or potassium salt, is administered in ascending doses for one month; the vegetable alteratives may be used in combination with the iodid. The iodid is given in gradually increasing doses, two or three hours after meals. A period of intermission, which should not exceed one month, is then allowed. Mercury and chalk is then prescribed for ten days, followed by a bitter tonic for four days. For the next two weeks all treatment is suspended and the patient is ordered to take frequent baths, simple or medicated. The subsequent cycles are similar to the preceding, except that the form of mercury is varied to correspond with the classification of mercurial administration outlined above. Aronstam describes many a favorable and permanent outcome to this method, and very few, if any, cases of recurrence have come to his notice. He believes this method to be vastly superior to the old unsystematic and irregular régime.

Annals of Surgery, Philadelphia.

September.

- 47 **Bacillus Pyocyaneus* Septicæmia Associated with Blastomycetic Growth in a Primary Wound. Joseph R. Eastman and Thomas V. Keene.
 - 48 *The Bridging of Nerve Defects. Charles A. Powers.
 - 49 Total Avulsion of the Scapula. Ernest J. Mellish.
 - 50 Traumatic Abscess of the Cerebrum—Recovery After Trephining and Drainage. Ernest P. Robison.
 - 51 *Fracture of the Base of the Skull. George L. Walton.
 - 52 *Ligation of Both Common Carotid Arteries. T. Turner Thomas.
 - 53 *Penetrating Wounds of the Chest, Perforating the Diaphragm and Involving the Abdominal Viscera. Case of Successful Spleen Suture for Traumatic Hemorrhage. Daniel H. Williams.
 - 54 Operative Treatment of Perforating Gastric Ulcer. Report of a Third Consecutive Successful Case of Suture. A. B. Atherton.
 - 55 *A New Operation for Intestinal Stenoses. Theodore A. McGraw.
 - 56 Pneumococcus Peritonitis. Report of Five Cases. Frank S. Mathews.
 - 57 *Treatment of the Stump in Appendectomy. M. G. Seelig.
 - 58 Appendix Vermiformis Concealed in the Postcecal Retro-peritoneal Space. John C. Hancock.
 - 59 Appendicitis; Remarks Based on an Analysis of 219 Cases Operated on at Lebanon Hospital Up to April 1, 1904. Parker Syme.
 - 60 Double Traumatic Iliac Dislocation of the Hip. Report of a Case with Review of the Literature. James H. Lewis.
 - 61 Fracture of the Tibial Tubercle. Martin W. Ware.
 - 62 Abdominal Crises Caused by Meckel's Diverticulum. Report of Two Cases with Review of the Literature. Oliver C. Smith.
 - 63 Use of the Segmented Ring in Gastric and Intestinal Anastomoses. Francis B. Harrington and Alfred H. Gould.
47. *Bacillus Pyocyaneus* Septicæmia.—Eastman and Keene report a case of septicæmia caused by *Bacillus pyocyaneus* following injury in a runaway accident. The clinical features were not such as would lead to a correct diagnosis, this resting entirely on the bacteriologic findings. There was every evidence of profound intoxication—a very high pulse rate, with a temperature usually subnormal. Probably the most marked feature, and certainly one of diagnostic value, was the marked nervous involvement, a complete loss of sensation in the fingers, leading to a diagnosis of traumatic hysteria. Finally, the patient could not move her left arm or leg and had great difficulty in swallowing. The finding of blastomycetes in the local ulcer at once cleared the diagnosis and explained the failure of the wound, incident to an operation performed for the relief of

pressure of the musculo-spiral nerve, to heal. The authors have been unable to find any report of another similar instance of a combination of blue pus bacillus infection with blastomycetic infection. Evidently the wound became infected with blastomycetes primarily and with *Bacillus pyocyaneus* secondarily. Thorough antiseptic measures eventually proved effective in combating the infection.

48.—See abstract in THE JOURNAL of July 2, page 70.

51. Fracture of the Base of the Skull.—A very thorough and painstaking study of the clinical and pathologic records of 50 cases of fracture of the base of the skull lead Walton to conclude that in the majority of the cases fractures resulted from an impact received in the horizontal plane of the skull, whether on the frontal or the occipital region or on the side of the head. While certain of the basal fractures extended from the vertex, there was no suggestion of the *contre-coup* of earlier writers. The line of fracture tended to enter the fossa nearest the point of impact and to extend in the general direction in which force was applied. In traversing the base of the skull, the lines of fracture tended to follow the lines of least resistance, and in 22 of the 50 cases these lines corresponded more or less accurately to those indicated by Rawling, who claims that the sella turcica is implicated in 70 per cent. of cases; that the line of fracture is extremely liable to follow a suture, either causing its separation or cutting across it irregularly. In Walton's cases the sella turcica was implicated in 36 per cent. The petro-occipital and masto-occipital sutures furnished common lines of least resistance. Fractures extending across the base tended to run parallel to the petrous portion of the temporal bone and through the sella turcica. Certain blows on the occiput tended to cause a line of fracture extending to the jugular foramen or across the petrous bone. The portion of the petrous bone containing the auditory apparatus showed itself peculiarly liable to fracture, more often transversely than longitudinally. In 7 cases, 14 per cent., the fracture was limited to the base, after vault impact in the horizontal plane. Neither Rawling's theory of transmitted force nor the theory of bursting fracture of von Wahl and others, says Walton, suffices alone to explain these cases. The results of experiments with bodies of simpler structure would suggest that the bursting principle predominates in pure compression of the skull and the principle of transmitted force in case of blows, while both play important parts in case of falls. The orbital fossa was implicated in 21.4 per cent. of the cases of orbital fossa fracture. Inequality and immobility of pupils, or both, furnish the most frequent and unfavorable sign of fracture of the base. In the 44 cases in which the pupils were recorded they were normal in only 13. Walton believes that injury to the cerebrospinal tract in its intracranial part is a more probable cause of the Hutchinson's pupil and the other pupillary changes than injury to the third nerve or to the cortex, though no single lesion explains all cases. He also found that the reflexes may be lessened or lost in fracture of the base, as in any case of violent jarring of the brain. On the other hand, they may be increased even to spasticity, probably through direct pressure on the pyramidal tract, as by hemorrhage. It is probable, he says, that the initial result of the impact in all cases is a tendency toward lessening or loss of the reflexes. Profuse and persistent bleeding from the ear does not suggest middle meningeal hemorrhage. None was found in the case of profuse and persistent bleeding and, conversely, hemorrhage from this artery occurred eight times without, and once with only slight bleeding from the ear.

52. Ligation of Both Common Carotids.—Thomas reports the case of a man, aged 32, the victim of a sarcoma of the upper jaw, which was so situated that radical removal was impossible, but which caused so much distress that some relief was urgently called for. After studying the case carefully it was decided that the only justifiable operation was ligation of the common carotid artery. Because of previous difficulty in inducing general anesthesia the right common carotid was ligated under local anesthesia by the Schleich method. There were no cerebral symptoms at the moment the ligature was tied nor

subsequently. The wound healed by first intention. A slow but positive improvement followed the operation and the mass diminished perceptibly in size. Two months later, however, a recurrence of the symptoms necessitated ligation of the left common carotid, which was done under cocaine anesthesia. By the following morning the patient had passed into a condition of coma; the muscles of the neck were rigid, the hands twitched and the breathing was stertorous. Death followed shortly after.

53.—See THE JOURNAL of October 8, title 52, page 1089.

55.—See abstract in THE JOURNAL of September 3, '64, page 697.

57. Treatment of Stump in Appendicectomy.—Seelig details the results of his investigations undertaken to discover if it were not possible by a combination of clinical, experimental and pathologic methods, to determine on a rational method of dealing with the appendix stump. As the result of this work he found that a simple ligation of the appendix, ablation of the organ distally to the ligation, and cauterization of the stump, is the simplest and safest method of dealing with the diseased vermiform appendix. Of course, he says, there will always be cases where the judgment and ingenuity of the operator must regulate the method of procedure. Yet, in the main, the fact holds good that in the ordinary run of both acute and interval appendicitis cases the method mentioned is the most rational. Whether the cauterization be done with the actual cautery or with pure carbolic acid makes no material difference. Seelig prefers the actual cautery because the heat exerts a bactericidal action at some distance from the point of application of the incandescent platinum, whereas the acid acts only on the surface. Moreover, by dividing the appendix with the cautery, the escape of feces and the consequent infection of the operation field is guarded against. The disinfected stump is dropped back into the peritoneal cavity. Sections of experimentally ligated appendices showed that the mucosa is not brought into contact with mucosa, as is stated by Dr. Morris, but is crowded back for fully one-eighth of an inch on both sides of the ligation, and so crowded back as to close off the lumen completely and thus prevent the germs in the appendicular lumen from attacking the so-called line of "compression anemia." Moreover, the stump is quadruply fortified, in that it is covered over by: 1, the pulpy lymphoid tissue; 2, a thick layer of the resistant submucosa; 3, a layer of muscularis; 4, a layer of serosa in addition to being shut off by the infolding of the mucosa. He has never encountered a perforation in a case where the ligation was applied about an appendix in a non-gangrenous and not too friable area. He satisfied himself by bacteriologic experiments that disinfection of the stump either with pure carbolic acid or with the actual cautery is thorough. The opportunity presenting itself, Seelig examined postmortem the cecum of two patients who had been operated on according to his method. In both instances that portion of the cecum where the longitudinal striæ meet to mark the site of the appendix was perfectly smooth and glistening, thus disproving the statement that an uncovered stump leads to the formation of adhesions which so frequently distress the patient after operation. His final plea for the simple ligation method is that it saves time, a great surgical desideratum.

Medical Fortnightly, St. Louis.

October 25.

64 Cancer of the Stomach. J. A. Dav.

65 *Duty of the State in Restricting Tuberculosis. Harold N. Meyer.

66 *Observations on the Cause and Treatment of Hay Fever. W. F. Dunbar.

67 The Mucous Membrane of the Cystic Duct—Mucosa of the Ductus Cysticus. Byron Robinson.

65.—This article has appeared elsewhere. See THE JOURNAL of July 23, title 56, page 284.

66.—Ibid., October 8, '32, page 1088.

Bulletin of the American Academy of Medicine, Easton, Pa.

October.

68 Relations of Medicine and Dentistry. Edward C. Kirk.

69 Relations of Physicians to Dentists. John S. Marshall.

70 Synonyms in the New United States Pharmacopœia. Joseph P. Remington.

Journal of Mental Pathology, New York.

Nov. 12.

71 On Some Diagnostic Difficulties in a Case of Lesion of the Spinal Cord. Giovanni Biancone.

72 Two Cases of Familial Heredo-spinal Atrophy. (Friedreich's type) with One Autopsy and One Case of So-called Abortive Form of Friedreich's Disease. (To be continued.) G. Mingazzini and G. Perusini.

Southern Practitioner, Nashville, Tenn.

November.

73 Calculus in the Kidney. Lucius E. Burch.

74 Pharaoh's Curse—the Plague of Flies. C. P. McNabb.

75 The Cutaneous Manifestations of Acquired Syphilis. J. M. King.

Canadian Journal of Medicine and Surgery, Toronto.

November.

76 Address in Medicine, Canadian Medical Association. R. E. McKechnie.

77 Chest Examinations: a System of Recording Observations. J. H. Elliott.

78 The Arid Climates. J. Frank McConnell.

The Physician and Surgeon, Detroit and Ann Arbor.

October.

79 The Fanciful Tonsils: Their Use and Abuse. John North.

80 *Further Studies of the Intracellular Bacterial Toxines. Victor C. Vaughan.

81 Report of Two Cases of Tumor in the Digestive Tract. John A. Wessinger.

82 Some Rectal Diseases and Their Treatment. C. G. Darling.

80.—Ibid., September 3, page 643.

Carolina Medical Journal, Charlotte, N. C.

October.

83 Abdominal Pregnancy with Retention of Fetus Nine Years—Uncontrollable Diarrhea Existing Three Years. Evidently Due to Foreign Body in Uterus. C. M. Strong.

84 A Few Words on Tuberculosis. J. F. Swann.

85 Some Remarks on the Diagnosis of Typhoid Fever. Greer Baughman.

86 Treatment of Typhoid Fever. Wm. S. Gordon.

Journal of the Missouri State Medical Association, St. Louis.

November.

87 The Management of Irreparable Crushed Extremities. C. H. Wallace.

88 La Grippe, or Influenza, and Its Treatment. R. B. Fewell.

89 Inflammation and Suppuration of the Frontal Sinuses. T. E. Potter.

90 How to Cure by a Novel Method Hopeless Cases of Deafness and Discharge from the Ear. Robert Barclay.

Texas Medical News, Austin.

October.

91 Extrophy of the Bladder—Treatment of Successful Case—Implantation of Both Ureters in Rectum by Method of Maydl. James E. Thompson.

92 Diphtheria. W. J. Mathews.

Medical Times, New York.

November.

93 Illustrative Cases Due to Eyestrain with Explanatory Remarks Concerning Them. Ambrose L. Ranney.

94 Clinical and Other Notes Regarding Epilepsy. Thomas H. Evans.

95 Bad Nauseum and Its Treatments. J. Howe Adams.

96 Should Deaf People Marry? H. M. Hayward.

97 Marriage and the Offspring with Regard to Tuberculosis. John B. Huber.

Colorado Medicine, Denver.

October.

98 President's Address, Colorado State Medical Society. Thomas H. Hawkins.

99 The Laboratory Diagnosis of Gastric Diseases. Edward C. Hill.

100 Typhoid Fever and Its Treatment. B. F. Wooding.

101 Bone Necrosis Following Typhoid Fever. Frank Finney.

Virginia Medical Semi-Monthly, Richmond.

October 21.

102 President's Address. Medical Society of Virginia. Joseph A. Gale.

103 The Attitude of Physician and Patient to the Science and Art of Medicine. Willia S. Gordon.

104 Report on Laryngology. Charles H. Knight.

105 Headaches from Eyestrain. Clifton M. Miller.

Medical Age, Detroit.

October 25.

106 Aneut Common Furuncles. Q. W. Hunter.

107 Puerperal Sepsis. Charles C. Allison.

Oklahoma Medical News-Journal, Oklahoma City.

October.

108 Use and Abuse of the Curette. T. J. Dodson.

Journal of the Mississippi State Medical Association, Vicksburg

November.

109 The Gynecologic Aspect of Cervical and Perineal Lacerations. J. W. Barksdale.

110 Hydrocephalus: Report of a Case. W. W. Robertson.

111 Diagnosis and Treatment of Placenta Previa. Geo. L. Harbourn.

- 112 Report of Cases of Placenta Previa. I. H. C. Cook.
 113 Salpingitis. W. R. McKinley.
 114 Intestinal Disorders of Childhood. S. W. Glass.
Wisconsin Medical Journal, Milwaukee.
October.
- 115 The Moral Aspect of Abortion, Craniotomy and Extrauterine Pregnancy. T. L. Harrington.
 116 Osteosarcoma of the Ilium, with Removal of the Arm, Clavicle and Scapula. Death from Sarcoma of Lung Nine Months Later. L. H. Price.
 117 Use of Drugs in Labor. J. F. Ford.
 118 Regarding the Lack of Progress in Scientific Therapeutics. E. L. Boothby.
 119 Diagnosis of Early Ectopic Gestation. William E. Ground.
Annals of Gynecology and Pediatrics, Boston.
October.
- 120 Heterotomy. Th. H. Van de Velde.
 121 Hysterectomy Regarded with Reference to Its Influence on Subsequent Pregnancies. M. Oul.
Southern California Practitioner, Los Angeles.
October.
- 122 Chorea. H. G. Brainerd.
 123 Surgical Anatomy of the Inguinal Canal. Claire W. Murphy.
 124 Electro-hemastasia—Skene's Method. W. R. Fryor.
 125 The Physiologic Function of Menstruation and the Part Played Therein by the Fallopian Tubes. J. Riddle Goffe.
 126 Prostitution. Woods Hutchinson.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

November.

- 1 Discussion on the Treatment of Non-suppurative Disease of the Middle Ear. Urban Pritchard, Thomas Barr and others.
 - 2 The Disturbances of Vision and Development of Blindness of Nasal Origin, induced by Disease of the Posterior Accessory Sinuses. Professor Onodi.
 - 3 *Discussion on the Etiology, Treatment and Prognosis of Innocent Laryngeal Growths. J. D. Grant, Albert Rosenberg and others.
 - 4 Local Treatment of Some Forms of Non-suppurative Catarrh of the Middle Ear by Compressed Air and Nebulizer. Adolph Eronner.
 - 5 *Meulere's Disease; a Clinical and Experimental Inquiry. Wm. Milligan.
 - 6 Case of Congenital Word Deafness. W. S. Syme.
 - 7 *Notes on a Case of Mastoid Abscess Five Weeks After Measles: Operation; Recovery. L. Asher Lawrence.
 - 8 *Discussion on the Relation of Asthma to Nose Disease. Greville MacDonald, S. West and others.
 - 9 *Two and a Half Years' Experience of the Subcutaneous Injection of Hard Paraffin for the Removal of Deformities of the Nose. J. Walker Downie.
 - 10 Some Observations on the Mode of Origin of Nasal Polypus. Eugene S. Yonge.
3. Innocent Laryngeal Growths.—Grant cites 14 cases of patients affected with benign laryngeal growths to show the variability of the treatment that can be instituted tending toward a removal of the tumor. He says that only very wide rules can be laid down, inasmuch as the operator must be guided by the circumstances of the individual case and by his own experience. Although Grant is very much impressed with the value of the galvanocautery, he advocates a judicious eclecticism in treatment. After operation recurrence is probable unless the removal is complete. His own experience leads Grant to the view that single pediculated growths at the anterior commissure are unlikely to recur, whereas sessile ones at the junction of the anterior and middle thirds of the vocal cord are very likely to do so, as are also multiple papillomata. Treatment is not necessarily always operative. The avoidance of exciting and predisposing causes is sometimes sufficient to produce a cure in cases of very small nodules due to overuse or misuse of the voice. Coughing must be absolutely prohibited or prevented. Avoidance of smoking and smoky or dusty atmosphere, moderation of abstinence in regard to alcohol and other causes of gastrohepatic disturbance are also valuable prophylactic and therapeutic factors. The correction of errors in voice production is of vital importance. The occasional application of astringents may contribute, but the all-important factor is complete rest for the voice.

5. Meniere's Disease.—Milligan suggests the removal of the semicircular canals in non-suppurative conditions for the relief of vertigo. The object of the treatment is to destroy the static segments so that peripheral impulses may cease to call for vertiginous phenomena. In such cases, where the morbid process has lasted for months and sometimes for years, the

terminal filaments of the auditory nerve are so disorganized and the hearing power so deranged that for practical purposes the organ as an organ of hearing may be disregarded. In accordance with this view, Milligan operated on three cases. The degree of operative shock was considerable in all three. In two of the cases healing took place and the patients recovered completely from the vertigo, although one complained of some swimming in the head and the other of tinnitus. They have been able to return to work. The hearing power has been destroyed. In the third case suppurative resulted and the patient is still under treatment. In the two cases there has been relief so far as the symptoms of vertigo and of sickness are concerned. The persistence of tinnitus in one case is suggestive either that the terminal filaments of the vestibular nerve were imperfectly destroyed, or that some lesion of the root of the auditory nerve coexisted.

7. Mastoid Abscess Following Measles.—In the case cited by Lawrence medical attention was sought because of the presence of a large swelling behind the left ear. There was also a very slight discharge from the ear itself. The patient had had an attack of measles five weeks previously and although the present trouble had existed for several weeks, no complaint was made of pain or other subjective symptoms. No previous disease of the ear had existed. On examination no granulations were present in the ear, and no pain was complained of on palpation over the mastoid. Wilde's method of treatment was adopted, and within a fortnight the case was well. Lawrence is unable to say what healing process could have produced this result.

8. Asthma and Nasal Disease.—MacDonald is of the opinion that asthma and diseases of the nose bear a clinical relationship to each other. That the removal of any obstruction whatever in the nose or nasopharynx may result in the cure of asthma, whether spasmodic or catarrhal, is well substantiated. Where there is no obstruction the treatment of an unhealthy mucous membrane will effect the same end. And finally, says MacDonald, whatever the state of the nose, free or obstructed, with a healthy or unhealthy mucous membrane, the great majority of asthmatics, be their asthma catarrhal or spasmodic or cardiac (whatever that may mean), can be cured by cauterizing the upper part of the triangular cartilage. MacDonald has put this teaching into practice and vouches for the accuracy of the statements, although again and again he has failed to benefit his patient until some one or other form of obstruction had been removed. Statistics are cited showing that he has succeeded in curing over 40 per cent. of all cases under his care.

9. Paraffin Injections for Nasal Deformities.—Downie describes in full the technic of this procedure and publishes photographs of six patients treated. The result in each case is a most decided improvement of the deformity and an entirely satisfactory outcome. In each case the paraffin has remained within the area into which it was injected. The discoloration and glazing of the skin disappeared after a few weeks. The paraffin is not affected by high body temperature nor exposure to great heat nor residence in a hot climate. Downie holds that the operation of the subcutaneous injection of paraffin to raise a sunken nose, if properly performed, is practically devoid of danger. Further, where the deformity is of the nature of a sinking in, and where the skin covering the sunken area is healthy, the shape of the nose can in all cases be improved, and in most the deformity can be wholly removed.

The Lancet, London.

November 5.

- 11 *Cancer of the Larynx. Felix Semon.
- 12 *Red-light Treatment of Smallpox; a Reply. Niels R. Flinsen.
- 13 *Serum Therapeutics of Cases of Snakebite. George Lamb.
- 14 *A Remarkable Sequel to a Case of Gastroenterostomy. Arthur E. Barker.
- 15 Suture of Wound of the Heart. Edgar Somerville.
- 16 *Hemophilia and Its Treatment. Lachlan Grant.
- 17 *Case of Hysteria Major; the Nemesis of "Dowleism"? J. S. Mackintosh.
- 18 Outbreak of Enteric Fever the Result of Infected Ice Cream. W. G. Barras.
- 19 *Case of Acute Inversion of the Uterus; Reduction by Taxis on the Seventh Day After Labor. E. Octavian Croft.
- 20 A Fatal Case of Tabetic Gastric Crisis. Leonard J. Kidd.

11.—This article appeared elsewhere. See THE JOURNAL of November 19, '98, p. 1578.

12. **Red Light in Smallpox.**—This paper by Finsen was written a few weeks before his death and is his comment on the report published by Ricketts and Byles in the *Lancet* of July 30, 1904, and abstracted in THE JOURNAL, August 20, '98, page 573. He says that the smallpox infection puts the skin in a state of great sensibility to light; if, now, the patient, during the period of the appearance and the growth of the exanthem, is protected against daylight—especially against the chemical rays—by means of red light, the exanthem will be less strong than otherwise and, as a rule, no suppuration will occur. It is impossible, of course, continues Finsen, to give any absolute rule, as there are many degrees of smallpox exanthemata. In many cases no suppuration occurs, although light is not shut out. But experience shows that if a patient is placed in red light or in darkness immediately after the first appearance of the exanthem, no suppuration, as a rule, will occur, even in unvaccinated cases or in cases with confluent exanthem. If the patient is put under treatment later the result will be more doubtful. Experience shows further that even a relatively short exposure to light, especially if the exanthem is fully developed, suffices for the production of suppuration. Therefore, two conditions are indispensable in order to obtain good results from the red light treatment: 1, An early treatment of the patient, and 2, an entire exclusion of hurtful rays of light. If patients come under the treatment before the fourth or fifth day of the disease suppuration will be avoided, but if the patient comes under treatment after the fifth day it is uncertain whether suppuration can be avoided.

13. **Serotherapy of Snakebite.**—This subject is thoroughly discussed by Lamb, and three cases of cobra bite are cited in which the serum treatment failed completely. In each instance the patient came under treatment within an hour after being bitten, a large quantity of serum was injected, and in one case vigorous local treatment was resorted to. He concludes his paper as follows:

1. Antivenomous sera are markedly if not absolutely specific, even between the venoms of species of the same genus. Hence in any case of snakebite the serum prepared with the venom of that species which has inflicted the bite must always be used.
2. The difficulties in collecting the poisons of the different species of snakes in sufficient quantity for purposes of immunization are apparently very great.
3. Up to the present the only sera which have been used practically are the one prepared by Calmette and the one prepared at this institute with pure cobra venom. Both these sera are practically specific for cobra venom.
4. As the neutralizing power of these two sera is not great and as a cobra can inject a large amount of venom the serum must be given in large quantity; as much as from 300 to 400 cubic centimeters, even when given intravenously, would be necessary in some cases. If given subcutaneously from ten to twenty times this amount would be required. It should therefore always be given intravenously.
5. Experiments on dogs and the records of cases of cobra bite in man bear out these calculations.
6. It is evident from the above considerations that it is a question as to whether the advantages to be gained by the serum treatment of cases of snakebite are at all commensurate with the cost entailed in the preparation of the sera.

14. **Sequel to Gastroenterostomy.**—The sequel in Barker's case was a most unusual one. The whole of the small intestine with the exception of the last seven inches or so, passed between the junction of the stomach and jejunum and the root of the mesocolon made two years before, over the first part of the jejunum and then down into the general cavity of the peritoneum. The whole small intestine thus passed also formed a huge volvulus, turning on its mesentery in a direction contrary to the movements of the clock. The intestine was placed in the normal position and the patient made an uninterrupted recovery.

16. **Treatment of Hemophilia.**—Grant reports a case in which all efforts at checking bleeding in a hemophilic proved futile until he resorted to the use of extract of ovarian substance, giving $2\frac{1}{2}$ grains thrice daily. The favorable result obtained prompts him to urge the further use of this substance.

19. **Inversion of the Uterus.**—The inversion in Croft's case occurred on the fifth day during straining while at stool. Attempts made on that day and on the next looking toward a

reduction of the organ proved unsuccessful, even with the patient under anesthesia. On the eleventh day the patient came under Croft's care and a careful examination showed the uterus to be still completely inverted. The patient was anesthetized and placed in the left lateral position. After the usual preparations Croft grasped the inverted uterus in the hollow of the left hand, the fingers of the right hand being employed for counter pressure on the rim of the inverted cervix through the abdominal wall. Reduction was effected without much difficulty. In attempting replacement of an inverted uterus at an interval of several days, Croft says the possibility of inflammatory effusion and adhesion being present on the peritoneal aspect of the uterus and cervix, has to be borne in mind. It is also preferable to anesthetize with chloroform than with ether because the uterine muscle is more easily relaxed by chloroform.

Bulletin de l'Académie de Médecine, Paris.

Last issued page 1585.

- 21 (LXVIII, No. 33.) *Rôle du trichocephale dans l'étiologie de la fièvre typhoïde. R. Blanchard.
22 *Rhumatisme tuberculeux ankylosant. Arthrites plastiques. Ankyloses osseuses d'origine tuberculeuse. A. Poncet.

21. **Trichocephalus in Etiology of Typhoid Fever.**—The trichocephalus which burrows into the mucosa is liable to inoculate the intestinal wall with bacteria circulating in the intestine that would be harmless under other circumstances. Guiart accepts this as a probable explanation of the reason why typhoid bacilli cause disease in certain subjects and not in others—they require the trichocephalus or other intestinal helminth to open the door for them. In a typhoid epidemic at Brest last fall he found the trichocephalus in 10 out of 12 typhoid subjects examined, and in another the worm was found at the necropsy. In the other the necropsy was not allowed. He urges that in case of a febrile enteritis of any nature, before we are positive as to its being typhoid, the first indication is to expel any worms that may be present with the bacteria, and thus prevent the constant autoinoculation of the patient. As the trichocephalus is the parasite usually involved, he advises energetic treatment with thymol without wasting time on determining the exact helminths present. In his examination of a number of healthy subjects and patients with diseases other than typhoid he found the trichocephalus in only one or two instances and very rare, while they were very numerous in 11 out of the 12 typhoid subjects.

22. **Tuberculous Ankylosing Rheumatism.**—Poncet's communications on tuberculous rheumatism have been summarized in these columns from time to time. He here draws the picture of the form of tuberculous rheumatism which appears as a plastic arthritis without effusion, entailing almost inevitably bony ankylosis of the affected joint or joints. Rhizomelic spondylitis, that is, the Strümpell-Marie, and the Bechterew types, generally belong in this group. It is distinguished by its inflammatory lesions, and the absence of the so-called tuberculous products, distinct from granulations, fungous formations, caseous infiltration, white tumors, tuberculous osteoarthritis and from chronic, deforming tuberculous rheumatism. It is evidently due to a toxemia of bacillary origin, like the other forms of tuberculous rheumatism. The prognosis is grave from the functional point of view, and it constitutes a terrible infirmity when the entire skeleton is involved and becomes rigid. In every event it is always a sign of an affection which may become more virulent and more serious as the viscera become affected. Tuberculosis should be thought of whenever one is confronted with a plastic ankylosing polyarthritis, especially in the absence of any other infection. This inflammatory tuberculosis may affect all the tissues, all the organs, all the various systems. The resulting lesions may range from transient congestion to acute or chronic lesions and final sclerosis.

Semaine Médicale, Paris.

- 23 (XXIV, No. 43.) *Report of Seventh French Congress of Internal Medicine, Paris, October 24-27. (Continued.)
24 Report of Seventeenth French Congress of Surgery. (Continued in No. 42.) See page 1493.

23. **Arterial Tension in Disease.**—Bosc and Vedel in their

address stated that the lesions in the syndromes with hypertension pass through three phases, first, a spasmodic, functional stage. It may last long and is accompanied by purely histologic, perivascular inflammatory processes. This is the pre-sclerotic or pre-fibrous stage. The second phase is that of a diffuse fibrosis affecting the small vessels and determining a progressive meioptasia of the organs. This is the stage of fibro-capillarity noted in careful clinical examination and at necropsies. The final phase is that of extension of the fibrosis to the larger vessels, that is, generalized arteriosclerosis with the development sooner or later of atheroma. Suppression of the primary cause, mechanical, reflex or toxic, may lead to complete recovery. When the cause can not be removed at once or the organism is saturated with it, organ therapy exerts an unquestionable antitoxic action. In acute and subacute infectious diseases, treatment should be continued after apparent recovery, to prevent or cure the sclerosis-generating hypertension. Medication should be even more energetic in diseases like scarlet fever, which induce high hypertension and are sclerogenic from the start. The diet is very important in treatment of hypertension. Table excesses should be avoided and all causes liable to increase or aggravate the development of sclerosis. As a rule, an exclusive milk diet—indicated in extreme hypertension with serious lesions in kidneys or heart—is well tolerated on condition that it is alternated with vegetables or unsalted meat. Constipation should be combated by repeated laxatives. Besides these measures, saline purgatives, diaphoretics and diuretics aid elimination. When sclerosis of the small vessels is superadded to the spasmodic phenomena, emotions, exertions, etc., liable to cause increased pressure in the fragile vessels, should be avoided. Drastic purgatives should also be administered prudently, the subject lying down for two or three hours after taking them, to prevent reflex action from the stomach or syncope from cerebral anemia. In permanent hypertension the above measures are only palliative. The sclerotic lesions must be directly attacked with small doses of sodium iodid, not more than .1 to .5 gm. in the twenty-four hours, with periods of rest during which alkaline, intestinal disinfectants and sodium sulphate should be given to aid in the elimination of the iodid. When the process is still farther advanced these measures are still useful to prevent the spread of the sclerotic process, but the main point is to bear in mind the fragility of the arterioles and refrain from everything that might rupture them. Hypertension is indicated when the sphygmomanometer at the radial marks above 18 cm. mercury in an adult and 20 to 21 cm. in an elderly subject. Twelve to 13 cm. indicate hypotension, 10 to 11 pronounced, 8 to 9 great, and 6 to 7 extreme hypotension. In gripe the hypotension is proportional to the severity of the infection; convalescence is longer as the period of great hypotension persists after the temperature has returned to normal. Hot and cold baths help in restoring the hypotension to normal in infectious diseases. The remedy *par excellence*, however, is profuse saline infusion. The action of adrenalin is extremely transient. Vaquez remarks that when rest and appropriate diet are unable to reduce hypertension the subject is in grave danger. The iodids act on the organic lesion, but the nitrites have a direct effect in reducing arterial pressure. Inhalation of amyl nitrite after reducing the pressure temporarily, raises it again, so that the symptoms recur, sometimes with increased intensity. It should be used only in small doses, with brief inhalations. When the hypertension is so high that it becomes menacing, lumbar puncture will sometimes relieve. He found it successful in 3 cases of uremia with brain symptoms. In a sudden crisis of hypertension, such as accompanies acute pulmonary edema, he injects .01 gm. of morphin. Teissier has observed that whenever he detected hypertension in young subjects he always found that the parents had had Bright's disease or diabetes. He calls attention to the need for discrimination, as the figure which would mean hypotension in health or in certain diseases may indicate hypertension in certain other conditions. The hypotension may be an aid in differentiating tuberculosis, etc. In typhoid fever,

increasing tension may warn of impending hemorrhage. Moutier reports 18 out of 50 cases of permanent hypertension cured by arsonization. Verstraeten has noticed that arteriosclerosis is always most marked in the arm most used, the right arm in normal subjects and the left in left-handed. Bernheim states that when the pulse is counted aloud, if the counting is done a little faster or slower than the actual pulse-beat, the pulse will become accelerated or retarded to correspond. This effect of suggestion ceases with the test in normal subjects, while it does not commence quite so quickly and lasts a few minutes longer in subjects with hypertension.

Archiv f. klinische Chirurgie, Berlin.

Last indexed page 1586.

- 25 (LXXIV, No. 3.) Kriegs-chirurgische Erfahrungen aus der Zeit der nord-chinesischen Wirren 1900 (army surgery). Haga.
- 26 Zur unblutigen Therapie der Luxatio coxae congenita. Braun.
- 27 Ueber die von den Gallenwegen ausgehenden Peritonitiden (originating in biliary passages). Ehrhard.
- 28 Zur Epityphlitisfrage. Ein Beitrag zur Pathologie und chirurgischen Behandlung der Epityphlitis und ihrer Folgezustände. v. Bülinger.
- 29 *Ueber das Uleus der kleinen Curvatur der vorderen und der hinteren Magenwand (gastric ulcer). Riedel.
29. Ulcer of Anterior and Posterior Stomach Wall.—Riedel emphasizes the necessity for an exact diagnosis of the site of the ulcer as influencing treatment. In 2 of his cases the pains were on the left side and an ulcer was found with a tumor. In 2 other cases, where the pains were on the right, there was an ulcer but no tumor formation. He describes his technic for operating in case of ulcer of the lesser curvature.

Berliner klinische Wochenschrift.

- 30 (XLI, No. 42.) Spreading of Female Genital Tuberculosis.—Experimente über die Ausbreitung der weiblichen Genital-tuberculose im Körper. P. Baumgarten.
- 31 Disease and Industrial Poisoning.—Krankheit und Vergiftung. L. Lewin.
- 32 *Mechanical Compression of Thorax in Treatment of Dyspnea.—Ergebnisse rhythmischer maschineller Thorax-Compression bei der Behandlung der Dyspnoe von Lungen und Herzkranken im Rettungswesen und bei Stoffwechselstörungen. D. Boghean.
- 33 (No. 43.) Fall von Crampus-Neurose. C. Wernicke.
- 34 *Ueber Immunisierungs-Versuche gegen Tuberculose. P. Baumgarten.
- 35 *Successful Treatment of Phthisis and Other Severe Infectious Diseases with a New Disinfectant.—Ueber eine erfolgreiche Behandlung der Schwindsucht und anderer schwerer Infectious-Krankheiten durch ein inneres Desinfectionsmittel. K. Klister.
- 36 X-rays in Medical Legal Matters.—Bedeutung der Röntgenstrahlen für den ärztlichen Sachverständigen. Immelmann.

32. Rhythmical Compression of the Thorax in Treatment of Dyspnea, Etc.—Boghean gives two illustrations of an apparatus which compresses the thorax in a manner to imitate its natural excursions, producing or deepening them as the case may be. The apparatus is adjustable and works under perfect control with an electromotor. Two pads fit tight to the surface of the chest, and rise and fall with the chest wall, but during expiration they press in deeper than the walls of the chest naturally recede. As this pressure is relieved, the lungs aspirate larger quantities of air during the next inspiration. This means of artificial respiration or correction of dyspnea is urgently indicated in every case of acute or chronic retention of CO₂. The pads exert a radial, vertebral compression, and are applied below the lower margin of the pectoral muscle to the costal arch between the parasternal and the anterior axillary line.

34. Immunization Against Tuberculosis.—Baumgarten has been experimenting for twenty years in the attempt to render rabbits immune to tuberculosis. He found them always less susceptible to human than to bovine infection, but all his attempts to immunize them with the former against the latter resulted negatively. When von Behring showed that similar procedures were successful on cattle he instituted control experiments which all have corroborated the fact. The immunity thus conferred on his cattle has persisted for two and a half years unmodified. The negative results with rabbits must be due to the greater susceptibility of rabbits to bovine infection. A single subcutaneous inoculation of the cow with human tubercle bacilli is all that is necessary to realize this immunity. Koch, von Behring and others have always supposed that repeated and intravenous injections were necessary,

but this is not the case—a single subcutaneous inoculation answers the purpose. The process induced by subcutaneous inoculation of the cattle with human tubercle bacilli extremely virulent for guinea-pigs, is not a tuberculosis, as the bacilli do not proliferate, but succumb sooner or later. The sore does not exhibit the characteristic aspect of a tuberculous process, but merely evidences of inflammation such as follow irritation from any non-specific foreign body, dead tubercle bacilli, for example. The immunization against *persucht* which follows is not due to a tuberculosis in an attenuated form, any more than the vaccine pustule is an attenuated form of smallpox. Although it may not be possible to produce an effectual curative serum against tuberculosis, yet we have strong grounds for hoping that man can be protected against the disease in the same way as cattle against bovine tuberculosis, by vaccinating human subjects with bovine tubercle bacilli. But before this can be realized in practice, the objections against the non-identity of human and bovine bacilli and their reciprocal harmless-ness must be all encountered and refuted.

35. **Triumph of an Internal Disinfectant in Phthisis and Other Severe Infectious Diseases.**—Dr. Konrad Küster is "privy councillor of the public health" (Geh. Sanitätsrath) at Berlin. In this article he does not hesitate to proclaim that a remedy has been found which promptly and energetically destroys bacilli while, even taken internally in large doses, it has no injurious action on the human organism. The remedy in question is a meta-iodo-ortho-oxym-chinolin-ana-sulphonic acid combination manufactured by the German chemists under the name of *loretin* and offered as a substitute for iodoform. Physicians were weary of new drugs and paid little attention to the announcements of Professor Claus of Freiburg in regard to the surprising bactericidal powers of the proposed substitute for iodoform. A Freiburg layman, however, saw some of these notices and tested the drug on himself, taking as much as 75 grains at a time without ill results. He gave it to advanced consumptives, and after a few months their friends were amazed at the improvement. The results in scarlet fever and diphtheria were equally striking and the layman published a pamphlet on the subject, which attracted no attention. He then presented his data to medical circles, where he finally obtained a hearing. Küster was one of those who have been testing the drug extensively, and he waxes enthusiastic over its efficacy in infectious diseases, even the severest. The drug is eliminated apparently unmodified by the intestines, kidneys, lungs and mucosa, thus following the bacilli into their favorite haunts. He is thoroughly convinced that in "griserin"—as the drug has been renamed—a remedy has been found which will place internal medicine—hitherto the Cinderella—on a par with triumphant surgery. He adds: "It will then be more of a joy than ever to be a physician, as we can be certain to cure the severest illnesses by careful individualizing use of this remedy. This will cut the ground away from under the feet of charlatans who flourish mainly on account of the limitations of our art in the past." The Birkenweder sanatorium has set aside an entire department, in charge of Küster, for patients taking the new remedy. He describes his experiences with it in detail, all bacterial affections apparently going down like card houses before it. The favorable results in cancerous affections suggest a bacterial origin. Diabetes alone, and possibly articular rheumatism, proved rebellious.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

- 37 (XXX, No. 43.) Ueber die dukessche "vierte Krankheit" ("Fool's Disease"). J. V. Bokay.
- 38 Importance of Vein Valves and Their Relation to Varices.—Die Bedeutung der Venenklappen und ihre Beziehungen zu den Varicen. G. Ledderhose.
- 39 Abriss-Fraktur der Tuberositas tibiae. G. A. Wollenberg.
- 40 *Zur Behandlung der die Gravidität und Geburt komplizierenden Tumoren speziell der cystischen Ovarial-Tumoren. A. Dürrsen. (Commenced in No. 42.)
- 41 Acute Retention of Urine Early Symptom of Tabes.—Akute hochgradige Harnverhaltung bei einer Schwangeren als tabisches Frühsymptom. B. Birnbaum.
- 42 *Zur Kasuistik der spontanen und artficiellen Haut-Gangrän auf nervöser Grundlage. C. Hollstein.
- 43 Ueber das Epithelioma contagiosum von Taube und Huhn. M. Juliusberg.
- 44 *Einige Bemerkungen über die Anwendung des Yohimbin Spiegel. E. Toff.

- 45 Progress in Care of Sick.—Fortschritte der Krankenpflegetechnik. P. Jacobsohn.
- 46 Woman as an Alienist.—Die Frau als Irrenärztin. H. Stelzner.

40. **Treatment of Tumors Complicating Delivery.**—Dührssen concludes his study of this subject with the following rules: In case of incarcerated ovarian or parovarian tumors no attempt at reduction should be made during pregnancy or parturition on account of the danger of tearing the pedicle with consecutive internal hemorrhage. Treatment should be restricted to vaginal ovariotomy, usually by posterior colpocelotomy. If this proves impracticable, laparotomy should be done in case all preparations have been made for this eventuality. Ventral ovariotomy should be preferred to the vaginal during parturition only when there is infection of the tumor content or of the genital tract. Tumors which can be pushed down into the anterior or posterior vaginal vault during a pregnancy should be attacked also by the vaginal route. High tumors which can not thus be pushed down should be left undisturbed during the pregnancy in case they do not increase in size and the general health remains good. This expectant treatment allows the tumors to be removed later by the vaginal route after delivery and complete retrogression of the uterus. In case of a myoma obstructing the pelvic outlet, which can not be drawn up out of the way, the growth should be removed through the vagina, with vaginal cesarean section, after which the uterus can be carefully emptied and ablated likewise through the vagina. If it is desired to retain the uterus, all the myomas can be enucleated through the incisions already made, and the points of attachment sutured.

42. **Artificial Gangrene of the Skin.**—Hollstein adds another to the long list of patients who induce artificial gangrene of the skin, probably for the purpose of posing as an interesting case. Differentiation is generally difficult. The necrosis was located more superficially than is liable to be the case with true gangrene, and it was surrounded by an area of inflammation. Examination of the scab may possibly reveal the presence of some chemical. Application of a tight bandage will sometimes reveal the deception.

44. **Experiences with Yohimbin.**—Toff relates half a dozen cases in which impotency was cured or the menses regulated by systematic use of yohimbin.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed page 1509.

- 47 (XVIII, No. 3.) Is Syphilis or the Tendency Plus Some Social Factor Responsible for Origin of Tabes?—Ist für die Entstehung der Tabes die Syphilis oder die Anlage und ein sozialer Factor massgebend?
- 48 Ueber Immunisierung gegen Tuberculose. F. F. Friedmann.
- 49 Meißler's Immunisierung gegen Tuberculose.—Ueber die Meißler'schen Immunisierungsversuche gegen Tuberculose. O. Liebreich. See XLII, pages 623 and 985.
- 50 Action of Brine Baths.—Studien über die Wirkungen der Moorbäder. A. Loebe.
- 51 Treatment of Febrile Diseases.—Zur Behandlung fieberhafter Krankheiten. E. Homberger.
- 52 Wholesome Modes of Conserving Food Materials a Protection Against Intoxication.—Ueber gesundheitsgemässe Aufbewahrung der Nahrungsmittel als Schutz gegen Vergiftungsgefahren. W. B. Clemm.
- 53 Substitute for Cod Liver Oil: Fucol.—Fucol ein vollwertiger Ersatz des Lebertrans. J. Loewenfinck.

Münchener medicinische Wochenschrift.

- 54 (LI, No. 40.) *Vorläufiges Ergebnis der Roentgen-Behandlung Leukämischer Erythelien (Erlangen).
- 55 Ueber mechanische Sterilisation der Gummihandschuhe (rubber gloves). Fromme and J. Gawronsky.
- 56 *Heart and Stomach Neuroses.—Herz- und Magen-neurosen. Schoen.
- 57 Zur Symptomatologie und Therapie der Schein-Reduktion inkarcerirter Leistenbrüche (sham reduction of incarcerated hernia). L. Kirchmayr.
- 58 Nall Changes After Scarlet Fever and Measles.—Nägelfveränderungen nach Scharlach und Masern. E. Feer.
- 59 Beziehungen zwischen Haemometer-Zahl (Fleisch) und Ferrometer-Zahl (Joles). W. Altmann.
- 60 Einige Fälle von Bauch-Kontusionen ohne Darm-Verletzung (Contusion of abdomen without injury of intestines). A. Schmitt.
- 61 Zur Kenntnis der Gynaekomastie. G. Sommer.
- 62 Alternating Current for Medical Use.—Frage des Wechselstrombetriebes bei ärztlichen Anlagen (insb. Roentgenanlagen). F. Dessauer.
- 63 Universal-Apparat für operative Asepsis als trocken sterilisierender Dampf-Desinfektor. A. Watorek (Lemberg).
- 64 Zur Deinfektions-Frage bei der Ankylostomiasis. Tenholt.
- 65 Influence of German Physicians Who Have Made Their Homes in America.—Der Einfluss deutschen Aerzten in Amerika. C. Beck.

- 66 (No. 41.) *Spinal Anesthesia for Parturients.—Die Rückenmarks-Anästhesie bei Gebärenden. A. Martin.
- 67 Ueber die molekulare Concentration pathologischer Flüssigkeitsansammlungen im Körper und die Einwirkung des Nüchternorganismus auf die Molekulare Concentration des Nüchternsubstrates (organic fluids). W. Zangemeister.
- 68 Ueber Blutungen aus der Maseendarmschleim bei Gastroenterostomien (hemorrhage). G. Doberauer.
- 69 Die Behandlung der Hernien mit Alkohol-Injektionen. Brodnicz.
- 70 Fall von Atemstillstand bei Tabes (arrested respiration). A. Loeb.
- 71 Ueber Netz-Echinokokkus (In omentum). K. Gangele.
- 72 Zur Kasuistik der im Bereiche der Gelenke vorkommenden Fettschwüle (lipomas in joints). Luxembourg.
- 73 Zur Serodiagnostik des Typhus abdominalis mittelst des Fickerschen Diagnostikums. J. Blum.
- 74 Self holding Speculum.—Ein neues sich selbst haltendes Speculum zur Anwendung in der kleinen Gynäkologie. M. Henkel.
- 75 Zur Technik der Vibrations-Massage. H. Haenel.
- 76 The Mentally Deficient from Penal Standpoint.—Die strafrechtliche Behandlung der geistig Minderwertigen. A. Cramer. (Commenced in No. 40.)

54. Roentgen Treatment of Leukemia.—Fried reports 2 cases very much improved under Roentgen treatment. The patients were men, 59 and 46 years of age, and the benefits were strikingly apparent. The leucocytes returned nearly to the normal figure, the reds increased and likewise the proportion of hemoglobin, while the spleen subsided in size.

56. Heart and Stomach Neuroses.—Schoen some time ago announced that every case of unilateral headache which he has ever encountered was accompanied by some eye defect, and was permanently cured by correction of the latter. He now reports a number of cases of chronic stomach or heart trouble which were likewise accompanied or rather preceded by an eye trouble, and were permanently cured by its correction. The eye trouble in all these cases was upward squint. These heart and stomach neuroses differ from the migraine in the respect that they occur only with upward squint, while the migraine is liable to accompany astigmatism and hypermyopia. He has had more than a hundred patients with these rebellious heart and stomach neuroses cured by correction of the upward strabismus. Such subjects are peculiarly liable to suffer from seasickness and nausea in swinging. The symptoms implicate the vagus, especially the cases with retarded pulse, hyperacidity and exaggerated salivary secretion. The subject has to make demands on a special innervation to combine the pictures seen with the two eyes and thus compensate the defect during his waking hours. This task becomes more and more laborious in time, and the fatigue experienced spreads to adjacent nerves. The overexertion of the innervation for accommodation induces headache, but the overexertion of the innervation of the elevator and its antagonist is transmitted to the vagus. The pulse returns to normal and the hyperacidity vanishes at one stroke after the correction, with the precision of a physiologic or physical experiment. The patients usually came to him after having passed from one physician to another. The diagnosis in the stomach cases had been chronic catarrh of the stomach, dilatation, hyperesthesia, nervous dyspepsia, nervous gastric troubles and even round ulcer (but without hemorrhages). One doctor diagnosed one of the above and the next, another affection, until all united in accepting a purely nervous origin for the trouble. The same is true of the heart symptoms. When asthenopic disturbances were noted they were unhesitatingly attributed to neurasthenia or the stomach trouble, when in reality the reverse was true—the entire symptom-complex was the result of the eye defect, and vanished on its correction.

66. Spinal Anesthesia During Delivery.—Martin has used the Bier-Donitz mode of spinal anesthesia in 30 cases of delivery in healthy women. The anesthesia was perfect in every case with one exception in which it was restricted to the vulva and vagina. The anesthesia generally lasted an hour or an hour and a half. If the delivery occurred during this period the absence of any pain during the entire process was most remarkable. The expulsion of the child seemed to proceed more slowly than under other conditions. The puerperal retrogression of the uterus and development of the milk secretion did not seem to be affected in any way.

Zeitschrift f. klinische Medizin, Berlin.

Last indexd page 1528.

- 77 (LIV, Nos. 1-2.) *Ueber lymphadenole und aplastische Veränderungen des Knochenmarkes (bone marrow). S. Senator.
- 78 Ueber den Stoffzerfall bei Hyperthermien mit besonderer Berücksichtigung des Glykogens. II. Senator und P. F. Richter.
- 79 *Ueber die Beziehungen des Thymus zum Kalkstoffwechsel (lime metabolism). F. Sinnhuber.
- 80 Fall von multiplen Myelom (sogen. Kahlerscher Krankheit). Scheele und Herzfelder.
- 81 *Action of Heat Stimuli on Heart and Respiration.—Ueber die Einwirkung thermischer Hautreize auf die Herzarbeit und auf die Atmung. P. Winkler.
- 82 *Die Frage der Cytodignose. O. Niedner und G. L. Mamlock.
- 83 Ueber akute mykotische Endarteritis der Aorta und Pulmonalarterie mit konsekutiver Bildung eines mykotischen Aneurysmas zwischen beiden Gefässen. C. Hodmöser.
- 84 Zur Mechanik der Expektation. E. Arch.
- 85 *Serum Treatment of Anemia.—Ueber einen Versuch mit Hilfe des Bluterserums eines Anämischen einen therapeutisch verwendbaren spezifischen Antikörper herzustellen. C. S. Engel.

77. Aplastic and Lymphadenoid Changes in Marrow.—There may be numerical decrease of the elements of the bone marrow in severe anemia without the typical megaloblastic character of pernicious anemia, and also in the so-called Barlow's disease. As the latter may be incurable in certain circumstances, it stands in the same relation to the former as helminth anemia to the pernicious form. The aplasia may be primary or secondary to bone affections, and may develop directly or by intermediation of lymphatic metaplasia. It is possible that rachitic bone affections may induce a tendency to aplasia of the bone marrow. Senator makes the above statements in connection with a case presenting the clinical picture of pernicious anemia, but the blood was entirely free from megaloblasts, megalocytes and normoblasts, while there was extreme lymphocytosis and pronounced lymphatic metaplasia of the bone marrow. Lymphatic metaplasia may be encountered in leukemia, especially in the lymphatic form, also in medullary pseudo-leukemia—the aleukemic stage preceding lymphatic leukemia—and thirdly, in the mixed forms of leukemia, in pernicious anemia and leukanemia, associated in all of these with other metaplastic changes, proliferation of myelocytes, giant cells and megaloblasts. The lymphatic metaplasia may induce proliferation or diminution of the bone tissue, and both may entail aplasia of the marrow. It may likewise follow a bone affection.

79. The Thymus and Lime Metabolism.—Sinnhuber's research has established that there is no connection between the thymus and the elimination of lime. Also that there is no direct connection between the thymus and rachitis—both are probably due to some primal cause. Energetic thyroid treatment, on the other hand, has marked influence on the output of lime, raising it much above the intake.

81. Action of Heat Stimulation on Heart and Respiration.—Winkler has been studying the effect of hot water poured on the abdomen of dogs. The stimulation from the heat induced irregularities in the heart action and sometimes affected it quite injuriously. Alternating hot and cold procedures had the same effect. He is convinced that the results observed are a warning to refrain from hot-water procedures, including the Scottish douche, in all cases in which there is a liability to stagnation in the minor circulation and increased pressure in the left auricle. This would exclude from such hydrotherapeutic procedures all valvular affections, coronary sclerosis and cardiac asthma, also a tendency to hemorrhage or hemoptysis, aneurisms and general atheromatosis. In chlorosis also hot baths have frequently an unfavorable action. The nervous heart troubles in drinkers and smokers are also liable to be augmented by the application of heat. In the treatment of scitica and emphysema the Scottish douche should not be used for subjects whose hearts are not intact.

82. Cyto-diagnosis.—This communication from the first medical clinic at Berlin is based on extensive clinical experience and experimental research, and can be summarized in the statement that lymphocytosis in the cerebrospinal fluid is an evidence of prolonged and powerful irritation. It is frequently encountered in lues, while it is far from constant in tabes, but oc-

curs somewhat more regularly in paralysis. It may possibly serve for the recognition of a dubious early stage of syphilis.

85. **Serum Treatment of Anemia.**—Engel drew 8 to 10 c.c. of blood from a young woman who presented typical chlorosis with extreme anemia. He injected a rabbit with the serum from the blood—after heating the serum to 58 C. to destroy the natural complements. This was repeated ten times, and serum from the rabbit was injected into the patient at 8 different times. A chill sometimes followed the injections, with more or less temperature, and the arm swelled more than the other arm, which was injected with serum from a normal rabbit. No iron or arsenic were given during this course of treatment, which was pursued during three months. Both objectively and subjectively the patient made fine progress. By the end of the year the hemoglobin was 90 per cent., the reds numbered 4,800,000, and the specific gravity of the blood was 1.058.

Riforma Medica, Palermo and Naples.

Last indexed page 1097.

- 86 (XX. No. 31.) Contributo alla teoria della immunità. S. Cappelli.
- 87 (No. 32.) *Alterazioni strutturali della tiroide per fosforo e per arsenico in rapporto alle cure mediche del gozzo (of goiter). L. Macaggi (Genoa).
- 88 *La tifomia. G. Memmi (Stena). (Commenced in No. 31.)
- 89 *Aneurism of Superior Mesenteric Artery. G. Baccelli. Abstract.
- 90 *Sul crepito xifoido di Galvagni. Campani. Abstract.
- 91 (No. 33.) Contributo alla patologia del diabete mellito a forma di forma. E. Teschli.
- 92 *Su di alcuni sintomi e sulla formula leucocitaria dell'avvelenamento acuto dei funghi (mushroom poisoning). U. Gabbi.
- 93 La idellebite suppurativa complicante l'appendicite. Studio clinico ed anatomico-patologico. A. Felleggrini. (Commenced in No. 32.)
- 94 *Espirazione stitistica intercorsa o soffio del cavo orale (mouth souffle). E. Galvagni (Modena).
- 95 (No. 34.) Sindrome leucopenica in un malarico. A. Zerli (Baccelli's clinic, Rome).
- 96 Contributo all'anatomia patologica del pancreas. G. Ghedini.
- 97 *Action of X-Rays on Leucocyte-forming Organs. C. Bozzolo. Abstract.
- 98 Four Cases of Traumatic Neurosis. G. Verga. Abstract.
- 99 (No. 35.) *Il "triangolo paravertebrale opposto" di Grocco nei versamenti pleurici unilaterali liberi. L. Ferrannini.
- 100 *Dell'anchilostomiasi e della sua cura. G. Norsa (Perugia).
- 101 Sierofilia da xurrella venularis. P. P. Arulani.
- 102 *Sulla corizza acuta in bambini. Masseli. Abstract.
- 103 (No. 36.) *Sulla inoculabilità dei tumori maligno. F. Santelle (Messina).
- 104 *Le funzioni sensitive e psichiche negli epileptici. F. Marimo. Abstract.
- 105 (No. 38.) *La determinazione del sesso tentata con le etilolisine. P. Zanotti.
- 106 *L'infezione tuberculare per la via vaginale. Ricerche sperimentali. C. Galbo. (Commenced in No. 37.)
- 107 *Sul valore diagnostico delle pleuriti emorragiche. N. Morano.

87. **Effect of Phosphorus and Arsenic on the Thyroid Gland.**—Macaggi's experimental research and clinical experiences demonstrated unmistakable structural changes in the thyroid under the influence of phosphorus and arsenic. In acute intoxication with either of these drugs there was a slight increase in the gland and passage of colloid into the lymphatics and a change in the composition of the colloid itself, but in the subacute and chronic forms of intoxication the colloid secretion was reduced and the secreting epithelium became atrophied. This latter fact justifies the therapeutic use of arsenic and phosphorus in case of hypertrophy of the gland.

88. **Typhoemia.**—Memmi reviews the findings in 30 cases of typhoid in which the blood was examined for the bacilli. As a rule, the presence of the bacilli in the blood coincided with the severity of the disease. The most favorable time for finding the bacilli in the blood is from the end of the first week to the beginning of the third, although in the severer cases they may be found much later and in the relapses. The bacilli cultivated from the blood were always feebly motile and sometimes bunched in groups. The Castellani technic of copious dilution of the blood with bouillon will sometimes enable the bacilli to be detected when they escape with other technics. Typhoid bacilli isolated from the blood have a weak agglutinating power, which becomes stronger as they adapt themselves to saprophytic existence. The Widal test with laboratory bacilli and with typhoid bacilli from the blood of the patient harmonize, although the latter do not permit generally of such dilutions as the former. The streptococcus and a diplococcus

may sometimes be cultivated from typhoid blood in association with the typhoid bacilli, especially in case of complicating pneumonia. The cases of typhoid without intestinal localization are not so rare as hitherto supposed. In one of his patients typhoid bacilli and streptococci were found in the blood and yet there was no localization of the process in the intestines. The patient died about the sixth week, having presented the roseola, diarrhea, albuminuria, enlarged spleen, delirium and heart symptoms typical of typhoid and a suppurating process in both wrists. The intestines showed no lesions, merely a slight catarrhal condition. The blood serum agglutinated the typhoid bacilli from the blood at 1/15 as also laboratory bacilli. At the second examination, the thirty-first day, nothing but streptococci were found in the blood, but at the necropsy both streptococci and typhoid bacilli were found. The article reviews the literature on the subject of the invasion of the blood by the typhoid bacillus.

89. **Aneurism of the Superior Mesenteric Artery.**—Baccelli describes the case of a man of 34 with a pulsating tumor in the abdomen. The tumor was oval and was located low down behind the stomach, about 10 cm. in its longest diameter, lying across the abdomen. Both pulsation and souffle became indistinct when the stomach was distended. The location of the aneurism did not correspond with the course of any artery except the superior mesenteric, just below the pancreas. It was evidently of syphilitic origin. There are only 20 cases of aneurism of this artery on record and only one besides the present case was diagnosed during life. The operation showed a sac aneurism of the superior mesenteric opening into the aorta in such a way that the proposed gradual ligation was impracticable and nothing was done. As the patient's general condition is good, Baccelli intends to try to control the aneurism by gradually ligating the branches back of the aneurism.

90. **Galvagni's Xiphoid Crepitation.**—Galvagni noticed in 3 patients with peritonitis a peculiar crepitation at the xiphoid process or along the costal arch, resembling that of a cutaneous emphysema. The sensation is felt as soon as the wall over the xiphoid process is palpated, but it can no longer be distinguished when the upper part of the abdominal cavity becomes filled with ascitic fluid. Campani reports 13 other cases in which this crepitation was observed, all in very sick patients. Interstitial liver affections, cancer of the rectum, ovary, liver or other organ or tuberculous processes in the peritoneum were found in the cases described. Galvagni regards the crepitation as a sign of peritoneal inflammation with consequent obstruction of the normal gaseous interchanges or gas formation from decomposition or gas exhalation substituting the altered cutaneous transpiration.

92. **Leucocyte Formula in Mushroom Poisoning.**—The treatment in the 4 cases described was with injections of atropin with an ice-bag to the region of the stomach to control the tendency to vomit, morphin and seltzer water and no food except milk. All but one patient recovered. The latter presented extreme mononucleosis and the increase in the numbers of the large mononuclears was marked in every instance. The mushrooms belonged to the family of *Agaricus virosus*. The excessive mononucleosis in the fatal case demonstrates anew the evil significance of this phenomenon in infections.

94. **Galvagni's Mouth Souffle.**—In 1896 Galvagni described what he called the divided systolic expiration or oral souffle. Auscultation of the open mouth of the subject shows an interruption of the sound of expiration with a cardiac rhythm. This interruption in the expiration was observed in subjects with pleuritic lesions, the pleural adhesions transmitting the movements of the heart to the air issuing from the lungs. Fischer has called attention to a similar finding, which he accepted as possibly an aid in diagnosing dilatation of the heart not appreciable by any other means. Galvagni accepts it as due to the expulsion of the air from the alveoles in the lungs by the rhythmic compression exerted by the heart and large vessels. He noticed the rhythmic gushes of air through the nostrils during expiration, as well as in the mouth, in one instance.

97. **Action of X-Rays on the Leucocyte-Forming Organs.**—Bozzolo has been systematically treating a number of patients with various affections by exposure to the x-rays. The list included one case of severe leukemia, one of lymphatic leukemia, 2 with Banti's disease and one of chlorosis. The condition of the blood notably improved under the Roentgen treatment. One patient was a young woman whose leukemia first manifested itself a year before with general weakness, dyspepsia, amenorrhoea and palpitation of the heart. In a few months there was high fever, the spleen had enlarged enormously and there was a hemorrhagic effusion in the left pleural cavity. The reds numbered 2,800,000 and the leucocytes 140,000, the neutrophile polymorphs in a proportion of 51 per cent., the eosinophiles 8.8 per cent., the myelocytes 14.7, and the lymphocytes 22.5 per cent. Under tuberculin treatment the leucocytes were somewhat reduced in number, but the general condition grew worse. Roentgen treatment was commenced with exposure of the spleen, knees, elbows and sternum. In a week the temperature had declined nearly to normal and in ten more days became permanently normal. The spleen also subsided nearly to normal outlines, the appetite and strength returned, the weight increased by nearly 40 pounds, menstruation became normal and the general aspect of the patient is that of health. In three months the leucocytes numbered 10,000, but then they increased again in numbers, at present being 40,000, with no myelocytes or eosinophiles and fewer lymphocytes but more polynuclears. Although the patient is so much improved, her blood still has a suggestive leukemic character which renders a relapse by no means improbable. The improvement observed in this case was paralleled by a number of other cases, showing that it was not a mere coincidence.

99. **Grocco's Triangle in Pleural Effusions.**—Ferrannini describes the mechanism of this sign, which he regards as of extreme importance for the diagnosis of a one-sided pleural effusion. Its size is a reliable indication of the extent of the effusion, and as it vanishes it shows that the effusion is being absorbed, even when no other indications of the absorption are apparent. Grocco's description, published in 1902, stated that in case of a pleural effusion on one side, the other side presented a triangular area of dullness over the back of the opposite side of the thorax. The inner line of this triangle runs along the spine, the lower line coincides with the lower margin of the thoracic resonance for 3 to 7 cm. and the outer line of the triangle follows an oblique line, uniting at an acute angle with the first line, on a level with the top of the effusion. The dullness is always more pronounced when the effusion is on the right side. Radioscopic examination always showed the exact level between the top of the area of dullness and the top of the effusion, and that the length of the base of the triangle was always proportional to the extent of the effusion. The dullness is evidently the result of the displacement and compression of the contents of the sound side of the thorax, and is thus always proportional to the extent of the effusion.

100. **Treatment of Ankylostomiasis.**—Norsa remarks that the cure of this condition is liable to be far from an easy matter. Some patients are cured readily and others require many repeated courses of treatment, with frequent examinations in the interim to finally expel the parasite. Male fern and thymol should be given the preference in treatment, but if one or the other fails, still other remedies should be tried.

102. **Treatment of Acute Coryza in Infants.**—Massei disapproves of very vigorous measures, thinking that the best treatment is by hygiene, a few air douches, glycerolate, and insufflation of orthoform to meet the indications. When the acute symptoms are past he insufflates a powder consisting of 5 parts each of boric acid and bismuth with 1 part resin, with or without 1 part menthol.

103. **Inoculability of Malignant Tumors.**—The conclusions of Sanfelice's previously published research on the pathogenic action of blastomycetes are corroborated by this latest work. He found a pedunculated sarcoma in the vagina of a bitch which contained numerous saccharomycetes which cultivated readily. Inoculation of 6 dogs with these micro-organisms and

of a number of other animals resulted in lesions in which the saccharomycetes were found in great numbers, the neoformations consisting more of these parasites than of proliferating cells and consequently not true morbid growths in any of the animals except the dogs. In the latter, however, the parasites were scanty and the lesions were true neoplasms, the proliferating cellular elements being mainly of mesodermal origin. The neoplasm amounted to an actual tumor in one out of the 6 dogs, identical in structure with the primary tumor. Inoculation of other cancerous growths in addition to these experiences has convinced him that the inoculation of malignant tumors is possible only when they contain parasites in a cultivatable form. This varies in different growths and at different times in the same growth. When the blastomycetes have become transformed under the influence of the antibodies of the serum into fuchsinophile bodies they are no longer cultivatable.

104. **Sensory and Psychic Functions in Hemiplegia.**—Marimmo's clinical experience has confirmed the fact that the paralysis is always accompanied by sensory and psychic disturbances to a greater or less degree. The changes are in the nature of involution, and they should be combated by early and progressive re-education of the sensory and psychic functions as well as of the motor.

105. **Attempt to Realize the Determination of the Sexes by Cytolysis.**—This attempt to realize the determination of the sexes by means of cytolytic injections has already been mentioned in *THE JOURNAL*, in the news columns, page 478. The present work issues from Valenti's laboratory of histology and embryology at Bologna. An iso-spermatolysin was produced in rabbits by inoculating them with an emulsion of the male genital organs from other rabbits. This iso-spermatolytic serum was then injected into 2 rabbits, each receiving in the course of two and a half months about a dozen injections, corresponding to about a dozen sets of the male organs. The serum acquired toward the last undoubted spermatolytic power, but not very intense, arresting somewhat slowly the movements of spermatozoa. The results were a little more pronounced when the rabbits were inoculated with the male genital organs from sheep. The litters of rabbits born were about equally divided between the sexes, no influence from the cytolytic treatment being perceptible. Possibly the injections induced the formation of an antibody which nullified their action. Zanotti presents several theories to explain the lack of action from the spermatolysin on the germinal cells of the male embryo.

106. **Experimental Tuberculous Infection by Way of the Vagina.**—Galbo's experiments were made at von Schrön's Anatomic Institute. They demonstrate that lesions and solutions of continuity in the female genital tract are indispensable to the development of primary tuberculosis of these parts. Inoculation of tubercle bacilli was always completely harmless so long as the mucosa was intact.

107. **Differentiation of Hemorrhagic Pleural Effusions.**—In a hemorrhagic pleuritis due to some morbid growth the pains are sharp, lancinating, progressive, radiating to the shoulder, neck and arm, with intense dyspnea, no fever, but rapid loss of strength. There is also cyanosis of the arm on the affected side, and swelling of the glands. The thorax gives on percussion a dull, woody sound, Traube's crescent is retained and Skoda's resonance and the bronchial souffle persist even after thoracentesis. The fluid is constantly reproduced and retains to the end its hemorrhagic character. On the other hand, the symptoms of a tuberculous hemorrhagic pleuritis are slight pain or, if sharp, there is no radiation; dyspnea is slight or absent; the fever is of a hectic type; the strength declines more gradually; the cough is short and dry; there is merely slight cyanosis, and no glandular enlargement. There is dullness on percussion and Traube's crescent is not to be discovered. Skoda's sign and the bronchial souffle vanish after thoracentesis. The fluid is very slowly reproduced and may become fibrinous or may be completely absorbed. The work issues from Cardarelli's clinic and is published in book form.

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FEDERAL CONTROL OF DRUGS.*

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The Congress of the United States has authorized two kinds of investigations into the character of drugs. The term "drug," as used in the acts of Congress, may, I think, very properly be interpreted to mean any remedy intended for internal or external use. In fact, the regulations, as will be referred to later on, made under the provisions of this law, recognize this as its fundamental meaning. It may, perhaps, be surprising to many of you to know that one of the existing laws relating to the inspection of drugs was enacted by Congress on the 26th of June, 1848. This law is found in Section 2,933 et seq. of the revised statutes. The first section of the law provides that "All drugs, medicines, medicinal preparations, including medicinal essential oils and chemical preparations used wholly or in part as medicine, imported from abroad, shall, before passing the custom house, be examined and appraised, as well in reference to their quality, purity and fitness for medicinal purposes as to their value and identity specified in the invoice." The regulations made by the Secretary of the Treasury under this act, and which are now in force here, are found on pages 461 et seq. of the Customs Regulations of the United States, edition of 1899. I will not unduly increase the length of this paper by quoting to any extent from the law in question or from the regulations established. It may be, however, interesting to know that drugs imported from Scotland shall be judged as to their purity by the pharmacopoeia and dispensaries of Edinburgh, and the drugs imported from England, France and Germany are in like manner to be judged by the standards of those countries. All other drugs are to be judged by the standard established by the United States. An important feature of the law on adulterations of drugs is the extension of this examination to patent and secret medicines. There are no standards, of course, for these in any of the pharmacopoeias, and, therefore, they are judged on their own merits. Article 1,287 of the regulations prescribes: "Patent or secret medicines are subject to the same examination and disposition as other medicinal preparations, and can not be permitted to pass the custom house for consumption, but must be rejected and condemned unless the special examiner be satisfied, after due investigation, that they are fit and safe to be used for medicinal purposes."

In the case of opium it is provided that its importation by Chinese subjects is absolutely prohibited. The

execution of the law relating to the inspection of imported drugs is conducted chiefly at the port of New York; but, of course, similar investigations are made at the other ports. During the year 1903 an abstract of the work accomplished at the port of New York in the inspection of drugs was furnished the Senate by the Secretary of the Treasury in response to a request therefor from the committee on manufactures. This abstract may be found in the *Oil, Paint and Drug Reporter*, April 25, 1904, page 28C. From this abstract, among other things, it is learned that of 44 samples of opium examined, 9 fell below the standard for morphia, viz., 9 per cent. The same report shows that large numbers of imported remedies contain alcohol. The minimum and maximum quantity found ranged from 5.45 per cent. in "Ischirogeno" to 76.6 in "Eau des Jacobins." Many proprietary and other remedies were also examined, but the details of the analyses are not very full. For instance, a remedy known as antitusin is described as a "hypnotic and calmative in ointment." Again, anti-opium pills are described as containing starch, reducing sugars, extractive matter, cellulose and 3.5 per cent. of ash. There is not time nor space here to enter into the details of the valuable work which the Treasury Department is doing in the inspection of drugs. Any member of the Association interested particularly in the matter can get further information by addressing the Treasury Department.

The work of the Department of Agriculture is carried on under the provision of law embraced in the act making appropriations for the Department of Agriculture, authorizing the Secretary of Agriculture "to investigate adulteration of foods, condiments, beverages and drugs." And the further section authorizing the Secretary of Agriculture "to investigate the adulteration, false labeling or false branding of foods, drugs, beverages, condiments and ingredients of such articles." It will be seen that the authority conferred on the Department of Agriculture by the above sections relates solely to the investigation of drugs and medicines, and not to any inspection or control thereof. There is, however, a further section in the law just referred to, which authorizes the Secretary of the Treasury, at the request of the Secretary of Agriculture, to exclude from the ports of the United States foods, drugs, beverages, condiments and ingredients of such articles which "the Secretary of Agriculture reports to him have been inspected and analyzed and found to be dangerous to health, or falsely labeled or branded, either as to their contents or as to the place of their manufacture or production, or which are forbidden entry or to be sold in the countries in which they are made or from which they are exported."

In view of the fact of the rigid and effective inspection of drugs at the ports of entry by the Secretary of the Treasury, the Secretary of Agriculture has not

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

deemed it advisable to institute a similar inspection, which, at best, could only be a duplication of what the treasury officials are already doing. For this reason the authority above conferred has been exercised by the Secretary of Agriculture only in respect of foods, beverages, condiments and ingredients thereof. In order to better provide for the work authorized under the law above quoted, the Secretary of Agriculture has organized in the Bureau of Chemistry a drug laboratory for the investigation of the purity, adulteration, false labeling and false branding of drugs. This laboratory is working in full sympathy and collaboration with the American Pharmaceutical Association, and especially with the committee on drug adulteration of that body. It is true that the chief of that laboratory, with the two or three assistants that he has, can not be expected to go over the whole ground of drug adulteration with any degree of rapidity. The best that can be done in this matter is to take up for special investigation those subjects which seem to demand particular attention. Although this laboratory has been established only a year and a half, it has nevertheless accomplished a large quantity of work, and one bulletin embodying its investigations has already been published. This publication is known as Bulletin No. 80 of the Bureau of Chemistry, and those interested in its contents can secure copies by addressing a request to that effect to the Secretary of Agriculture. This bulletin contains three separate reports of investigations, viz.:

1. Inferior drugs and insidious methods of deception.
2. Rose geranium oil and its substitutes.
3. Phenacetin—methods of analysis and commercial status.

The introduction to this bulletin will give a general idea of the character and utility of its contents:

The first two articles of this bulletin set forth the conditions that prevail, not only in relation to individuals, but also in some of the best-regulated laboratories. There is a continual cry for cheaper drugs, and in the effort to meet this demand and at the same time make a profit adulteration has spread. The members of the pharmaceutical profession of high standing, however, are anxious to remove from the trade any odium due to adulteration which at present exists.

The third paper deals with the medicinal remedy phenacetin, which, according to reports, has been largely adulterated in this country, and many substitutes offered therefor. This subject was studied because of the great interest that exists concerning it in both the medical and the pharmaceutical world, many druggists and physicians being directly involved in the controversy. The fact that phenacetin is sold for 15 cents an ounce in Canada, while \$1 or more is charged for the same amount in the United States, creates an impression, correct or incorrect, of injustice. The conditions set forth concerning phenacetin are, moreover, typical of those affecting a large number of patented medicinal remedies. Furthermore, the attempts that have been made to secure such changes in the patent laws as would eliminate these disturbing factors have not been successful. It is hoped that the contents of this paper will place the whole situation before the public in a just and impartial manner.

Another important line in which federal inspection of drugs is conducted is in the collaboration of the Department of Agriculture with the Postoffice Department. The laws regulating the transmission of dangerous, fraudulent and deceptive matters through the postoffice are very stringent, and under these laws the Postmaster General has the right to exclude from the mails articles which, in his opinion, are contrary to the provisions of existing laws. The Congress of the United States has authorized the Bureau of Chemistry of the Department

of Agriculture to undertake investigations along chemical lines which may be asked for by the heads of other departments. This authority is found in the following provision of the law:

Authorizing the Bureau of Chemistry to continue the collaboration with other bureaus and divisions of the department desiring chemical investigations, and to collaborate with the other departments of the government whose heads request the Secretary of Agriculture for such assistance, and for other miscellaneous work.

Under this authority numerous investigations have been made at the request of the Postmaster General of secret remedies, nostrums and other bodies of this class offered for transmission through the mails, or the advertisements for which are offered for transmission through the mails. A large part of the activity of the drug laboratory during the past year has been taken up with these investigations, and as a result of them a number of fraud orders has been issued by the Postmaster General, excluding from the mails the nostrums investigated. It is seen, therefore, that the laws of the United States do afford some protection to its people in regard to alleged remedies of this class, both in providing inspection at the ports of entry for such articles and by controlling their circulation or advertisements thereof through the mails. It is evident that but little more than local business could be done by any secret nostrum of a fraudulent nature were it not for the medium afforded by the United States mails for scattering the advertisements thereof and sending the samples themselves.

I need not enter into any argument here of the benefit that would accrue to the medical profession by a proper regulation of secret alleged remedies. If remedies have real merit, or any merit of any kind, inventors of them have a right to be protected in their discovery, and this right is fully provided for by the laws relating to patents, copyrights and trade marks. On the other hand, if such alleged remedies are fraudulent in their very nature and their sale is promoted by deception in advertising, the control and abolition of such abuses is certainly to be commended.

From the above outline of what federal legislation has done and is doing, it is seen that a control and an inspection of substances used as drugs have been fully inaugurated. It is true that this control and inspection are by no means perfect or universal, but in so far as they go they are certainly useful and commendable. In the interest of the medical profession, of the pharmaceutical profession and of the public, it is hoped that federal control of drugs in general may become more universal and more efficient. In this way the interests of the two great professions mentioned, and of the public, can be best conserved.

THE FORTHCOMING PHARMACOPEIA.*

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The interest which the members of the American Medical Association have taken in the new Pharmacopeia, numerous letters which have been received from physicians throughout the country, and a request from the Section on Pharmacology for this paper, are good and

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sufficient reasons for giving information about the new book which is being printed.

Exceptional activity in providing therapeutic agents for the alleviation of disease has made the work of the Committee of Revision much greater than ever before, and it has been a task to make a judicious selection of the synthetics. Every physician must regard the present condition as confusing in the extreme, for no sooner has he commenced to learn the real value or worthlessness of a new synthetic than he is imperturbed to try another. The enormous financial returns from the exploitation of some of these products has been, of course, the moving cause for this condition. The committee has had to consider the question of copyrights, trademarks and patents, and to have accepted every one which has been strongly recommended by some physician as valuable would have not only overwhelmed the book and produced hopeless confusion, but a new revision would have been necessary within a year.

It is one of the principal functions of the Pharmacopeia to select only the substances which have proved their value by repeated clinical trials, and have gained the confidence of a large number of discriminating practitioners. Those who are interested in the financial success of the new agent, or who are employed to write up its merits, can not always be trusted to give unbiased information.

Among the important questions with which the present committee has had to deal is that of the standards for purity. In the Pharmacopeia of 1890 there are standards which have been found, by actual practice, far too rigorous and hypercritical. There is no necessity for prescribing chemical salts which are microscopically or analytically free from harmless substances (provided always that the amount of such be accurately known and a proper allowance be made), and when it is considered that in some cases the cost of manufacturing such products adds 100 per cent. or over to the price, the condition calls for immediate action. Chemical testing has reached a stage of far greater accuracy than ever was believed possible, and methods can now be employed which will determine the percentage of contamination with great precision.

The food and drug laws in the various states have been a moving power within the last few years, in calling greater attention to deviations from the standards of the Pharmacopeia, but those who have instituted prosecutions have, in many cases, chosen absurd subjects as the basis of what might be properly called "persecutions," and have permitted far weightier infractions of the law to pass unnoticed. Pharmacists have been forced to pay penalties for trifling deviations, and large manufacturers and wholesale dealers have often been severely let alone. When the food and drug laws are wisely and efficiently administered, they will prove of immense value to the country by punishing a class of druggists who regard cheapness rather than quality as of the first importance.

In view of these facts, the Committee of Revision has established the principle that it is far better to introduce standards which can be readily attained, and then look to the laws to prosecute offenders who do not comply with requirements so easily within their reach. What is known as a "purity rubric" will be attached to substances capable of being tested, and this will be framed so that the lowest limit of the standard is distinctly stated. Thus boric acid will contain the following statement immediately under the title: "This acid

should contain not less than 99.8 per cent. of pure boric acid." It will be observed that this does not prevent a manufacturer from selling a boric acid of 100 per cent. purity, if he so wishes, but it will prevent the sale of a boric acid of 90 per cent. grade for medicinal purposes.

Another great question arising out of the passage of the food and drug laws has been the strained construction placed on the laws by the judges of our courts. They have ruled that the standards required for medicines shall be rigidly applied to substances used in the arts. This may be a good law, but it is not common sense. Every one must recognize that the use to which a chemical is put must determine its standard of purity. Take, for instance, sodium phosphate. This is used largely in the arts for preventing the scale from forming on boiler tubes, and naturally those who buy it for this purpose need only know the percentage of real sodium phosphate in the product; but sodium phosphate nearly always contains arsenic, and the physician who prescribed sodium phosphate for a child would be likely to get untoward results if the boiler compound salt were used in place of the official pharmacopeial substance. In fact, the presence of minute quantities of arsenic in sodium phosphate has been the subject of special speculation. Some physicians have declared that they do not object to a trace of this contamination, but such an opinion has little weight with the committee of revision. Sodium phosphate must be practically free from appreciable quantities of arsenic if anything like exactness in therapeutic results is to be secured. Any physician who prefers sodium phosphate with arsenic can prescribe the exact quantity of the latter that he needs.

A clause will be inserted in a prominent place in the new Pharmacopeia, stating that the tests in the book are to apply solely to substances to be used as medicines. This will relieve the court judges and all from any trouble in this direction.

A small but important body of medical and pharmaceutical savants assembled in Brussels in August, 1902, constituting the *Conférence Internationale pour l'Unification de la Formula des Médicaments Héroïques*. Each country was entitled to send two delegates, the United States being represented by Dr. Horatio C. Wood and Dr. Frederick B. Power. Owing to the delegates having been appointed by the governments of the several nations, greater authority was conferred on this congress than that usually given to ordinary conventions. As the title of the congress indicates, the work was confined to the framing of an international pharmacopeia of potent remedies only. The limitation of the scope of the congress was a wise step, and, in fact, the conception of the idea of framing an international pharmacopeia of this kind arose from the recommendation of British pharmacists, the suggestion gaining impetus and assuming shape in 1893 at the Seventh International Pharmaceutical Congress, which met in Chicago in that year. The American Pharmaceutical Association aided greatly in the movement by declaring itself in favor of an international pharmacopeia for potent remedies only.

It should be stated in this connection that an international pharmacopeia, embracing all medicinal substances, has been a dream for more than half a century, and in all probability the project will continue in a nebulous condition until the millenium. The difficulties are apparently insurmountable. Each nation, through

long experience, has become accustomed to use certain drugs, and the pharmaceutical preparations made from these drugs have been in use so long that it would be an impossible task to supplant them except by the use of autocratic international power or by very gradual and slow methods. The stupendous utopian idea of having but one pharmacopoeia for the world fades in impressiveness when the actual work of framing such a book is seriously considered.

It may be of interest for the members of this Association to know that an international pharmacopoeia once progressed to the stage of a manuscript copy, and the outline was submitted to the succeeding international congress for approval. As soon as the admissions to the book were discussed in open session, a multitude of objections from the assembled delegates from the nations were heard. Naturally, the chairman, who was most influential in framing the work, had admitted a large proportion of the preparations which were used in his own country, and he, of course, thought that they were the best in the world, for with these he was most familiar. Inasmuch, however, as the great majority of the delegates knew very little about them, they preferred their own, and the result was one which could easily have been foreseen—the rejection of an international pharmacopoeia of this kind. It was then plainly seen that all that could be hoped for in the way of international unification was a very small and simple code of standards, limited exclusively to potent remedies.

The Brussels congress above referred to was the first body to practically frame standards for such a work, and the new United States Pharmacopoeia will be the first national authority to be issued which will recognize the standards of this congress. It would take too much time to detail the work of this congress, but the recognition of the standard of strength of the arsenical preparations is very important. It will not be long before every arsenical official solution throughout the world will have the strength of 1 per cent. Ten per cent. for tincture of opium, 5 per cent. of ferrous iodid in the syrup of the iodid of iron are among some of the standards fixed by this body. Ten per cent. and 20 per cent. tinctures will simplify very greatly the situation in this important class of preparations. Ten per cent. will be used for the potent drugs, and 20 per cent. for those which are weaker. This will make an important change in the strength of the tincture of aconite and tincture of veratrum viride, and information is hereby given at this early date, to physicians, that tincture of aconite will, after the new Pharmacopoeia goes into effect, have but one-third the strength of the present tincture. Due care will be taken to spread the information as much as possible in advance. It will not make the tincture less useful; the dose will simply have to be increased. In addition to this, it should be remembered that the standards of the new Pharmacopoeia will not go into effect until three months after the work is issued, and an official date will be placed on the title-page of the book announcing the fact. This action is necessary, because wholesale druggists and pharmacists must have sufficient time to adjust their preparations to conform to the new standards, and time must be given to physicians to become acquainted with the changes.

The alterations in nomenclature will not be very great. There are some, however, which will have to be made, because more accurate knowledge of the chemical composition of some of the substances will require

it. It is believed that the present is a good time to change the name of carbolic acid. It is not an acid, but a phenol, and although this fact was recognized twenty years ago, the name "carbolic acid" was so firmly established that it was not deemed wise to change it. The name will still be used as a synonym, but physicians will find a shorter and more distinctive title in "phenol."

Synonyms will still be continued in the book, but their prominence will be lessened by not printing them in the text, and they will probably be relegated to the index. Synonyms have given much trouble to revision committees at all periods. It must be recognized that as a science or art advances, the names which designate the subjects of such science or art must be accurate, definite and, so far as possible, distinctive. Pharmacopoeial revision has been traveling in this direction since the issue of the United States Pharmacopoeia of 1820. Latin titles are now almost universally used in all departments of science, and the use of vernacular popular names for medicines, on account of their variation and indefiniteness, produces confusion and sometimes dangerous results. For these reasons the use of synonyms has been properly discouraged; they certainly should never be used in prescriptions, yet it is common to find in these such names as "laudanum," "paregoric," "Dalby's carminative," "cold cream," "Goulard's cerate," etc. The importance of always using pharmacopoeial titles for prescribing official preparations should be insisted on, particularly by those who are charged with the important duty of instructing the army of young men in our colleges and universities.

The names of some of the synthetics which will be introduced may at first sound strange, but definite chemical names should be used rather than the fanciful titles given by the promoters who first introduced them. Some of these names will, of course, be longer than the trade names, but inasmuch as physicians always abbreviate titles in writing prescriptions, they will not prove burdensome.

For the first time in the history of pharmacopoeial revision in the United States, average doses will be introduced. It would be beyond the scope of this paper to enter into the arguments pro and con, first, for the introduction of doses at all into the book, and second, for the choice of the average dose over the maximum dose. In deciding these problems, the first question which confronts one is, "What is a dose?" And this is almost as difficult to decide as the question, "What is a poison?"

The physicians in the pharmacopoeial conventions in the past have almost been a unit in opposing the introduction of doses into a national authority like a pharmacopoeia. It is true that the German pharmacopoeia inserts a maximum dose, but one can imagine the annoyance and even danger which would be experienced if maximum doses were introduced in this republic, into a book which the laws of the various states recognize as an authority. The liability for prosecution for malpractice and the possibility of suits at law arising from exceeding a maximum dose, would be great, but further than this, who can say that the dose of half a grain of morphin sulphate should never be exceeded, or that every time that a physician wishes to give a dose of morphin larger than this, he must indicate on the prescription that it is a special case? For otherwise he would be sure to have the prescription returned to him by the pharmacist, with possible injury to the patient on account of the delay.

The United States Pharmacopoeial Convention decided on average doses because they will be of far greater practical service than maximum doses. It is well known that the capacity of patients to tolerate large doses of powerful agents varies greatly, and even the same person at certain periods can bear larger doses than at others. In addition to this, the idiosyncrasies of patients is a real problem that every physician must wrestle with. For these, and several other reasons, the revision committee, in accordance with the instructions of the convention, will insert average doses.

In concluding this brief paper, I trust that I have indicated, in some measure, the direction in which the improvement may be looked for in the revision of the forthcoming United States Pharmacopoeia.

THE RELATION OF THE PHYSICIAN TO PROPRIETARY REMEDIES.

HOW MAY SUBSTITUTION BE AVOIDED AND THE DESIRED PREPARATION OBTAINED WITHOUT UNDULY ADVERTISING THE MANUFACTURER?*

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In their relation to proprietary preparations, physicians may be divided into three classes: A, B and C.

To class A, unfortunately a very numerous class, belong those physicians who prescribe everything and anything that is brought to their notice. The composition of the products they prescribe is a matter of utter indifference to them. The prescribed product may consist of two or three well-known substances; it may be as common a substance as sodium bicarbonate under a disguised name, or it may contain morphin, strychnin, pilocarpin or other dangerous alkaloids in a strong alcoholic menstruum—they care not. It answers, or they think it answers, the intended purpose and they are satisfied. They are supported and encouraged in this attitude by such journals as the *Medical Brief*, of which many physicians of class A are readers, if not subscribers. What our opinion is of such physicians it is hardly necessary to state. They are really not physicians. They are merely laymen with a right—a legal right, not a moral right—to practice medicine. The layman reads that Father John's medicine is good for consumption, Green's nervura for the nerves, orangeine for headache, etc., and he goes to the drug store and gets those things. He does not know what they are, but he trusts the manufacturer. The physicians of class A act in the same way toward resipiton, neurilla, and antikamnia. The difference is only in the names of the preparations, and even in the names there is sometimes no difference, for physicians of class A have been known to prescribe Radway's ready relief, Hood's sarsaparilla, Ayer's cherry pectoral, etc.

Class B is the other extreme. The members of this class are highly respectable physicians, but on the subject of proprietary remedies they are very unreasonable, or perhaps, I might better say, unreasoning; their attitude is a fanatical one, and is the result mainly of misapprehension, of ignorance of the true state of affairs. For them, the drug that is not in the Pharmacopoeia or in their old text book of medicine does not exist,—as if *materia medica*, unlike all other branches

of medicine, were incapable of further development. Calomel, digitalis, belladonna, opium and a dozen other drugs constitute their entire armamentarium. They are indignant at the mention of any proprietary or patent preparation. It is well to note, *en passant*, that many of our friends, the therapeutic nihilists, belong to this class.

Now, what is the cause of this inimical relation to all proprietary remedies? In my opinion it is due only to a misapprehension. These physicians confuse true patented preparations with the various nondescript nostrums, which are merely trade-marked and on which a patent could never be obtained. They confuse such true acquisitions to our *materia medica* as heroin, dionin, iodipin, collargol, duotal, adrenalin and orthoform, with Hood's sarsaparilla, Hostetter's bitters, Kiimer's swamp root, Warner's safe cure, peruna, phenalgin, antikamnia, manola, neurilla, etc. That some of our very best physicians make this error, I have occasion to witness almost every day. Recently I met one of our most eminent New York physicians, a man with a large practice and who is making a mark for himself by his work in physiology and pathology, and he confessed to me that up to a few weeks ago, he did not have the slightest idea that there was any difference between the two classes of preparations. Only yesterday Dr. Wm. Porter read an excellent paper at the meeting of the American Medical Editors' Association on the subject of proprietary remedies, but he made the same mistake of confusing proprietary non-patented secret nostrums with the true patented preparations. He was much surprised when the difference was explained to him. He said he did not think that one physician in a hundred knew the distinction. I therefore think that right here it will be very much *à propos* to stop for a moment and explain the real difference. It is about time that the hazy and vague ideas on the subject should give way to clear conceptions based on facts.

Now, a patented medicine is not, and can not be, a secret medicine, as I explained in another place. The very etymology of the word should show it. Patent is derived from the Latin word *patere*, which means "to be open," and a patented medicine is an open and non-secret medicine. In order to obtain a patent (on anything), the inventor or manufacturer must disclose the process of manufacture, to the minutest details. It must be described so fully and so explicitly, that any person of ordinary skill in that line of business, may be able, by following the directions, to produce an identical product; should there be any incompleteness in the description of the process, the patent becomes void; should there be any wilful deception, the inventor is liable to fine and punishment. Beside the process, he must also give the physical appearance, chemical properties, tests for identity, etc. The directions in the Pharmacopoeia for making any preparation and the tests for identity are not and could not be more explicit than those given in the application for any patent. Where is the secrecy then? But the thousand and one "sarsaparillas," "perunas," "tonics," "pain killers," "blood purifiers," "favorite prescriptions," "golden discoveries," antikamnias, phenalgins, neurillas, manolas, sengs, chionias, etc., which are the curse of the American people and of the American physicians, are not patented at all. They are only trade-marked; that is, the name of the mixture is registered, and is claimed as a trade-mark. Many of these nostrums could never be patented, even if the owners wanted to, because in or-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Sols-Cohen and O. T. Osborne.

der to obtain a patent, some novelty must be proved. Beside, the nostrum manufacturers would never think of patenting their wares. In order to do so, they would have to disclose their exact composition—which would not be at all to their interest. It is secrecy which is the chief, if not the only asset of the manufacturers of those secret but erroneously called "patent" medicines.

Another important point is that the true patents are protected for a limited time. Generally after 17 years, both the process of the patents and even the name itself become public property and every one is free to manufacture and to sell the product, while the trade-marked nostrum is a monopoly in perpetuity.

Thus, for instance, the patent on antipyrin has run out and any one can now manufacture antipyrin and sell it under that name. The name, however, of a nostrum is a monopoly forever and no one will ever be permitted to mix acetanilid, sodium bicarbonate and caffeine and call the mixture antikamnia or phenalgin. The difference is seen to be an important one. The true patented synthetic, after paying its inventor for the time, labor and money expended, becomes public property; the nostrum—never.

I think enough has been said to enlighten anybody in need of such enlightenment, as to the true difference between patented remedies and nostrums.

Our friends of class B may raise, and sometimes do raise, another objection. The objection is, that it is unethical, or even immoral, to patent and thus monopolize products which concern the life and health of the people. Measuring by the noblest and highest standard of morality, it is immoral to patent anything, and make the people pay tribute to the patentee. I believe that the time is not far distant when the state will buy every useful invention or discovery, and then give its use free to the people. And when I soar still higher and look with mental eye into the more remote future, I can perceive a state of society in which no such thing as a patent or a patent office will exist; a state of society of such a high moral and intellectual level that any inventor will be only too happy to give his invention to the community free; happy in the consciousness of having contributed something toward the comfort and welfare of humanity; that consciousness of having added a single brick to the noble structure of human comfort and happiness will be the only reward an inventor will seek or care for. But that future is far off; so far off, that neither we nor our grandchildren will see it. At present we live in an age of intense competition; the struggle for existence is so fierce, that every one must stand firmly on his feet and be constantly on the lookout—or he will be swept off by the seething current of commercial rivalry. In such a state of affairs, is an inventor to be held up to reproach, because, after having spent years of labor and considerable sums of money, he wishes to reap some pecuniary reward from his useful invention? Useful it must be; otherwise no amount of patenting will do any good; the invention will only prove a pecuniary loss to its originator. No! People who maintain large laboratories, invest large capital for problematical returns and pay large salaries to expert chemists and bacteriologists, should be entitled to protection and to pecuniary reward when they happen to discover or invent a useful product.

But, let us assume for argument's sake, that it is not right to obtain a patent on a medicinal preparation. What has that to do with our using or not using the product? Our first duty is toward our patient, and if

we consider a product useful, we should use it without bothering ourselves with the question whether somebody is getting rich by it or not. I dislike the telephone and gas monopolies exceedingly. I consider them worse than highway robbery—must I therefore do without a telephone or without gas? The morality of the chief mover in the Standard Oil Company trust would not stand a good x-ray exposure—must we therefore do without kerosene? The opposition to the use of certain remedies merely because they are proprietary, is thus seen to be ill-founded and, I might say, childish.

The physicians of class C are the broadminded and well-informed members of the medical profession; the physicians who do things and who are responsible for the progress in materia medica and therapeutics. They preserve the unbiased attitude toward any drug, any remedy. They know that many drugs, though having the official sanction of our Pharmacopeia, are either perfectly worthless or practically so, while many of the newer remedies are of the highest importance in fighting disease. The members of this class are investigators and, before they adopt a remedy into their practice, or even before they give it a trial, they try to find out several things.

First, they want to know the composition of the remedy, what it is that they are asked to use on their patients. They may not care to know just what the vehicle is, or the exact details of the process of manufacture, but they do want to know all the active ingredients, both qualitatively and quantitatively, and they want to have some idea of the process of manufacture. If this information is not forthcoming, they have nothing further to do with the remedy, absolutely nothing. The sample, if they get any, goes into the ash-barrel.

The second thing they try to learn is something about the foster parents of the remedy, the firm that launches it on the market. It is a well-known fact that perfect ignoramuses, people that have not the slightest idea of chemistry, materia medica or therapeutics, drug clerks, unable to hold a position; druggists, who fail in business; advertising agents, bank clerks, real estate agents, promoters, saloonkeepers, etc., constitute themselves "chemical companies" and try to teach the profession what to use on their patients. Now, it is not very likely that such "firms," such "chemical companies," can offer us anything really novel, really valuable. They are not likely to compare favorably with firms of long standing, firms that maintain research laboratories and scientific staffs, firms that subject new products to animal experimentation and clinical tests before offering them even tentatively to the profession. When such firms offer us something new, it is at least worthy of a trial. It does not mean that we are to accept anything that such firms offer us on faith; not at all. We must scrutinize and watch for by-effects very closely; for the commercial instinct, even at its best, is apt to exaggerate the good qualities of a product and minimize the bad ones. But I say that it is at least proper to give the drug a trial. High-class manufacturers are not very likely to put utterly worthless products on the market, for it would react injuriously on their standing, on their reputation and on their other valuable products.

This, then, is the right attitude toward proprietary remedies; unbiased, yet cautious; unprejudiced, yet skeptical. Let us hope that this—now the attitude of only a portion of the profession—may, through the efforts of this Section, become the attitude of the entire profession of the country.

So far, I have dealt with the relation of the physician to proprietary remedies. I now come to the second part of my paper: How may substitution be avoided and the desired preparation obtained without unduly advertising the manufacturer? How may substitution be avoided? The very fact that the question must be discussed is a reproach to American pharmacy, for it implies that substitution exists. Well, it does exist, and it is useless to shut our eyes to a well-known fact or to mince words. For twelve or fifteen years I have made a study of that disagreeable subject, and while I am inclined to believe that, on the whole, substitution is on the decrease, still it is yet sufficiently widespread—and in some cases in a very aggravated form—to demand attention. I believe that the abolition of substitution lies to a great extent in the physician's hands. One of the reasons why substitution has been so freely practiced by the unscrupulous is the lack of fear of detection. The patient, of course, does not know if any sophistication has been practiced, and the physician often does not know any better. It is the physician's total unfamiliarity with the appearance of the preparations that makes substitution so easy. If the unscrupulous druggist knew that the physician is familiar with the color, odor, taste and solubility of the preparation he prescribes, and that he occasionally goes to the trouble of examining his patient's medicine, substitution would be much less frequent. This is not theory, but fact. I have more than once heard drug clerks say that in their stores nobody dares to trifle with So and So's prescriptions, because he always examines his medicines and complains if anything seems wrong. Then, let the physician make it a practice to go to the drug stores in which his prescriptions are generally put up, and ask casually to see the original packages of the new preparations that he prescribes. That is a very good way of making sure that the preparations are kept in stock and are dispensed. For substitution, as a rule, is most frequently practiced when the preparation is not in stock, and the druggist is unable to get it at a moment's notice. To dispense one preparation for another, when the other is on hand, is rare indeed, though I have known it to occur. If a druggist proves an incorrigible substitutor—there are such—then it is right and proper for the physician to expose him to his medical confrères so that all physicians may cease patronizing him. Of course, great caution is necessary before such action is taken, and it should not be taken unless the physician is perfectly sure of his ground. This would be a drastic remedy, but an absolutely effective one. If the druggist, suffering with moral obliquity, knew that he might be running the risk of a universal boycott, he would be much more careful, and might gradually break himself of the habit. Finally, if the physician has a druggist in whom he has perfect confidence, it is perfectly proper for him to direct his patients to that druggist. I know that this practice is frowned on by many. I know that in Germany this practice is distinctly forbidden by law, under a heavy penalty, and nevertheless I have no hesitation in giving it my emphatic approval. The conditions here are different from Germany. There the druggists are all of about the same standing: they have to go through the same course, the same discipline; the drug stores are under strict government control, etc. Here the druggists differ very widely in their preliminary education, their attainments, in the capital invested (anywhere from \$200 to

\$50,000), in the number of prescriptions dispensed (some not putting up more than five or ten a week, others 200 to 300 a day), etc. Then, with a drug store on every corner, the competition is very fierce, and if not substitution, the employment of inferior and old drugs is inevitable. And for this reason, I say that, in this country, a physician has a perfect moral right to choose his druggist. I notice that many good men are assuming the same attitude. Dr. Rusby, though also a professor in a college of pharmacy, tells his students at the University and Bellevue Hospital Medical College that, though they may be misunderstood and their action misinterpreted, still he advises them, when they are graduated and have entered practice, to insist that their patients go to a certain druggist, in whom they have perfect confidence. A French medical society, recently discussing this very subject, came to the same conclusion: that a physician has a right to choose his druggist, and insist that his patients go there and not elsewhere. If this could be accomplished—that is, if we all had druggists in whom we had perfect confidence—the problem of the "original-package" evil would be solved at the same time. We should need no original packages. Perfectly confident that whether we prescribe a dozen tablets or capsules or 4 fluid ounces of a mixture, that the genuine article would be dispensed, we, of course, would not think of prescribing original packages. That the "original package" is an evil, none will deny. It is an open road to that greater evil, self-medication, which is so injurious to physician, patient and druggist alike.

I have spoken to a number of prominent manufacturers, in whose integrity and truthfulness I have perfect confidence, and they assured me that they were forced to adopt the original package device by sheer necessity. They were opposed to it themselves. They would rather see their products dispensed in a professional manner, but when they saw their trade slipping away from them; when they saw their products, on which they spent time, money and research, being brazenly imitated by various firms that convinced the druggist that their imitation was just as good and much cheaper (an argument which always has a powerful influence on a commercial man), then in self-defense they were compelled to urge the physicians to prescribe in original packages only. Many physicians told me the same thing, and I can corroborate it. I will take one illustration: There is a certain well-known preparation of iron and manganese; there is nothing wonderful in that preparation, but it is a good, readily assimilable, non-irritating, ferruginous tonic. I know its indications and limitations, and when I prescribe it for women and children, I want it and nothing else: nothing just as good. I used to prescribe it in 4 and 6-ounce quantities, and several times the most peculiar combinations were dispensed. Two or three times acid preparations were dispensed, so that the milk in which I ordered the preparation to be taken turned sour, and the patient's stomach was upset. Another time, tincture of iron with some essence of pepsin, which the druggist, with whom I remonstrated, told me was every bit just as good; and still another time, a turbid mixture with a precipitate at the bottom, was dispensed. Since then, whenever I find myself in a strange neighborhood, I prescribe that preparation in an original package, and I underscore original package half a dozen times, to the intense amazement of the druggist, who can not get over his

surprise at Dr. Robinson prescribing in original packages. Not at all exceptionally, I find the patient buying that preparation afterward, without my order. But what am I to do? My first and paramount duty is to my patient, and if, in my judgment, he needs a certain product, it is my duty to see that he gets that product, without considering possible future consequences.

A word here about the results of substitution may not be out of place. The possible disastrous consequences to patient and physician need not be dwelt on before a medical audience. To the druggists themselves the practice can not fail to prove disastrous. Unless the physician can be sure that his orders will be complied with strictly and faithfully, one of two things is liable to happen: either the physicians will take to dispensing their own medicines or they will form chains of drug stores for the sole purpose of dispensing prescriptions, and which would merely be expected to be self-supporting. Either one of those possibilities would mean the extinction of the pharmacist as a professional man—something that neither the true pharmacist nor his true well-wisher can look forward to with equanimity.

SUMMARY.

I would summarize my paper as follows:

1. The prescribing and using of preparations, the composition of which is unknown, is to be condemned unequivocally. It is unscientific, unethical, and is bound to react injuriously on the physician and the public alike.
2. The physician who refuses to use a thoroughly established remedy, of known composition, merely because it is proprietary, is guilty of narrow-minded fanaticism, and he is not doing the best by his patients.
3. Substitution does exist, and is a serious evil, in some localities especially.
4. The abolition of substitution lies to a great extent in the physician's own hands, and he can accomplish it by making himself familiar with the physical characteristics of the remedies that he prescribes; by patronizing pharmacists in whom he has perfect confidence, and by exposing those who, he is certain, are incorrigible substitutes.
5. The physician is guilty of encouraging substitution by ordering every new mixture that is brought to his attention by circulars, drummers and venal journals; but while this is an explanation of the prevalence of substitution, it is no justification for it.
6. Prescribing in original packages is an evil, but being a lesser evil than substitution, it is often justifiable.

119 East One Hundred and Twenty-eighth Street.

DISCUSSION

ON PAPERS OF DES. WILEY, REMINGTON AND ROBINSON.

Dr. H. C. Wood, Jr., Philadelphia, thinks that while physicians may accomplish, and have accomplished, a great deal by public education, the evil requires Federal control. Physicians can uphold the authorities, and should do so. A great influence is exerted by the rich owners and manufacturers of proprietary medicines to oppose this work. The magazines and daily papers, which derive much income from proprietary medicine advertising, also exert a great influence against Federal supervision. If those who conduct these publications could be made to see the true character of the business and its injurious results on the community, they would refuse to lend their influence and support. The members of the medical profession

are certainly to blame for taking so little interest in these important questions, so clearly related to public health. Dr. Wood reported reading an editorial in *THE JOURNAL* of the American Medical Association, urging physicians to support a pure food bill, which had passed the House of Representatives, although this was the first that he had heard of it. He spoke of it to several medical friends, and found that they knew nothing about it. One, a rather prominent man in the profession, who had not seen the matter in *THE JOURNAL*, said that he was not especially interested in the subject and did not regard it as worthy of much attention. Dr. Wood thinks that for every physician who wrote to his congressman in favor of this pure food bill, there were ten manufacturers invariably interested who wrote letters in opposition to it. Of course, we can not meet with success in passing bills unless more interest is shown by the profession. The position of the Postmaster General on this subject is known; and it behooves physicians heartily to co-operate with him and to support him in his refusal to allow the use of the mails to those who are engaged in a business which fraudulently deprives the people of their health as well as of their money.

Dr. THEODORE POTTER, Indianapolis, said that after investigating this subject, he had concluded that substitution owes its instigation among druggists to the abominable habit among physicians of prescribing proprietary medicines. Recently a leading pharmacist in Indianapolis showed Dr. Potter fourteen different varieties of proprietary iron preparations, all of about the same general character. Of course, when a prescription for a fifteenth variety comes in late at night the druggist is inclined to throw up his hands and put one of the fourteen in its place. The remedy is for physicians in each community to uphold legitimate pharmacy. Dr. Potter called attention to the fact that there has seldom appeared a paper written by a member of the Indianapolis Medical Society endorsing a proprietary remedy. There are no set rules on the subject in the society, but it is an unwritten law, a moral sentiment that is stronger than law, that no proprietary remedy shall ever be mentioned, either in papers or discussions. It is an unwritten law that no nostrum shall be mentioned in the *Indiana Medical Journal* and it does not. If a paper offered for the original department should mention a nostrum by its commercial name, this would be changed by the editor to its scientific name, or would be returned to its author, with a request for the scientific name of the agent which he employed. In the Indianapolis Medical Society there has been no resolution offered on this subject, but there is a sentiment so strong, that if any member should mention on the floor of the society the name of such a remedy, he would be laughed at. Occasionally, a young member, afflicted with the proprietary medicine disease, may use such a name, and a smile will go around the room. The physician is not likely to do so again. Another thing is that the names will never go into the records of the society. So far as law is concerned, the remedy is in the hands of the Government, as Professor Wiley has shown. The question, so far as we physicians are concerned, is one of science and good morals.

Dr. CLEMENT B. LOWE, Philadelphia, assigned as one reason for the great use of proprietary remedies, the fact that a large number of young physicians when they graduate are not well acquainted with the tools which they have to use. The medical student is taught about drugs, but does not learn how to prescribe them. In the lectures and text books they are often spoken of only in general terms. Dr. Clement spoke of an institution in which the students complained of the time they were required to spend in the pharmaceutical laboratory and they were supported in their action by a prominent physician connected with the institution, who said he did not see the necessity of their knowing about preparation of remedies to qualify them to be physicians. In other words, all the graduates were expected to settle in large cities, or if they should settle in the country, they would either not prescribe, or would use these new remedies that are coming out every

day. Every student in his third and fourth years should be required to take a course in prescription writing. Dr. Lowe said that he would bring in a case, request a diagnosis and require the students to write proper prescriptions for such a condition, make them explain their prescriptions, and discuss the reasons for giving them. He would have several such conferences each week, making the students practice prescription writing until they were familiar with it. In this way they would be prepared to use their tools, and no proprietary remedies could be pushed on them.

DR. HENRY BEATES, JR., Philadelphia, said that proprietary and patent remedies thrive because they are prescribed by the physician.

We are dealing with effects rather than with causes. No two patients present conditions which are exactly alike as to symptomatology, or which from a scientific point of view can be skillfully and successfully treated by exactly the same plan. Every remedy has its value because of its inherent properties. Every disease pursues a definite course, because of the operation of the laws underlying its cause. The healthy body has functions disturbed by morbid agencies. It also has functions restored by the influence of remedial means, and when the medical profession becomes educated to that high standard which is necessary for the comprehension of these unvarying laws and skilled in the art of applying this knowledge, there will no longer be prescribed any proprietary remedy, because each physician will know that a set formula cannot possibly be fitted to the conditions presented. Proprietary medicines will cease to exist because there will be no use for them.

DR. O. T. OSBORNE, New Haven, Conn., replying to a question, said that in the Yale medical school the teaching of pharmacy and prescription writing is commenced in the second year, and is carried on through the third and fourth years, by blackboard exercises and didactic instruction until the student is thoroughly familiar with prescription writing. Then he goes to the hospital and begins to use the formulae of the hospitals and forgets how to write prescriptions.

DR. C. B. LOWE said that some professors make the students work and others do not. When he was a student he was asked by another student if he knew how to write a prescription, and he replied that it did not trouble him any because of his previous study of pharmacy. The student said it troubled him greatly and was, for him, the hardest part of the course. A student is crammed with facts about every part of the human body and about everything required to make him a surgeon, and when he graduates he knows every point about his anatomy, and is ready to operate for appendicitis, or to amputate limbs, which he only very rarely may be called on to do; but when it comes to write a prescription—which he is called on to do every day and on which his reputation and the welfare of his patients depend—he does not know how to write prescriptions and he falls back on proprietary remedies.

DR. W. C. WESTCOTT, Atlantic City, reported having seen a recent medical graduate construct a prescription by copying the label on a bottle. Dr. Westcott called attention to a circular which the firm which markets antikamnia is sending out to druggists notifying them that their tablets are now put up in suitable packages for retail trade, convenient to be carried in the vest pocket. He also called attention to the great use among the public of sulphonal, trional, somnal, etc. Persons go into a drug store and ask for ten or fifteen grains of these coal tar products and order them by their names as if accustomed to taking them. He particularly called physicians' attention to those proprietary remedies which have their names blown in the bottles, to advertise them to the public. He thinks that the popular use of these proprietary remedies is due to the fact that physicians order them in the original packages. Where would listerine have been if it had not been first prescribed by physicians?

The remedy for substitution is in the physicians' hands. In every community there are reputable druggists who will not substitute, and these are known to the physicians. It is their duty to patronize the good drug stores and to pass the bad ones by.

DR. ADOLPH KOENIG, Pittsburg, Pa., declared that the trouble lies in defective education in medical schools. Students are graduated with a very imperfect knowledge of the medicines they are to prescribe. In this condition they are approached by suave agents with samples, they are furnished remedies for every disease, and literature to tell how they shall be used. Now, why should not an intelligent public buy these directly from the drug store? Why should it seek the advice of a physician, merely to be told to take one of these preparations? Has the physician any right to take money from patients for such advice? It is simply robbing them to do so. We should see that all advertisements of proprietary remedies are eliminated from the pages of our medical journals.

They are not necessary for a medical journal of the better kind. I have edited a medical journal for the last eighteen years—the *Pennsylvania Medical Journal*—and in it no proprietary advertisements are allowed. If a medical journal can not be sustained without this class of advertising, it deserves to fail.

DR. THOMAS L. COLEY, Philadelphia, said that he believes that any one who obtains a patent on a remedy having to do with the treatment of disease assumes a very grave moral responsibility. Such a practice puts a premium on methods of treatment and a physician who holds such a patent is on a par with the man who would take out a patent for a crutch or any apparatus indispensable to the crippled. It is the commercial element alone that induces men to patent their products and it is good business for them to get physicians to prescribe them. A market is frequently made for such preparations by methods that are not reputable. Many of these drugs are exploited without having been studied carefully and before their full effects are known. There is not a high ethical ideal, in all cases at least, actuating those who have charge of these "scientific laboratories" of which we have heard so much. At times these reports are honest, more often they are inspired and never does one see the untoward effects of the drug mentioned. Dr. Coley does not think the reason for the common use of these preparations is because prescription writing is not well taught in the best medical schools. In some, at least, it is very well taught. One strong reason is that while a physician is sitting in his office during his first years of practice no one comes in to urge him to use the remedies of the Pharmacopeia or to vaunt their excellent qualities, but there are hundreds of representatives of various firms who call repeatedly to urge him to use their proprietary medicines and who keep them before his attention. If he begins to prescribe these drugs he soon loses sight of the fact that in almost every instance there are official preparations which would serve an equally good, if not better, purpose.

MR. M. I. WILBERT, Philadelphia, said that, while it is true that some of these synthetics have been brought out by large manufacturers, who employ hundreds of chemists to discover new synthetic compounds, and in addition to this employ physiologists to discover their possible uses, these firms do not furnish us with readily applied tests by means of which we can identify their preparations, distinguish them from others or discover any probable impurities. Neither do they publish broadcast the possible deleterious effects these preparations may have. If the medical authorities in charge of hospitals would insist that the institution employ a competent pharmacist there would be no need of hospital formulas and the consequent prescribing of ready made or proprietary preparations.

DR. HARVEY W. WILEY, Washington, D. C., declared that there is no difference of opinion about the evils of these nostrums. In his examination into the composition of preparations of this class he found them to consist principally of starch, sugar, with flavoring ingredients, and often of small quantities of recognized remedies, and he supposed they might cost as much as one and a half or two cents a box at most. Experience justifies the work that is now going on to protect the sick from this class of preparations. Whether the active agent is in food, drink, or proprietary medicine, it should only be used on a physician's prescription. If persons are sick enough to take medicine they should consult a physician, and only take medicine under the direction of a physician.

DR. JOSEPH P. REMINGTON, Philadelphia, denied that the only object that physicians have, in adopting their profession, is to make money, or that the only object the pharmacist has in adopting his profession is to make money. If the large manufacturers of synthetics who employ two or three hundred chemists make money their only object, it is very good that we should learn that it is, then, solely the almighty dollar that they are after. One of these manufacturers had the audacity and greed to come from Germany to this country, to take out patents and to execute contracts which compel the sick to pay more than double price for his article. The physicians and druggists of this country can not obtain this substance, even when imported into Canada, without paying double price. If we have any object except that of getting money, if we have a spark of ethical spirit, we should inform these men that they are mistaken in their estimate of the physicians and pharmacists represented by this body, if they say we are after nothing but money.

DR. ROBINSON said that he was surprised to see men eminent in the profession assuming, through misapprehension, such a position of antagonism to true scientific progress. It has been intimated that if a druggist has fourteen articles of a class, if a prescription comes in for a fifteenth, which he has not in stock, that he has a right to substitute something else. How can he know that that something else will answer the purpose? He has no right to judge. His duty is simply to fill the prescription. For instance, if a doctor prescribes heroin, which is di-acetyl morphin, if the druggist does not have it, may he substitute morphin?

Dr. Robinson challenged any physician in the room to say that he did not use proprietary remedies, and asked Dr. Coley if he had ever used adrenalin, to which Dr. Coley answered, "Yes." Dr. Robinson said that there is a tremendous difference between these remedies as to their therapeutic value, but we must discriminate. There is a widespread habit of wholesale, indiscriminate denunciation of proprietary remedies which does much more harm than good, and this discussion has shown him the absolute timeliness of his paper. The pharmacopœial articles cannot effectually replace all these new products; to believe otherwise means to believe that all progress in therapeutics is impossible, and has ceased forever. He did not mean to defend a physician who patents anything relating to the treatment of the sick. On the contrary, he would condemn him most emphatically. But it is different with patents taken out by commercial men, who have thousands or millions of dollars in their business, and who would not carry on their investigations if they had no protection, and if the results of their work could be appropriated with impunity by other manufacturers. He considers the advertising pages of our medical journals *particeps criminis* in the extension of the use of proprietary nostrums. They should discriminate among these agents. These proprietary remedies would not obtain the vogue that they have, if some of the best journals did not bring them before the physicians. The advertising pages should have at least some supervision, the same as the reading pages. He asked, if we are to use only scientific titles in place of the names of proprietary articles, what physicians will use those titles. Who, for instance, would write for benzoyl-vinyl-diacetone alkamine hydrochlorate, in place of eucaïn? Prof. Remington believes that only scientific names should be introduced into the Pharmacopœia; what would he do with that title?

PROFESSOR REMINGTON replied that the drug was not in the Pharmacopœia on account of its name.

DR. ROBINSON said that if a drug has value it should not be excluded merely on account of its name, to which Professor Remington replied that it probably is not worth anything.

DR. ROBINSON declared that a pharmacist, be he ever so eminent, has no right to pronounce an opinion as to the therapeutic value or worthlessness of a remedial preparation. Should eucaïn be omitted merely on account of the length of its name? Is there a preparation in the Pharmacopœia which could be substituted for orthoform, which is methyl-paramido-meta-oxybenzoate?

PROFESSOR REMINGTON, replying to a question, said that there will be about fifteen or twenty synthetic remedies in the new Pharmacopœia. They will not be introduced under fanciful or trade names, for obvious reasons; the titles will be chemical names, wherever practicable. It is not necessary to give their full names. For instance, take the pyrophosphate of iron; its full name would be ferri pyrophosphas cum sodii phosphate. Of course, it is possible to use the full title, but it is not necessary. We can adopt a definite title by which it can be prescribed.

THE ETIOLOGY AND PATHOLOGY OF GOUT.

THOMAS B. FUTCHER, M.B. (TOR.).

Associate Professor of Medicine, Johns Hopkins University.
BALTIMORE.

(Concluded from page 1600.)

(B) URIC-ACID METABOLISM IN GOUT AND THE THEORIES OF GOUT PRODUCTION.

There is undoubtedly marked disturbance of nitrogenous metabolism in gout. Since the adoption of the classification of purins into the "endogenous" and "exogenous" varieties, too little time has elapsed and too few researches have been published to draw absolute conclusions as to how the metabolism of each is affected in this disease. The studies of Reach, Kaufmann, Vogt and Chalmers Watson show that in gout the exogenous nuclein is more slowly excreted than in health, and that in some cases there is a distinct retention. Vogt compared the results of rich purin-holding food on a gouty patient and a healthy individual at the same time. The gouty patient showed retention and delayed excretion of the purin bodies. It can be safely admitted, therefore, that exogenous purins lead to the excess of nuclein derivatives in the blood stream. It may be appropriately mentioned here that Vogel and Schmoll have demonstrated that the nitrogen balance is disturbed in gout and that there is a definite nitrogen retention. There is no question but that the metabolism of the endogenous purins is much disturbed in gout. This will probably be best shown by a consideration of the amount of uric acid excreted in the urine as well as that present in the circulating blood in this disease.

The Excretion of Uric Acid in the Urine.—Since Garrod's expressed opinion, based on quantitative analyses, that there was a diminished excretion of uric acid in the urine both in acute and chronic gout, the majority of observers, until a comparatively recent date, supported this view. According to Minkowski these early results can not be accepted as being correct owing to the defective methods of analysis used. Since the adoption of reliable methods of quantitative analysis in recent years Garrod's results have not *in toto* been supported. From the analyses made by Ebstein, Pfeiffer, Luff, Camerer, Weintrand, Schmoll, Kaufmann and Mohr, Magnus-Levy, His and others, all of whom used reliable methods, Minkowski's² states that the following conclusions may be drawn:

1. The daily excretion of uric acid in the intervals between acute attacks ranges within the same limits as does the excretion in healthy individuals.

2. In chronic gout, even in those cases in which there is marked deposition of biurates in the tissues, a constant variation from the normal amount of uric acid excretion in any one direction has not been definitely proved.

3. Immediately preceding an acute attack there is

2. Minkowski: H. Nothnagel, *Specielle Pathologie und Therapie*, vol. vii, No. 2, p. 193, et seq.

regularly a diminution in the amount of uric acid eliminated in the urine, whereas during and after the attack the uric acid output is increased.

My own analyses, in a number of cases in which the Folin modification of the Hopkins method of uric acid estimation was used, fully accords with the statement contained in Section 3. They, however, differ materially from those stated in Section 2. I have almost always found a marked diminution in the uric acid excretion in the intervals between acute attacks in chronic tophaceous gout.

To what are these variations in the amount of uric acid excreted in the urine due? We shall only consider the possibilities here. The diminution in the excretion of uric acid before the onset of an acute attack may be interpreted as meaning either a diminished uric acid production or a diminished power on the part of the kidneys temporarily to excrete uric acid. The sudden deposition of the uric-acid salts about the joints and in the tissues affords a third possible explanation for the diminished uric-acid elimination. The increased uric-acid output during an attack may be due to an increased uric-acid production, or to the fact that the previously retained uric acid is temporarily excreted in increased quantity. The variations in the excretion in gout may further be due to the fact that at times a smaller and other times a larger part of the uric acid in the organism is further metabolized into other waste products, as urea for instance. It may be possible to draw more definite conclusions as to the cause or causes of the variations in uric acid elimination in gout after we consider the uric acid content and alkalinity of the blood in this disease.

The Uric Acid in the Blood.—Garrod, Abeles and Magnus-Levy claim to have demonstrated uric acid in minute traces in the blood of normal individuals. Minkowski and others assert that uric acid is not demonstrable in the blood in health. In gout, however, all observers now agree that there is a marked increase of the uric acid in the circulating blood. Garrod first demonstrated this excess by quantitative analyses and also by his now famous "thread-test." Klemperer found in three cases of gout during the attack, .067, .088 and .0915 grams of uric acid in 1,000 c.c. of blood. He was unable to demonstrate uric acid in normal blood. Magnus-Levy made 34 analyses in 17 cases of gout and found the uric acid in the blood to range between .021 and .10 grams in 1,000 c.c. of blood.

Garrod's theory for the production of gout is briefly as follows: He holds that in gout the alkalinity of the blood is lessened and the amount of uric acid in the blood is increased owing to deficient power of elimination on the part of the kidneys. He attributes the deposition of sodium biurate in the tissues to the diminished alkalinity of the plasma, which is unable to hold the uric acid combination in solution. During an acute paroxysm there is an accumulation of the urates in the blood and the inflammation is caused by their sudden deposition in crystalline form about the joints.

Subsequent investigators have not been able to fully confirm all Garrod's results. As has already been stated, there is general agreement that there is a marked increase in the uric acid in the blood in gout. Garrod did not make careful quantitative analyses to ascertain whether the amount of uric acid in the blood during an acute attack was actually greater than in the intervals. Magnus-Levy, however, made a careful investigation of this question. Of ten cases of gout studied, the uric acid was the same during the acute attack as in the interval in five, greater in two and less in three. It cannot

be said, then, that there is by any means a constant increase in the amount of uric acid in the blood during an acute attack over that present in the intervals.

The methods of determining the alkalinity of the blood are notoriously unreliable. Garrod simply makes the statement that the alkalinity of the blood in gout is markedly diminished, but I find no reference in his writings of any quantitative determination, or intimation as to how he arrived at this conclusion. Recent investigations along this line by different observers and with methods believed to be reliable, are conflicting in their results. Pfeiffer, Jeffries and Drouin claimed to have found an increased alkalinity. Klemperer, in three cases of acute febrile gout in which the alkalinity was determined by estimating the carbonic acid in the blood—the most reliable method—found a very slight diminution, but not enough to account for the precipitation of the dissolved uric acid. In 16 cases in which Löwy's titration method was used, Magnus-Levy found no appreciable diminution in the alkalinity. In 11 cases he compared the degree of alkalinity during and between attacks. In 3 of these there was a diminution during the acute attack; in 2 an increase, and in 6 there was no difference. These results in general show that there is no constant diminution in the alkalinity of the blood in gout, nor is alkalinity apparently diminished to a greater extent during the acute attack than in the intervals.

Klemperer conducted a series of experiments which have a very important bearing on this question of the relative alkalinity of the blood in healthy and in gouty individuals, as well as on the effect that a possible change in the alkalinity may have on the power of the plasma to hold uric acid in solution. He found that the blood of the gouty person is not a saturated solution of uric acid and that it is still capable of dissolving more uric acid. Whereas, 100 c.c. of blood serum from three healthy persons were capable of dissolving .166, .171 and .174 grams of uric acid, the same amount of serum from three gouty patients was still capable of dissolving .126, .14 and .18 grams of the acid. The conclusion to be drawn from this is, that an over-loading of the blood in gout can not alone be regarded as the cause for the deposition of the sodium biurate in the tissues. This is substantiated by the fact that in other diseases, such as leukemia, there is a marked increase in the uric acid in the blood, yet urate depositions in the tissues do not here occur. There are only five cases reported in the literature in which definite gouty manifestations have been found in association with leukemia. This number is so small that the co-existence may well be considered accidental.

Origin of the Excess of Uric Acid in the Blood.—Three possibilities present themselves as explanations for the excess of uric acid in the blood of gouty individuals. 1. Increased formation. 2. Diminished destruction or oxidation. 3. Diminished excretion in the urine.

Although the increase in the uric acid in the blood and urine in leukemia is undoubtedly due to increased formation, resulting from increased nuclein destruction, there is no special evidence to support the view that the excess of uric acid in the blood in gout is due to the same cause.

It is also highly improbable that the excess is due to deficient powers of the organism to oxidize and destroy the uric acid. Klemperer has shown that the blood of the gouty as well as that of the healthy person possesses the power *in vitro* of destroying uric acid.

The most probable explanation for the increase is that it is due to a diminished excretion of uric acid by the kidneys with consequent retention of uric acid in the circulating blood. Minkowski, who has comparatively recently reviewed the evidence, supports this theory. Hans Vogt and Reach have shown that the output of uric acid after the ingestion of nuclein or nuclein-containing food is much less marked in the gouty than in the healthy individual. Schmoll, however, claimed to have found no such diminution. Garrod was of the opinion that the excess of uric acid in the blood was due to the nephritis present. It is a well known fact that in chronic gout serious organic disease of the kidneys occurs. It has been suggested that even before any organic disease in these organs develops there may be a "functional" disturbance of the secretory elements. Minkowski and His have advanced the view that the uric acid in gouty individuals circulates in the blood in a different organic combination than in the blood of healthy persons and that consequently the kidneys are functionally incapable of eliminating the acid in the same way they do in normal metabolism. Although there is undoubtedly an intimate relationship between the excess of uric acid in the circulating blood and the nephritis present in chronic cases of gout, the evidence is still inconclusive as to whether the former or the latter is the primary condition. Notwithstanding the fact that many competent observers failed to find any special diminution in the excretion of uric acid in the intervals excepting just preceding the acute attack, yet a diminished excretion of uric acid by the kidneys seems the most generally accepted theory for the excess of uric acid in the blood in gout.

The Excretion of the Alloauric or Purin Bases and of Phosphoric Acid in the Urine.—Too little is as yet known regarding the amount of alloauric or purin bases excreted in the urine in gout. Numerous estimations have been made by the Krüger and Wulff method which, however, was later shown to be inaccurate. Later methods, regarded as more reliable, show that normally about one-tenth of the total alloauric or purin bodies eliminated in the urine is in the form of alloauric or purin bases, the other nine-tenths being made up of uric acid. When it is remembered that the average daily excretion of uric acid is, according to Hammarsten, 0.7 gram, an approximate idea of the normal amount of alloauric or purin bases can be obtained. There is no definite evidence to show that this normal relationship is disturbed in gout. Kolisch found that the alloauric or purin bases were increased, but his results can no longer be accepted, as his determinations were made with the Krüger and Wulff method.

The excretion of phosphoric acid in the urine in gout has been found increased by some and diminished by others. Camerer found no special variation from the normal. There has been considerable discussion regarding the point as to whether the curves of the uric acid and phosphoric acid excretion run parallel in gout. When one considers that both are products of nuclein destruction, it would seem quite natural to expect that they should follow a parallel course. My own results, published elsewhere, indicate that in the intervals between attacks both fall far below the lower limits for normal, and that with the onset of the acute attack there is a parallel rise to the average or even to the upper limit for normal. Chalmers Watson and others hold that no constant relationship exists. They claim that phosphorus is taken in the food in other forms than

that contained in the purin bodies, and that this prevents any possible parallelism in the curves.

Theories as to the Causation of Gout.—Only the more important theories can be here considered, and these very briefly.

Garrod's views regarding the causation of gout have already been given and need not be repeated here. After he advanced his theory, it for a long time received general acceptance. Even to-day the portion of it which attributes the excess of uric acid in the circulating blood to deficient elimination on the part of the kidney, is in accord with the results of the investigations of recent observers.

Haig is of the opinion that there is no increased formation of uric acid in gout, but that the blood is less alkaline than normal, and consequently less able to hold uric acid or its salts in solution. As has been shown in the earlier part of this paper, recent determinations of the alkalinity of the blood in gout by more reliable methods do not bear out the opinions of Garrod and Haig that it is reduced below normal. Haig has always claimed that it is the nitrogenous content of the food ingested that does damage in gout, rather than disturbances in the metabolism of the nitrogenous products of cellular disintegration. In other words, nitrogenous food is poison to the gouty-inclined individual.

It will be recalled that Sir William Roberts believes that uric acid circulates in the blood in the form of a soluble quadriurate, which may be represented by the formula $\text{NaHC}_5\text{H}_2\text{N}_4\text{O}_8$, $\text{H}_2\text{C}_5\text{H}_2\text{N}_4\text{O}_8$, which is sodium quadriurate. The sodium atom may have its place taken by an atom of any of the univalent metals. In the gouty state, according to Roberts, either from deficient action of the kidneys or from overproduction of urates, the quadriurate accumulates in the blood. The detained quadriurate, being very unstable and circulating in a medium rich in sodium carbonate, takes up an additional atom of the base and is converted into the biurate as follows:

$$2(\text{NaHC}_5\text{H}_2\text{N}_4\text{O}_8, \text{H}_2\text{C}_5\text{H}_2\text{N}_4\text{O}_8) + \text{Na}_2\text{CO}_3 = 4 \text{NaH C}_5\text{H}_2\text{N}_4\text{O}_8 + \text{CO}_2 + \text{H}_2\text{O}.$$

The biurate is very insoluble and less easily excreted by the kidneys. It consequently accumulates in the blood, and exists first in a gelatinous and later in the almost insoluble crystalline form. It is then that precipitation is imminent or actually takes place. This is apt to occur where the circulation is poor and the temperature low, and in regions in which the lymph contains a relatively high percentage of sodium chlorid, as in the synovial sheaths.

This theory seems a very satisfactory one, but like all others has met with opposition, particularly on the part of Tunnicliffe and Rosenheim. Minkowski thinks that it is impossible for the uric acid to circulate even in the normal blood as the quadriurate, for in a medium so rich in carbonates and phosphates as the blood is, the quadriurate must necessarily be rapidly converted into the biurate. Minkowski thinks that the uric acid circulates normally in the blood in organic combination with nucleotin-phosphoric acid.

Ebstein holds that the local manifestations of gout are due to nutritive tissue disturbances which lead to necrosis. He found, after a study of many of the affected tissues in gout, that one change is common to all of them, independently of the uratic crystallization, and that is, a necrosis of the parts wherein such depositions take place. He believes that this tissue necrosis is primary, and that it is as characteristic as the biurate

deposit. Both changes must coexist in any tissue in order to constitute a truly gouty patch, and he has found such areas in the kidneys, in hyaline and fibrocartilage, and in tendons and connective tissue. He calls attention to an early stage of the necrosing process, in which as yet no deposition has occurred, and consequently maintains that nutritive tissue disturbance is the primary factor, and uratic crystallization the secondary one in the gouty process, the latter not occurring until after death of the damaged tissue. Von Noorden supports Ebstein's views, and believes that the tissue necrosis is due to the action of a special ferment.

In 1784 Cullen advanced the view that gout was primarily due to an affection of the nervous system. According to this view there is a basic, arthritic stock—a diathetic habit, of which gout and rheumatism are two distinct branches. The chief advocate of the nervous theory at the present day is Sir Dyce Duckworth, who at first thought that disease of a special tract in the cord was the cause of the tissue lesions in gout. Although he no longer insists that gout is due to a lesion of any particular column in the cord, yet he just as strongly insists that gout has a nervous origin. The influence of depressing circumstances, physical and mental, point strongly to the part played by the nervous system in the disease.

A few years ago Kolisch advanced the view that gout is due to the toxic effects of the alloxuric or xanthin bases. He found that with the Krüger and Wulff method these bases were increased in gout, because, owing to the disease of the kidneys, these organs are unable to convert the nuclein derivatives into uric acid in sufficient amounts. Owing to the subsequent demonstration that the method used was inaccurate, his views have not been accepted. Others have attempted to place the responsibility on the xanthin bases. It has been shown that the exogenous purins lead to an excess of nuclein derivatives in the blood stream, and that their presence can be demonstrated by suitable methods. There is no convincing proof up to the present date that the xanthin or purin bases are constantly increased in either the blood or urine of gouty persons. Undoubtedly some of these xanthin bases are definitely toxic. Kolisch, Croftan and others have produced arterial and renal lesions by injecting hypoxanthin into animals. I. Walker Hall³ confirmed these results and also produced parenchymatous changes in the liver by long-continued injections of hypoxanthin. We shall have to await further evidence before stating that the xanthin bases play any factor in the production of gout.

It has been suggested that gout is due to a chronic intestinal intoxication, but evidence is still lacking to prove this theory.

THE PATHOLOGY OF GOUT.

The Blood.—In the section on etiology it has been shown that practically all competent observers have confirmed Garrod's findings first published in 1848, that the blood contains a marked excess of uric acid. This has been amply shown by quantitative determinations and by Garrod's well-known thread test. The latter may be performed with the separated serum of drawn blood or with the serum obtained by the application of a blister. To two drams of the serum add five or six minims of strong acetic acid for each fluid dram and place in a watch crystal. One or two fine fibers

of linen thread are then immersed in this mixture, and the whole placed in a cool place until the serum is quite set and nearly dry. Usually from thirty-six to sixty hours are required, depending on the warmth and dryness of the atmosphere. If uric acid be present in excess it will crystallize out on the thread in a manner resembling rock-candy on a string. The actual determinations showing the excess of uric acid found in the blood of gouty patients by various observers have already been given.

There is no special tendency to the development of anemia, and the leucocytes are usually within the normal range. It is of interest that one of our cases of tophaceous gout eventually died in the hospital of pernicious anemia, the blood picture being characteristic. Neusser claimed that occasionally an eosinophilia occurs, and Chalmers Watson found in one case, particularly during the acute attacks, that there were numerous degenerated myelocytes present in the blood. Neusser's so-called "perinuclear basophilic granules" have been shown to be artefacts, and to occur in the blood of individuals other than those suffering from gout.

The Joint Changes.—The pathologic alterations of gout manifest themselves particularly in the articular structures. The metatarsophalangeal joint on one or other side is usually first involved, and repeated attacks may occur in this joint, causing considerable thickening, before any of the other joints become affected. Later the tarsal, ankle, knee and small joints of the hands may be attacked. As Norman Moore has pointed out, the joints of the lower extremities may be alone involved. The arthritic manifestations are due to the deposition of the acid urates or biurates. There is considerable difference of opinion as to the cause of these uratic deposits. Ebstein insists that there is always a primary tissue necrosis probably due to the toxic action of the excessive uric acid circulating in the blood. These necrotic areas are most liable to occur in the joint cartilages and other articular tissues in which the normal nutritional currents are slow. No matter in what part of the body the biurates are deposited, Ebstein claims that a tissue necrosis is the primary factor. In support of his view, he states that he has often found areas in which there was necrosis without biurate deposition. In these areas of coagulation necrosis the reaction is always acid, so that the conditions are favorable for the precipitation of the quadriurates in the form of the crystalline biurate.

His and Mordhorst think that the deposition of the sodium biurate is primary, and that the tissue necrosis occurs as a secondary process. According to Sir William Roberts, the biurates are deposited most abundantly in cartilaginous tissue, because here the temperature is lowest, the circulation poorest, and in the case of articular cartilage, the percentage of sodium chlorid highest. Of the structures comprising the joints, the deposits take place first in the articular surfaces. The biurate is not actually on the surface. It is interstitial and is always covered over by a thin layer of cartilage. The deposit is usually thickest at the point farthest away from the circulation. Garrod showed that it is rare for the biurate to extend beyond two-thirds of the depth of the cartilage, and often not to this extent. It looks white through the superficial layer of unaffected cartilage and has a "chalky" appearance. Thin vertical sections of the cartilage made in the direction of the bone and examined under polarized light show

³ I. Walker Hall: *The Practitioner*, July 1903, p. 74.

the crystalline character of the deposit. Its crystalline character may also be easily demonstrated by taking scrapings of the deposits, teasing out and examining in a drop of water under a cover-slip in the usual way.

With recurring attacks and as the disease becomes more chronic, the ligaments and fibrous structures about the joints ultimately become infiltrated with the biurate deposits, forming the so-called "chalk-stones" or tophi. When this stage is reached we begin to have the joint thickenings and deformities so characteristic of the disease. The tophi surrounding the joints are usually covered by skin, but in some cases, particularly in the case of the metacarpophalangeal joints, they may ulcerate through and appear externally. Not infrequently these periarticular tophi are readily seen beneath the skin. In cases of long duration the affected joints may become immobile, owing to the extent of the deposits. According to Wynne, the marginal outgrowths about the gouty joints are true exostoses. In acute attacks considerable effusion into the joints may occur. If death takes place during an acute paroxysm there are signs of inflammation, hyperemia, and swelling of the ligamentous tissues with effusion into the joints. Occasionally the joint fluid shows small whitish flakes, and these when examined microscopically are seen to be made up of acicular needles of sodium biurate.

A systematic examination of the metatarsophalangeal joints at autopsy would, I am sure, show gout to prevail much more frequently in this country than is generally supposed. They should be opened in all joint cases that come to autopsy, particularly in those cases in which the etiology is obscure.

Other Situations in Which Tophi Occur.—Wherever there is cartilage we may have the deposition of sodium biurate. Thus a common situation for tophi is on the helix of the ear. There may be one or more and usually the white biurate can be seen through the skin. Occasionally only a slightly inflamed reddish nodule is seen, and when opened the contents will very often show needle-shaped crystals of sodium biurate. If systematic examinations for tophi in the ears were made in every case of articular disease, many mistaken diagnoses would be avoided.

Tophi may also be present in the cartilages of the nose, eyelids and larynx. Occasionally they may be of enormous size on the tendo-Achillis. A point to remember is that they may occur in the subcutaneous tissue away from the joints. One of our cases had a large group of them over the sacrum. In two other cases they were scattered over the extensor surface of the forearm. They may be mistaken for the subcutaneous fibroid nodules of rheumatism, as they were in the early admissions of two of our series, and it was only on later removal and histologic examination that they were shown to contain sodium biurate.

Changes in the Kidney in Gouty Subjects.—Of the visceral lesions in gout, those in the kidneys are among the most important. A very large percentage of patients with chronic gout have evidences of chronic nephritis clinically, and may die with uremic symptoms. The kidneys may show depositions of sodium biurate in the region of the papillae. These were first described by Castelnau. They are not so frequently found as we would be at first led to infer. Norman Moore found them in only 12 out of 80 cases. On section of the kidney the apex of the pyramids often shows minute points or streaks of whitish material. On microscopic examination, these are found to consist of

crystalline sodium biurate, which is usually in the intertubular tissue, but which may also, as Virchow, Wagner and Lancereaux have observed, be in the lumen of the tubules. Ebstein holds that the primary renal changes producing these biurate depositions are a local tissue necrosis. Aschoff and Minkowski claim, on the other hand, that they have found the crystals extending from the periphery of the deposits into the surrounding renal tissue which showed no indications of death. These renal deposits must not, however, be taken to always mean the existence of gout in the individual, as they sometimes occur without the subject having had any symptoms of the disease. The type of kidney usually found at autopsy is the chronic interstitial form, the organ often showing an extreme grade of contraction. On the other hand, the arteriosclerotic type may occur. Here the kidney is rather larger than in the former, red, beefy and very hard. There does not appear to be any special difference between the kidney of lead gout and that of ordinary gout.

The Cardiovascular Lesions.—Gout is undoubtedly a very important etiologic factor in the production of arteriosclerosis. Nearly all cases of chronic gout show marked thickening of the peripheral arteries. Whether the arteriosclerosis be due to the effect of the increased uric-acid compounds circulating in the blood or to the contributory factors producing the gout, viz., alcohol, food and lead, has not been definitely settled. There is absolutely no question as to the frequency of its occurrence.

Cardiac changes are very liable to occur. Owing to the existence of the interstitial nephritis and arteriosclerosis hypertrophy of the left ventricle is likely to occur. The arch of the aorta is frequently involved in the arteriosclerotic process. The orifices of the coronaries may be narrowed and the coronary vessels themselves sclerosed. Myocardial changes occur and the hypertrophy gives way to dilatation, and death may result from failure of compensation. The coronary involvement renders the subject liable to attacks of angina pectoris. Gouty pericarditis is not an infrequent terminal event. It has been claimed that sodium biurate deposits occasionally occur in the heart valves.

Changes in the Respiratory System.—Emphysema is extremely prevalent in patients with chronic gout. Tophi may be present in the laryngeal cartilages and even in the vocal cords. Sodium biurate crystals have been found in the sputum of gouty patients.

SUMMARY.

Heredity, overindulgence in malt liquors, poor food with bad hygienic surroundings or overeating with insufficient exercise, and lead intoxication are undoubtedly important predisposing etiologic factors in the production of gout. An analysis of 54 cases treated in the medical wards of the Johns Hopkins Hospital shows that the overuse of fermented beverages seems to be the most potent factor in this country. Gout in the United States appears, therefore, in the majority of cases to be acquired or "free-hold," rather than "copy-hold" or inherited.

Studies of the metabolism in gout have as yet afforded no satisfactory explanation for the causation of the disease. There seems very little doubt but that it is due to disturbance in the metabolism of the "endogenous" and "exogenous" purins. As yet there is not sufficient experimental evidence to warrant us in abandoning the theory that the manifestations are in large part due to disturbances in uric-acid metabolism. Prac-

tically all researches agree in showing that the blood in gout contains a marked excess of uric acid, and the balance of opinion is in favor of the view that this excess is due to deficient excretion on the part of the kidneys. The alkalinity of the blood apparently is not diminished, as Garrod supposed.

The joint manifestations are essentially due to the deposition of the uric-acid combinations of the blood in the form of the crystalline sodium biurate. Whether a local tissue necrosis is primary or secondary to this deposition is a question still in dispute. Nephritis, usually of a chronic interstitial type, arteriosclerosis, myocarditis, pericarditis and emphysema are the other most frequent pathologic findings.

THE URIC-ACID DELUSION AND THE PREVENTION OF GOUT.*

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The first requisite to an adequate discussion of the prevention of gout is a clear view of its causation.

The one thing which, it seems to me, emerges clearly from the seething caldron of the clinical and chemical researches of the past fifty years is that whatever be the cause of gout it is *not* uric acid. The first step, then, is to rid our minds of the delusion, that any means which are to cure gout, must be directed toward either increasing or diminishing the formation or promoting the elimination of uric acid or any of its precedents.

I fear that to many this position will appear radical to the verge of foolhardiness, but it is the one which appears most rational and tenable to me, and I will, therefore, proceed to sketch very briefly its basis and its bearing on this most important problem, with no further apology, save for the apparent dogmatism of statement, which the necessity of brevity forces on me.

The uric-acid delusion in gout dates from the time of Garrod, and while its pursuit has proved a most fascinating one and added much interest to the study of dry pathologic problems, it has, in my judgment, proved an *ignis fatuus*, and directed our attention from the disease itself to a mere symptom. Under gout and lithemia we have lumped together an appalling array of morbid processes of infinitely varied causation, whose sole factor in common was that they resulted in the precipitation of urates in the urine, or in the tissues.

We have been treating an effect as a cause, a mere by-product as a *materies morbi*; and while the results have been interesting and stimulating, ranging from the brilliant and attractive speculations of Roberts up to the flatulent absurdities of Haig, yet it has led us little, if any, nearer to the truth than we were in Sydenham's time. As our modern conditions of life in respect to healthfulness and variety of food, housing, clothing and training have enormously improved, gout is far less common and lithemia certainly no more prevalent than before. But we can hardly flatter ourselves that we know how to treat it better. Our situation is another illustration of that blessed truth, that our belief, therapeutic or otherwise, makes little difference, if our life be rational.

The facts which seem to me have been firmly established by the enormous mass of clinical and physiologic

researches of the past twenty-five years are briefly as follows:

1. Uric acid is not toxic.
2. It is in no sense a result of imperfect combustion of proteids of the urea series.
3. That uric acid which appears in gout is a result of the destructive metabolism of the nucleins of the body tissues, and is in no way derived from the food.
4. While some of the antecedents of uric acid, the so-called purin group, are more toxic than uric acid, it is exceedingly doubtful whether they are sufficiently so to account for the symptoms accompanying them. In short, they also are probably a symptom and not a cause of the intoxication.

Now, let us glance at the clinical basis for regarding uric acid solely as a symptom of some toxic or infective process, and consequently directing our attention toward the latter.

First of all, there is the significant fact, known from time immemorial, that all the lesions of gout, arteriosclerosis, degeneration of the kidney, neuritis, neuralgia, rhinitis, tophi, etc., may be produced by a poison, which is not only non-nitrogenous, but not even organic, and that is lead.

According to Garrod, 30 per cent. of hospital cases of gout give a clear history of chronic lead poisoning. Here there is no question of any specific influence on the part of the urates.

Second is the fact that a perfectly characteristic gouty urine is produced in the early stages of almost all febrile conditions, especially of the milder type. The urine in the early stages of a mild form of pneumonia can be hardly distinguished from characteristic gouty urine; and I am in receipt of a private letter from one of the clearest-eyed and broadest-minded of our modern pathologists, in which he informs me that experiments carried out in his laboratory have shown that inoculations with modified forms of various infective organisms have been productive of the appearance of urates in the urine and other so-called gouty symptoms, so that he is inclined to class gout as one of what he terms the "subinfections."

Third, the most frequently assigned cause for the production of the excess of urates which, in their turn, after the fashion of the "house-that-Jack-built," are supposed to produce the morbid symptoms which they accompany, is an irritant, carbohydrate poison, namely, alcohol. Waiving altogether the wrathful question as to how much of the sufferings of gouty patients are due to alcohol which they imbibe and how much to the fruit sugars and esters which accompany it; (wine and beer are your true gout producers; whisky and spirits seldom are); and admitting that the liberal use of alcohol, particularly in the form of spirits, may have no injurious effects, even on gouty individuals, yet there can be but little question that there is an overwhelming preponderance of the use, and in many cases excessive use, of either malt or vinous liquors in those who are the subjects of gout.¹

In the light of the toxic origin of the disease it would seem highly probable that we are actually dealing with a direct intoxication, either by alcohol itself, or, as seems more likely, by some of the other readily fermentable carbohydrates, either of the ether, ester or acetone group, in which the sweeter, more fruity wines, which are so indefinitely more effective in the produc-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

1. The Meaning of Uric Acid and the Urates, The Lancet, Jan. 31, 1903.

tion of gout than any other form of alcohol, are particularly rich. So that we appear to have two instances in which toxic substances, formed entirely outside the body, are capable of producing the disease—not only so, but are probably responsible for something like 50 per cent. of all cases.

As we study more carefully each individual case of the disease which confronts us, I think we can hardly help being more and more inclined to the conclusion that we have to deal either with some form of more or less direct external intoxication, or with some impairment of the normal digestive and assimilative processes of the body, resulting in abnormal poisonous products being formed in the alimentary canal, or in excessive absorption of the toxic substances which are normally present in the process of digestion. I believe that in the future our study of the diet of a gouty patient will be more with reference to the detection of substances which, either in themselves or in the conditions of nutrition obtaining in the cells of his intestinal wall or possibly of his liver, are capable of producing intestinal putrefaction and consequent autointoxication than with reference to either their nitrogen or nuclein content. Nowhere is it more necessary to remember, as Roberts and Osler have with special emphasis reminded us, that in the witty paradox of Moxon, "it is quite as important to know what kind of a patient the disease has got, as to know what sort of a disease the patient has got." Time and again we have found that the question of our ability to relieve our patients from the torture of their toxemia has depended on our ability to correct some vice of bodily habit. It may be in exercise, in bathing, in sleep, in mental stress, in hurry after meals, even in errors of refraction, that the crux of the lithemic problem will be found to lie. Any agency that will improve the general nutrition and vigor and raise the resisting power of our patients may cure lithemia.

Fourth, we have the negative evidence that numerous diseases or states in which large quantities of uric acid are found both in the urine and in the tissues are unattended by any gouty or so-called lithemic symptoms, as the uric-acid showers in the urine of children, the uric-acid infarcts of the newly born, in the large quantities of urates found in the urine of leucocythemia, of acute yellow atrophy of the liver and of phosphorus poisoning.

Fifth, the behavior of the paroxysm in gout is as little reconcilable with the theory of its causation by uric acid as are the Four Gospels with one another, but it fits in perfectly with the view that it and the paroxysm are alike symptoms of some toxic influence. Preceding and in the first stages of the gouty attack there is, instead of an increased elimination of urates, marked diminution. Secondly, there is no proof whatever that at the height of the attack there is any excessive deposit of urates in any of the tissues or in the urine. Thirdly, after the symptoms begin to subside urates appear in abundance in both the urine and the tissues; in short, the whole history of the gouty attack points strongly toward the view that it is due to some active toxin which produces intense irritation in the muscles, nerves and joints, with severe pain and consequent rise of temperature, and, as a result of this toxic attack, the breaking down of an excessive number of cell-nuclei and their appearance in the urine as urates.

Sixth, as Fitcher has shown, the rise in the excretion of urates in both gout and mild febrile conditions is

accompanied by an absolutely parallel increase in the amount of phosphoric acid in the urine. Inasmuch as nuclein is made up of a purin base combined with nucleic acid, an important part of whose radical is phosphoric acid, it seems to me that the conclusion is almost irresistible that in the elimination of these two products we are dealing with simply the two results of a destructive metabolism of the body cells, uric acid representing the purin moiety, while phosphoric acid represents the nucleic acid element. In my judgment, the symptoms of gout may be just as rationally ascribed to phosphoric acid as to uric acid; both are products of an underlying intoxication. In short, I believe that under the head of gout we have grouped together an enormous variety of mild chronic intoxications, sometimes of infectious, sometimes of dietetic, other times of autotoxic origin, and that the sole unity of the group consists in the production of uric acid.

The "lord of diseases" is not an individual, but a host. Uric acid has been the same sort of convenient savior of thought to us as therapeutists that the devil was to the older theologians.

It is always a great satisfaction to be able to give a disease a name, even if you know little more about the name than you do about the disease.¹

But one great rock remains for the foundation of our uric-acid faith, massive and apparently unshaken, and that is the actual appearance of the *corpus delicti* in the joints or fibrous tissues in gout. But here, again, I believe we have utterly mistaken the meaning of appearances. Here, the enthusiastic Garrodite will say, is something which no amount of argument will explain away. The matter, however, is by no means so simple as might at first sight appear. In the first place the results of the injection of uric acid into living tissues and its occurrence in large amounts in the kidney and other tissues in leukemia and other conditions already alluded to, render it highly improbable that uric acid itself, even in the tophi of gout, is sufficiently toxic to account for the intense irritation and local inflammation. In the second place, we have large masses of these biurate crystals deposited in the tissues in gout without giving rise to any symptoms whatever, or even attracting the attention of the patient. Third, the occurrence of these deposits in the joints or other tissues does not by any means accurately coincide with the attack, but may either precede or follow it. No one would, for a moment, think of regarding the fibrous nodules of rheumatism, or the exostoses of rheumatoid arthritis as the cause of the excruciating pain, or any other of the morbid processes which they accompany; and, in my judgment, the masses of urate of soda in and about the joint are just as purely symptoms of a toxin attacking the joint tissues as are the deformities of the two other great arthritic diseases. It would seem highly probable that we have been grouping together in one heterogeneous mass, as "gout," all the chronic intoxications which happen to attack the joints and result in the production of urates in their neighborhood, just as we have probably grouped together under the title of rheumatism a number of varied acute streptococci or staphylococci infections attacking the joints (one of which has already been definitely split off as gonorrhœal "rheumatism"), and under arthritis deformans at least three different toxic or toxoneuritic processes. Moreover, we have also in rheumatism a by-product of cellular destruction, lactic acid, which has been alleged to be the toxic element, just like the uric

acid in gout. An excess of phosphoric acid is said to occur in rickets. All of which are pure symptoms.

Next arises the important question, Are the masses of urates which occur in the tissues surrounding the joints deposited there from the general circulation, or are they local products? In my judgment, chiefly the latter.

First of all comes the overwhelming testimony of modern physiologic chemists, from Horbacewski, through Burian and Schur to Chittenden and Croftan, that no excess of uric acid is to be found in the blood of the gouty. In fact, it is exceedingly doubtful whether uric acid is to be detected in the blood at all during life; so that the beautiful iridescent vision of Haig and his school, of glittering needle-shaped crystals, darting hither and thither in the blood stream, thrusting their tiny javelins into nerve, into synovia, through liver cell or kidney tuft, like a swarm of internal mosquitoes, rousing the entire organism to agonized protest, must go the way of other day-dreams.

As was long ago pointed out by Levison, the particular node of tissue which becomes the site of these urate infarcts shows distinctly signs of necrosis, which has preceded the formation of the urates. In short, granted our toxins, of widely varying origin, external or internal as the case may be, these will attack the tissues in the neighborhood of the joints as regions of least resistance, slowest circulation, and lowest vitality in the entire body. The tissues of the joints die *in situ*, and with the assistance of the leucocytes which were summoned to their aid, break down into masses of urate of soda and into phosphoric acid, which latter is usually swept away in the blood current and into the urine. Or if a sufficient amount of calcium salts be present and the other conditions are favorable, they proceed to form exostoses (calcium phosphate), which are so characteristic of chronic gout.

Next, we have the striking fact that in the gouty an injury to the affected joint may precipitate an acute attack, as anything which lowers the local resisting powers of the tissues renders them more susceptible to the power of the toxin. It is precisely those two joints in the body which are most exposed to an infinite variety of blows, contusions and strains, namely, the joints of the great toe and of the thumb, which are most susceptible to gouty attacks, and of the two, the one which bears the weight of the body and is at least twice as frequently exposed to these risks—the toe—is far the heavier sufferer of the two.

The question still remains, Why are such deposits confined to gout, and why do they attack so exclusively the joints and bones? If, however, we regard "gout" as simply a term applied to the reaction to a wide variety of poisons in patients of a certain middle grade of resisting power, the objection loses most of its force. Tophi form in the gouty in response to any intoxication because the cells have sufficient resisting power to, so to speak, die in opposing its action and form urates. They do not in the acytic because the cellular resistance is absent—the body submits without a struggle, as it were—nor in the hypercytic, because the resisting forces are sufficiently abundant to neutralize the poison, and if necessary, to dispose of their own casualties as well. Besides, this deposit is not confined to true gout, but occurs in chronic plumbism. In fact, we have agreed to term as gout all these chronic toxic processes which result in irritative lesions in or near the joints, attended by the production of urates and of calcareous con-

cretions. I see no more reason for considering all these of common origin than I do for regarding all processes which are attended with the formation of an excess of fibrous tissue, in the same regions, as due to a common cause, nor can I see that the occurrence of calcareous deposits in the neighborhood of the joints has any other significance in gout than their appearance in the scar resulting from the healing of any other chronic inflammation, such as tuberculosis of the apex.

The question of the tendency of living tissues to deposit calcareous masses or plates is an exceedingly wide one, and far from being clearly understood, but there is one singular coincidence which runs throughout the whole series from the first multicellular organisms up to man, and that is that this deposit is almost invariably either preceded by, or associated with, an accumulation of nitrogenous excretory products of the urea or uric-acid series. For instance, in the well-known coral polyp the lime is deposited on the outer surface or ectoderm, by frank precipitation of the sulphate of calcium in the sea water by means of carbonate of ammonia, into which the urea and other excretory products are decomposed; and as the researches of Irvine, Murray and Woodhead have shown the rapidity of coral building is in precise ratio to the amount of ammonium carbonate and other excretory products of the organism present in the sea water.

In the shell of the mollusc we have a similar relation; all the tissues which are engaged in the deposition of the shell are loaded with uric acid and guanin. A step higher we have the shell of the crab, in which the lime salts are deposited within the bodies of the superficial layer of cells, which latter are simply saturated with uric acid and urates; and, finally, in the formation of the mammalian bones we find a similar state of affairs. What the precise chemical process which is taking place is it would be difficult to say. In the earlier stage, lime is present in sea water in the form of a sulphate, and is deposited almost exclusively as a carbonate; in the shell of the crab it is carbonate with a moderate percentage of phosphate, while, finally, in the bones of the mammal the phosphate comes to predominate and the carbonate plays a small part. All that we can say is that the presence of excretory products of the purin or carbamid series appears to favor the deposition of lime salts, whether in the shape of coral, oyster shell, crab shell, bone or the bony nodules of gout.

One is almost tempted to suggest that what is taking place is a process of slow necrosis of the cells concerned, with the formation, as products, of the purin bodies on the one hand, and on the other of phosphoric acid. This last uniting with the lime salts brought by the blood forms phosphate of lime as the final deposit. However, the reaction is probably not so simple as this. But I am inclined to believe that in the urate deposits of gout, followed as they so frequently are by calcareous masses, bony nodules and exostoses, we have simply a misplaced process of formation of bone and shell, and that the production both of urates and of calcareous deposits is simply one of the incidents in slow, chronic, non-suppurative tissue-necrosis.

Another fact which makes this view more probable is that when we turn our attention for a moment to the formation of calculi as such, whether in the urinary passages, the salivary ducts or the intestines, we have precisely this same significant occurrence of, first, uric acid, second, lime deposits. I think the opinion is gain-

ing ground that in all these processes we have to do not with a mere chemical and mechanical precipitation of salts from the fluids of the urinary or salivary tracts, but a genuine deposition of successive layers by living cells in the attempt to cover up a morbid foreign body, such as gives rise to the pearl in the oyster.

Von Noorden's discovery that calculi, wherever found, whether in kidney or bladder, were covered by a proteid film, was remarkably suggestive, and indicates strongly that these bodies are the product of living cells, probably clusters of leucocytes, out of the bodies of which are formed at one time masses of uric acid, thus giving the well-known alternate layers of calculi, at other times calcareous plates.

There is another side to this question, but that would carry us far beyond the limits of this paper, and that is, that in these deposits of calcium we probably have an important neutralization of toxins going on. This certainly is the rôle of lime in the vegetable organism, as the fascinating researches of Oscar Loew have shown, and it is to my eye distinctly significant that three of our most serious chronic intoxications, namely, rickets, rheumatism and gout, are associated with a marked disturbance of the normal deposition of bone. Whether the abundant calcification which is going on normally all over the body has anything to do with the immunity of children from so-called gouty symptom, has long seemed to me to be a question worthy of consideration. I am afraid this will seem like somewhat of a far cry from my original subject, but the gist of it is, to my mind, that the whole series of peri-arthritis changes in gout are simply the symptoms of slow chronic intoxication, with local necrosis, at points of least vitality. The invertebrate dies and calcifies on the surface, the vertebrate at the core.

Definitions are dangerous things, but I am willing to cause my opponents to rejoice by attempting one. I would define gout as "any form of mild, chronic, intoxication occurring in an individual of a medium grade of resistance and resulting in the deposit of uric acid, or the urates in the tissues or urine." In other words, it is a symptom name, pure and simple.

When, however, we turn to the question of prevention, our attitude is by no means so hopeless nor so indefinite as might have been feared. In fact, there is almost excuse, from a therapeutic point of view, for preserving the unity of gout. It is one of the many triumphs of our good, old, hit-and-miss, survival-of-the-fittest, empiric medicine that it has managed to stumble on the right treatment for many disturbances concerning whose causation it was widely and utterly at fault. We knew that quinin cured malaria long before we ever dreamed of the hematoozon, and our treatment of gout and lithemia is infinitely more rational than our pathology. Here, as elsewhere, creed is of little consequence compared with conduct. The first thing, of course, to be done is "*chercher la femme*," and find out the particular cause of intoxication in each individual case. This is, of course, far easier to say than to do. But no class of cases will better repay the time spent in an elaborate and exhaustive search in this regard. No part of the patient's body, or I had almost said mind, should escape our scrutiny, from the roots of the teeth and the condition of the gums to the state of his refraction and the possibility of lead under his finger-nails. Every possible source of either infection, or simple disturbance of metabolism, should be passed under review.

In many cases the infection will be an autointoxica-

tion, simply due to perversion of normal metabolism, and its cause may be sought in an error of refraction, in mental worry, in grief, or overstrain. In other cases it may be a distinct external infection, such as a suppurative process about the roots of the teeth, a septic condition, with shallow ulcerations, of the septum, or turbinated bodies, or an acne, with its steady, persistent absorption of minute traces of pyogenic matter. In one case which I have under observation at present a furunculosis of nearly a year's standing has resulted in the production of enormous showers of uric acid in the urine. A large majority of the cases, however, will be found to be of autotoxic, and more or less directly intestinal, origin, and here is where our "old reliable" remedies in gout have won their laurels. First, and most important of all, we have the great group of alkaline laxatives, which, both by checking the acid processes of fermentation in the alimentary canal and sweeping the putrescent matters out of the system before they have time to give off their poisonous products to the blood, enormously relieve the situation. Next in order, the group of intestinal antiseptics which directly prevent fermentation in the alimentary canal, like the salicylates, calomel, guaiacum, phenacetin, menthol and all the aromatic group. And, thirdly, the simple alkalis which act by reducing the acidity of gastric digestion and possibly, to a certain extent, by directly neutralizing the toxins, which are usually acid in reaction, and by producing mildly laxative effects. Lastly, renal, cutaneous and other eliminants, like colchicum, the iodids, acetates and niter. In short, almost every remedy which clinical experience has proved to be of value in gout and the gouty state will be found to prevent the formation or absorption of intestinal toxins or to promote their elimination from the system.

As we well know from clinical experience, some one or combination of these remedies will usually give our patient at least temporary relief.

Heterodox as it may appear, I believe the question of diet can be dismissed almost in one sentence, and that is, direct such food as will in each individual case reduce intestinal putrefaction to the minimum, while abundantly supporting strength.

Meats as such and proteids as such have absolutely nothing to do with the production of gout. Some of the worst cases we see occur in women living almost exclusively on bread and butter, potatoes, sweets and tea.

As a matter of practical experience I have found it much more frequently necessary to limit my gouty patients in regard to potatoes, bread, pastry and preserves than in respect to meat of any sort. In a majority of cases the fault does not lie in the diet at all, except insofar as it is deficient in nutritive value, or excessive relative to the actual needs and combustion powers of the body. The value of a vegetarian diet in gout is chiefly due to its unattractiveness. Vegetarianism is merely a polite form of starvation, and where this is indicated it will be of value. In the long run, it will usually be found better to regulate the diet of our gouty patients by increasing their oxidation than by diminishing their intake.

Above all, let there be water internally, externally and eternally. First, because our digestive processes are processes of hydration, and water is a valuable aid to digestion instead of a hindrance, according to the ridiculous old nursery superstition of the last generation. Second because it is the finest eliminant, whether alimentary, renal or cutaneous, that we possess. Third,

because 99 per cent. of our body cells are still aquatic organisms and marine at that, and must be kept flooded with water in order to live. What salts are dissolved in the water aforesaid is purely a matter of taste. The one active agent in all mineral waters is H_2O .

DISCUSSION

ON PAPERS BY DRs. SOLLMANN, MENDEL, FUTCHER AND HUTCHINSON.

DR. HEINRICH STERN, New York City.—Dr. Sollmann stands entirely on the modern basis. His paper confines itself entirely to physical conditions and signals a decided advance in the conception of the intrasystemic processes. In connection with Dr. Mendel's paper, I wish to again draw attention to Weindland's experiments and the deductions which we may derive therefrom. Normal quantities of antipepsin apparently control peptic digestion and prevent lesions to the gastric walls. Antitrypsin may act similarly as a protector of the small intestines. The round gastric ulcer, which in reality is not an ulcer at all, but a circumscribed necrotic spot, probably the consequence of autodigestion, may be due to absence or insufficient amounts of antipepsin. The same may be surmised as regards the duodenal and other intestinal ulcers which may follow the deficiency of antitrypsin. However, these conceptions of autoprotection are too good to be true. We may accept them for lack of something more definite, but we have to accept them *cum grano salis*. I wanted to hear Dr. Futcher say something about the natural and normal solvent power of human blood serum. According to the more recent investigations, uric acid occurs in normal amount in the urine of the gouty. Blood uric acid is absolutely and relatively increased in leukemia; its amount is not augmented in gout. The occurrence of uric acid in the blood of gouty and nephritic conditions is due to its retention therein. In nephritis, the insufficiency of the kidneys is at fault; in gout, the presence of uric acid is the result of the deficiency or quality of the physiologic uric acid solvents. Concerning the statements of Professor Chittenden, we all appreciate the far-reaching deductions which his later experiments permit us to draw. I have done considerable work in the same field, but, naturally, I have undertaken more experiments with diseased than with normal individuals. Some of my data are published in the *Medical Record* of May 21, this year. I wished to cite some of Professor Chittenden's results, but could not obtain a copy of his paper read in Washington in April last. I find that we may well get along with a nutriment 20 per cent. less than usually employed. This is especially the case in certain of the wasting diseases where the digestive, elaborative and assimilative functions are at the bottom of the underalimentation. Here we must prepare the organism to utilize the ingested food properly and must not try to administer larger amounts of foodstuffs. In such cases, overfeeding may be truly harmful. In further corroboration of Professor Chittenden are two cases of Hirschfeld cited in my aforementioned article. A woman subsisting on a diet the nutritive value of which never exceeded 1,650 calories per day, gained thirty kilograms in six years. The other case, also a woman, was kept in metabolic balance on a diet of from 1,380 to 1,570 calories.

DR. FENTON B. TURCK, Chicago.—Our ideas to-day are very much those of Stahl in the eighteenth century. He had the idea that the "sensitive soul" protected the body from material agents; the "soul" kept the body from injury. John Hunter recognized this influence, which he thought was due to "vital power," as he named it. We have to-day the same idea of "vital resistance of the tissues," essentially the same as Stahl. In my experiments to produce gastric ulcer, I have found that bleeding or loss of hemoglobin was not sufficient to produce gastric ulcer. The ulcer will rapidly heal up even with a deficiency of hemoglobin. By repeated intravenous injections of colon bacilli I found that ulcer of the stomach could be artificially produced. The normal sera of animals do prevent the digestion of a piece of the gastric mucous membrane with pepsin and hydrochloric acid in a test tube, while the sera of animals injected with bacilli allow digestion to take

place in twenty-four hours. The products of the growth of colon bacilli produce no effect. It appears that the presence of the living bacteria alters or exhausts some substance in the serum which under normal conditions interferes with the local digestion of the mucous membrane. This has great significance when applied to the pathogenesis of many other diseases.

DR. BOARDMAN REED, Philadelphia.—Did Professor Chittenden, in his experiments, carry out the views of Horace Fletcher as to overmastication of the food so as to promote better digestion and assimilation? This theory of Fletcher's that prolonged chewing makes food go further in nourishing the body, seems to have some reason for it. Did Professor Chittenden make any experiments on persons who are dyspeptics—those who have fermentative trouble? It is one thing to cut down the diet of persons in health and quite another in the case of those who have much fermentation in the alimentary tract involving a loss of part of the nutriment by the action of bacteria. It would be interesting to know, therefore, whether any of the subjects of Professor Chittenden's experiments suffered from much fermentation in the alimentary tract involving a loss of part of the nutriment by the action of bacteria. It would be interesting to know, therefore, whether any of the subjects of Professor Chittenden's experiments suffered from either gastrointestinal inflammation or fermentative dyspepsia.

DR. H. R. CHITTENDEN, New Haven, Conn.—We had one particular experiment on a man who for two years had had considerable trouble which he called dyspepsia; it might have been gastritis. He was troubled with the usual symptoms of discomfort, flatulence, etc. In this man the food was cut down to nine grams of nitrogen a day, instead of from 16 to 18, which he had been taking. His condition improved and his digestive trouble was nearly over. We have not experimented with overmastication or insalivation. Our object has been simply to ascertain the minimal proteid requirements of the healthy man with a view to seeing if great physiologic economy in diet is not possible.

DR. S. SOLIS COHEN, Philadelphia.—Dr. Woods Hutchinson's fascinating paper controverts established traditions, but doubtless has some fundamental truth. I have seen in subjects of lead poisoning sodium urate concretions in the joints. Perhaps had we heard all the facts back of his opinions, his views might have been more convincing. There is this, however, to be said: Uric acid or the alloxuric or purin bodies, altogether, or any one of them alone, can not produce gout; and their presence is not to be considered as solving the problem of pathogenesis. Like albumin in nephritis, sugar in diabetes, these bodies are symptomatic, products of the faulty metabolism characteristic of the disease, though they may and do, in turn, cause many secondary symptoms. We must go back further for the cause. Mere words are not satisfactory—metabolism is too much like Mesopotamia—but words must answer while facts remain undiscovered. There are many persons whose condition can only be explained on the ground of a peculiar chemistry of cell-function—an abnormal normality—which they have usually inherited. Less frequently it is acquired. In treating the various disorders of these gouty patients we must recognize this fact of constitutionally abnormal cell-chemistry, and, at least for the present, our recognition of this condition and our plan of treatment must be based on the qualitative and quantitative variations of the purin bodies in the urine; this quite apart from the question of production versus elimination. Thus limitation in the dietary is often an advantage. But the mere fact that uric acid and alloxuric bodies happen to be found in the urine at one time or are absent at another, does not give a rational basis for a theory of pathogenesis or therapeutics. Our established treatment usually helps the patient, but in this, as in most other relations, art has outrun science. Dr. Edward Blake of London points out that the children of those persons commonly called lithemic, usually present deficient vasomotor control. The mutual inter-relationships of the vasomotor nerves and the body chemistry is a question deserving further study.

DR. HARVEY W. WILEY, Washington, D. C.—One object in living is to have our ideals shattered. As a boy I saw that

prominent men had the gout, and it was my ambition to attain that dignity in my old age; but I am convinced, after hearing the papers that have just been read, that I shall never be able to achieve it. A short time ago I was called on to address a society of New York farmers. They were a peculiar kind of farmer, as each one was worth not less than \$25,000,000. I looked around and saw that there was not one who did not measure more around his stomach than around his lungs. I said at once: "You measure too much around your waists; no one has a right to measure more around his stomach than around his lungs. It is a dietetic crime." Probably since the time of Adam we have been eating too much nitrogen. What the ultimate effect will be on the race we do not know, but as we have several million years more to live it will probably be seen in the course of time. What we are now is due partly to the fact that our parents have eaten so much nitrogen. Professor Chittenden has shown that for six months a man can get along with much less. What the effects would be if kept up for a million years we can not say. Some months ago I said that it was not necessary to eat meat in order to be brave, as I learned to believe in my youth, a fact which has been demonstrated in recent military operations in the far east. It has also been shown that a man who eats rice can pull a jinrickisha containing a man weighing 165 kilograms, and at the end of the day be fresher than the man he carries. Dr. Futcher said that alcohols that are distilled have not as much influence in causing gout as those that are fermented. Possibly it may be the substances associated with the alcohol in the fermentation process rather than the alcohol itself. As to the activity of lead in the etiology of gout, a great many persons are taking lead in their food without knowing it. Canned goods are kept in tins containing lead and are soldered with an alloy containing at least 50 per cent. of lead; there are pellets of this solder inside of many of the cans. Much more might be said about dietetics and metabolism not germane to this discussion, but there is one thing that is germane to therapeutics and that is food; and the physician who, in his treatment of sickness, neglects food throws out of his armament his most useful weapon.

DR. CLEMENT B. LOWE, Philadelphia—Dr. Reed spoke of overmastication. The rule is undermastication. Dr. Mendel said that food in the fundus of the stomach is not acted on by the gastric juice and that this action is confined to the pyloric portion. We have been taught that the acid secretion of the gastric juice is able to overcome the action of the ptyalin of the saliva, and that the conversion of starchy foods into maltose will stop soon after the food enters the stomach. Now it is stated that the gastric contents do not become acid as soon as we thought they did. If so, this gives a longer time for the conversion of starch into maltose in the stomach. Professor Brunton said that we ought to chew our food well; we should chew meat 32 times to give every tooth a bite; it would be better to chew it 64 times. Ordinarily, therefore, we do not chew our food sufficiently. Starchy food, especially, should be well mixed with saliva before going into the stomach. In this way it finally passes into the intestine in the form which is intended by Nature. I agree with Dr. Osborne and Dr. Chittenden that, as a rule, we eat too much. The Irish people are not the best supplied with food but they are the healthiest people on the face of the earth.

DR. FENTON B. TURCK—I have recently published some work in which it is shown by experiments on animals that excessive distension of the stomach results in fatigue of the gastric muscles with atonic dilatation of the stomach. When food, water or air is introduced into the stomach of an animal in excessive quantities, sufficient to cause marked distension and retention, fatigue with elongation of the gastric muscle occurs. Changes in the musculature are observed microscopically; cloudiness around the nuclei which do not stain well. I believe that this condition frequently occurs in children who are allowed to eat too much and too frequently, and to swallow large pieces of food unmasticated. The habit of overeating and not properly masticating the food continues through life, followed by a variety of serious ailments. Stagnation occurs,

with consequent bacterial growth. In the majority of cases of atonic dilatation of the stomach I find the history of error of diet. The muscles of the stomach can not properly triturate the food in the normal time; detention ensues and the food is only slowly expressed through the pylorus. The food mass is thus infected and the colon bacilli develop abnormally in the intestine. Micro-organisms that enter the circulation from the intestines are readily destroyed under normal conditions. When the altered cultures are developed in excessive numbers the tissues are injured by toxins obtained from the bacteria as these are disintegrated by the blood. The alloxuric bodies may thus be readily precipitated from the blood at the injured parts.

DR. T. B. FUTCHER—I gather that Dr. Hutchinson holds that gout is of toxic origin, or that toxins may give rise to the symptoms. Whether the uric acid or the alloxuric bases are at fault is still a disputed point. At one time I was of the opinion that the alloxuric bases were decidedly increased in patients suffering from gout. Kolisch had advanced this view some years before. Both his analyses and my own were made by the Krüger-Wulff method, which has since been shown to be inaccurate. The balance of opinion at the present day is still in favor of the view that disturbance in uric acid metabolism is the main etiologic factor in the production of gout, although it is quite possible that the other nuclein derivatives may play a part. I was not able, in the time at my disposal, to take up many points in connection with the etiology and pathology that I wished to. Ebstein thinks that the joint changes are primarily due to local tissue necrosis, with secondary deposition of sodium biurate. His, Mordhorst and Minkowski believe, on the other hand, that the uric acid deposition is primary and the tissue necrosis secondary. Dr. Stern inquired in regard to the solvent power of the blood serum in gout. Many have claimed that it is reduced, holding that the lowered solvent power is due to a diminished alkalinity of the blood. Determinations of the alkalinity of the blood with more modern and reliable methods seem to show that there is no particular reduction in the alkalinity of the blood in gout. I would like to say further that in gout the blood serum is not saturated with uric acid. Klemperer has shown that the blood serum of gouty individuals is still capable of dissolving a considerable amount of uric acid, although not so much as normal blood serum does. Dr. Wiley has brought up a subject which I have discussed more fully in my paper. It has been suggested that the injurious effects of the fermented liquors are due to the sugars and saline matters which they contain, as well as to the fact that many of them are decidedly acid in reaction.

DR. H. C. WOOD, JR., Philadelphia—I sympathize with Dr. Wiley. I think that most of us have derived great consolation, when we had a lithemic outburst, by picturing the deposit of uric acid. It disturbs us to have these views roughly dispelled by Dr. Hutchinson's paper.

LACERATIONS OF THE PELVIC FLOOR; THE PRINCIPLES INVOLVED IN THEIR PRIMARY AND SECONDARY REPAIR.*

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Fortunately for the physical welfare of women, practical unanimity exists among obstetricians regarding the advisability of immediate repair of a laceration of the pelvic floor after labor. Unfortunately, the ultimate results of such an operation are frequently not at all satisfactory, prolapse of the vaginal wall necessitating secondary operative procedures at a later date. The lack of success attending the primary operation is to be at-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

tributed to one of three causes, or to a combination of all. First, failure on the part of the operator to appreciate the extent and direction of the subcutaneous tear; second, failure to approximate the edges of the torn muscle and fascia; third, an overstretching of the muscles of the pelvic floor, which can not be overcome or modified except by denudation and suturing of the vaginal wall, an unjustifiable procedure at this stage of the puerperium.

We know that any tyro in medicine may readily recognize a tear of the vaginal wall or perineum after the birth of the child, and may introduce sutures which will coaptate the edges of the superficial wound, but every obstetrician of experience is aware of the extreme difficulty or the impossibility at times of recognizing a subcutaneous separation of the levators and fascia, and of approximating their torn edges. An important complicating factor in the ultimate prognosis in practically every case in which the certainty of separation can be eliminated is that of overdistension or overstretching, for it is impossible to determine if the paralysis has passed the point at which it will not be amenable to natural correction as involution progresses.

T. A. Emmet was the first to draw attention to the fact that the dynamic agents attendant on the passing of the fetus through the birth canal were analogous to those brought into play by the forcing home of a piston, the point of greatest resistance being at the outlet; consequently, an abnormality in these forces or in the size of the presenting part or in the resiliency of the tissues at the introitus naturally resulted in the giving way of the structures subjected to the greatest amount of strain, the perineal body and certain of the muscles forming the floor of the pelvis. This separation, he pointed out, was to be likened to the drawing aside of curtains below which were united above.

This view of Emmet's is in strict accordance with the anatomy of the parts, and has been generally upheld. We know that, in the great majority of cases, the separation begins in the median line, extends as far as the perineal flexion, and then may radiate to one or both sides along the vaginal sulci. Under these circumstances not only are certain important fibers of the levator ani muscle ruptured, but, what is of far greater consequence, the rectovesical and rectovaginal fasciæ are also torn, and the vaginal tube is thus bereft of the greater portion of its natural support.

Theoretically at least, the primary operation should more nearly restore the pelvic floor to its original condition than an operation performed months or years subsequently, and for a very simple reason. At this time the edges of the muscle and fascia are raw, and if approximated by properly introduced sutures, will unite. It seems to me that failure in the primary operation, existing pathologic conditions being recognized, is directly due, in the largest number of cases, to the improper insertion of the sutures. I maintain that if the factor of irremediable overdistension could be eliminated proper, that is to say, deep, sweeping suturing would reduce the failures to a very small per cent. It has been estimated that fully 35 per cent. of primiparæ suffer injury to the pelvic floor at the time of confinement. It is a question in my mind if, in the case of every primipara in which the physician in attendance is in doubt as to whether separation of the levator and fascia has occurred, it would not be wise for him to introduce sutures in such a manner as to remedy the possible defect. I am not unmindful of the fact that, for

many reasons, this plan would not be practicable, but the principle of the good it may accomplish remains.

The great number of technics that have been devised to correct prolapse of the posterior vaginal wall and relaxation of the muscles at the outlet, indicates the important place such correction holds in the minds of gynecologists, yet I have long been convinced that there exists a pronounced misconception as to what is really accomplished by the several procedures. Take the well-known Emmet operation, for instance. At the meeting of the American Gynecological Society, held at Atlantic City in May, 1903, in summing up the subject of pelvic floor lacerations, one of the essayists expressed himself as follows:

"The principles underlying the repair of laceration of the pelvic floor, which Dr. Emmet gave to the profession in 1883, have been generally accepted as correct. This being so, it seems proper for this society to stand by these principles and for us to devote our energies rather to perfecting details of operative technic than to devising operations opposed to the well-established principles of Emmet."¹

I find it impossible to accept this view. No gynecologic surgeon of to-day or in time to come can fail to freely acknowledge his debt to this brilliant teacher, Emmet, and in the light of almost universal acceptance of his opinions regarding pelvic floor laceration and repair, it appears heretical to question their soundness; but it is a fact, easily proven nevertheless, that the operation devised by him for the correction of posterior wall prolapsus does not accomplish what he alleges for it. He directs that "a point in the middle of the projecting mass within the vagina be picked up with a tenaculum and drawn forward and upward toward the neck of the bladder, when two folds will be seen leading up to a point within the sulcus on each side." I have never heard his assertion disputed that these points indicate the limit of retraction and show clearly that the portion of the vagina above is still properly supported, yet these sulci may easily be demonstrated by the same means in many cases on the cadaver, and this, too, when subsequent dissection of the pelvic floor shows the levators and the fasciæ to be intact. Naturally, this demonstration is, to a certain extent, made possible by the postmortem relaxation of all tissues, but I venture the assertion, although with more diffidence, that frequently an exactly similar appearance of the posterior wall may be shown on the living subject in cases in which there exists no appreciable degree of prolapsus. I realize that the success in causing these sulci to appear in these last-named cases may be due to undemonstrable separation of the levator fascia, but I am reasonably certain that in many instances the examiner may be satisfied that this separation has not occurred.

In the Emmet operation, by means of a gutter-shaped, triangular denudation on each side of the median line of the vaginal canal, which denudation extends only through the mucous membrane, and by the introduction of three separate sets of sutures, it is claimed that "the slack of the retracted fascia is taken up throughout the pelvis, the posterior vaginal wall is lifted upward and forward in contact with the vesicovaginal septum, the everted tissues at the vaginal outlet are rolled in, and the separated levator ani muscles are brought together, so that the woman becomes apparently perfectly normal." I am candid in confessing that I am unable to accept

1. W. L. Enrage: Lacerations of the Cervix Uteri and Pelvic Floor; a Plea for Their More Careful Study, Their Diagnosis and Their Treatment. *American Gynecology*, August, 1902, p. 141.

these conclusions. The denudation is a superficial one, to begin with, and although the sutures undoubtedly are introduced in such a manner as will draw together the edges of the torn muscle and fascia, as the latter have not been freshened or individually united, they necessarily will remain in apposition just so long as the tightly drawn sutures remain in place, and no longer.

As I have said, in the primary operation the edges of the muscles and fasciæ are raw, and should unite when approximated by sutures. What is accomplished by nine out of ten of the secondary operations? Simply this: The mucous membrane covering a certain area is removed and sutures are introduced in such a way as to approximate the raw surfaces; in other words, a portion of the muscular wall of the vagina is freshened and backed up against itself, in which position the surfaces unite, the slack of the wall is taken up, the weakened perineal body is reinforced, and the gaping vaginal orifice is reduced to its normal size. Emmet's operation, in common with many others, accomplishes all this, but it accomplishes nothing more; the one factor that, in certain well-defined instances, recommends it above others, is that it more fully takes into consideration the direction of the tear. I do not for a moment doubt that, given a Y-shaped tear, beginning at the fourchette or in the perineum, extending to the perineal flexion, and radiating up the sulci, the method of denudation and suturing recommended by Emmet will properly approximate the superficial tissues; but I hold, and I think with reason, that no operation which does not provide for the isolation, freshening, and individual suturing of the levators and fasciæ will restore the woman to her former normal condition. But, as every surgeon knows, this procedure, in the great majority of cases, is impossible of accomplishment. No one appreciates more than do I the beneficial results accruing from colpoperineorrhaphy in those cases in which it is indicated; I assert only that in many of the methods of operation an exaggerated claim is made which is in no sense borne out by the pathologic conditions present.

In connection with methods of suturing, an additional factor which impresses me as being of considerable importance is this: The vaginal walls are firmly anchored to the apron-like levator below, at the orifice, and to a movable organ, the uterus, above, and are held in position by certain fibers of the levator and by its fasciæ. These muscular and fascial structures having lost their tonicity, through rupture or overstretching, and the posterior vaginal wall being deprived to a great extent of its natural support, it is reasonable to suppose that if sutures are introduced longitudinally, or in any manner except transversely, their tendency will be to draw the wall toward the fixed point, at the outlet, and so increase the traction of an already displaced womb.

It being granted that the Emmet operation does not unite the edges of the underlying muscle and fasciæ, I fail to determine its advantages over many of the more simple operative methods. I think it will be admitted that the operation is tedious, that the large number of sutures before being tied are in the operator's way, and that an inexperienced operator is very liable to denude too large an area, and thus unduly constrict the canal. It has been claimed that the pelvic floor is less liable to rupture during a subsequent labor if it has been repaired according to the Emmet method. My experience does not bear out this assertion.

To the question as to which of the operations of colpoperineorrhaphy is really the most efficient, it is natural that various operators will return various replies.

That technic which has yielded the most satisfactory corrective results in the hands of an individual operator is apt to receive the preference. No one will deny that the proper method of closing a wound is that which takes into consideration the original line or lines of cleavage. When the accident occurs the distension of the vaginal canal is lateral, the muscles and fasciæ being drawn apart by traction exerted from the sides. Therefore, as practically every colpoperineorrhaphy, as now performed, is a superficial operation, the anatomic and pathologic conditions present lead one to suppose that a triangular denudation and side-to-side suturing will most nearly meet the indications. Personally, I believe that the Hegar operation, in which the denudation is carried well beyond the crest of the rectocele and the sutures are sweepingly inserted across the vagina, will, in the great majority of cases, prove the most satisfactory. The technic is simple, and may be carried out in less than half the time required by that of Emmet; the slack of the vaginal wall is taken up from side to side, as it should be; the weakened perineal body is strongly reinforced, and the introitus is reduced to its normal size. In all cases the denudation should extend to the mucocutaneous junction. Failure to obtain the results enumerated may be attributed to improper denudation, incorrect suturing, or to low vitality of the patient.

230 West Seventy-fourth Street.

TREATMENT OF COMPLETE UTERINE AND VAGINAL PROLAPSE.*

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NEW YORK.

So much diversity of opinion still exists among gynecic surgeons as to the proper treatment to be employed for the cure of complete uterine and vaginal prolapse, that it seems timely to again bring this subject forward for discussion; and for this reason I desire to bring up for consideration the method of treatment which in my experience has proven the most satisfactory.

Before doing this, however, a few words in regard to the pathology of the disorder may be of interest.

The condition is best described as a reducible hernia through the pelvic floor, the sac being the inverted vagina, containing beside the uterus, tubes, ovaries, bladder and rectum, a large portion of the small intestines.

The causation of the disorder, as is well known, is primarily a separation—often submucous—of the tendons of the muscles forming the pelvic floor where they unite in the median line, and is usually due to the passage of the child's head during parturition. This separation of the tissues, which hold the rectum in its proper position, allows the lower anterior portion of the gut to bulge upward and forward into the vagina, pushing the vaginal tissues before it. This abnormal position of the bowel is increased by every act of defecation and straining at stool, and is also added to by the lifting of heavy weights. As the muscular force employed follows the line of least resistance, it tends in these cases, not to expel the bowel contents through the anus, as it should, but instead, to force the gut forward through the hernial opening into the vagina. The dif-

* Read at the Fifty fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

ficulty experienced by the sufferer in emptying her rectum causes her to exert an ever-increasing force, and gradually and steadily, day by day, the rectocele increases in size, force in a downward direction being necessarily applied to the attached uterus, and its ligaments, which, in a normal condition, serve simply as stays holding it in place, are gradually stretched and lengthened, allowing greater freedom of position to the descending organ. As the uterus descends the bladder, of course, is dragged down by it.

The descending process is hastened, after it has fairly begun, by the added weight of the small intestines, which, being contained largely in the pelvis, find their way by gravity to the lowest point. Thus after a period of a longer or shorter duration, varying usually in accordance with the natural vigor of the patient and the amount and character of the work she is called on, by reason of her environment, to perform, a complete inversion of the vagina occurs, and a hernial sac of large size appears outside of the body, and we have the condition known as complete uterine and vaginal prolapse to deal with.

This complete form of the disease does not, as a rule, appear until rather late in life, although the patient ordinarily suffers for many years from much discomfort and disability.

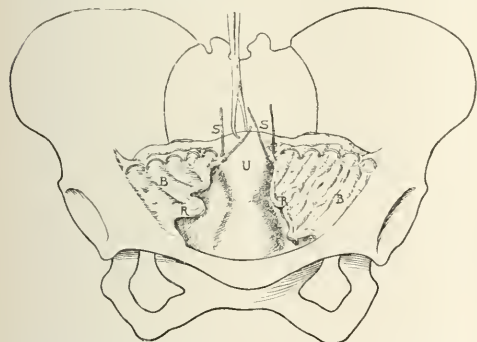


Fig. 1.—B, broad ligaments; R, round ligaments; S, sutures of kangaroo tendon; U, uterus.

In the surgical treatment of this disorder, much ingenuity has been displayed. Various operations on the anterior and posterior vaginal walls, as well as the removal of the uterus in whole or in part, have been recommended, but unfortunately, without very satisfactory permanent results.

In my opinion these disappointing results have been due to the operator's failure, in most instances, to recognize the fact that the vaginal wall in these cases is a hernial sac, with other contents than the uterus, tubes, ovaries, bladder and rectum, and that consequently the simple repair of the external perineal body, the removal of a larger or smaller portion of the vaginal walls, or even the removal of the uterus itself, will not correct the greatest cause of the difficulty, namely, the abnormal position of the small intestines.

In the elderly patients, who have come under my observation suffering from this disease, many of them having external tumors of large size, the uterus has not been found abnormally enlarged, and consequently could not be considered a factor in the causation of the trouble, and many patients have also come under observation on whom a hysterectomy for the cure of this

disorder had been previously performed by other surgeons, who stated that their tumors were larger than before operation.

TECHNIC OF OPERATION.

In view of the foregoing facts, it seems clear that the operative procedures required for the successful treatment of the class of cases under consideration, are those that will first obliterate the inverted and stretched vaginal wall—which is, in reality, a hernial sac—and then restore the damaged perineal structures and distended anterior vaginal wall as nearly as possible to their normal condition. The technic which has, in my experience, best answered these requirements, has been the following:

Preliminary Treatment.—The patient, on coming under observation, is placed in bed in the recumbent posture and the tumor is reduced, gravity being employed to help retain the parts in their normal position by raising the foot of the bed about six inches. Tampons moistened with glycozone are placed in position, and the parts treated until all ulcerated portions of the vaginal walls have healed, the general condition of the patient being meanwhile carefully looked after.

Operation.—The next step in the procedure is the performance of a laparotomy after the usual prepara-

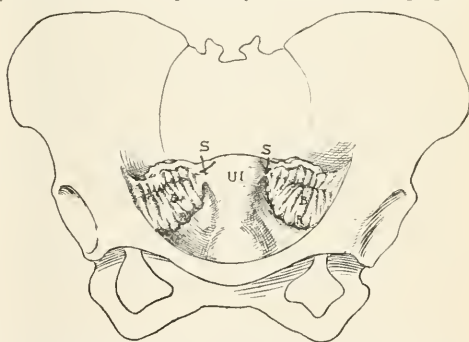


Fig. 2.—B, broad ligaments; R, round ligaments; S, sutures of kangaroo tendon drawn taut; U, uterus.

tions have been made. The patient being placed in the Trendelenburg posture before the abdomen is opened for the purpose of obtaining the aid of gravity in drawing the parts back into their normal position, the bowels are usually in these cases found to be more or less attached to the vaginal wall by adhesions which must be broken up. The uterus which, as has been previously stated, is in elderly women, usually small, is found and pulled upward by the aid of bullet forceps, drawing the vaginal wall upward also.

When this has been accomplished, a needle armed with large size kangaroo tendon is passed through the fibers of the uterus at the point of its attachment to the round ligament and carried down the broad ligament in the form of a purse-string suture (Fig. 1) and back again, the needle being finally made to emerge about at the point of entrance, so that when traction is made on the two ends of the suture the broad ligament on that side is folded up and drawn together, thus doing away with its excessive length, and giving the uterus a new point of attachment near the insertion of this ligament at the pelvic brim.

The same process is repeated on the opposite side

(Fig. 2), the abdominal cavity is then flushed with saline solution, some of which is allowed to remain, and the wound in the abdominal wall is rapidly closed by means of buried sutures and protected by a celluloid dressing.

If the patient is then in ordinarily good condition, repair of the pelvic floor and reduction in size of the anterior vaginal wall is undertaken.

In my experience there is usually no difficulty in accomplishing this, for all the operative measures necessary to make a complete cure can easily be performed in forty minutes. In these operations time is an important factor, as most of the patients are elderly and do not bear prolonged operative procedures well, or those involving much loss of blood.

Hence the importance of not removing the uterus in whole or in part when it is not at fault in the treatment of this disorder.

I have performed many such operations, as have just been described, during the last few years on women whose ages ranged from 60 to 83 years, without mortality and with most satisfactory results.

55 West Thirty-sixth Street.

DISCUSSION

ON PAPERS BY DR. BURTENSCHAW AND WIGGIN.

DR H. O. PANTZER, Indianapolis, said that in the uteri that come for repair we have only the lateral tears to consider, because a central tear does not cause a collapse, even when it is high up. It is only the tear that goes through the levator ani muscle on either side that causes trouble, and where either one or both are involved. All the procedures recommended for the repair of these injured fibers that lie back of the rectum, simply aim to fortify the rectum. In reality, anything that will bring the lateral walls together is the proper thing to do. When the uterus comes for operation, there is more or less atrophy. The thing to do is to bring the upper ends over the rectum; therefore, it is improper, at any time, to speak of a correct or exact anatomic restoration.

DR. CHARLES P. NOBLE, Philadelphia, considers it very unfortunate that those who do secondary operations do not begin their training in an obstetric hospital, because that is the only way to learn the real nature of lacerations in the pelvic floor. Anyone who has had this experience will appreciate the basis of the Emmet operation. The primary lacerations of the perineum are lateral; the median are very rare and when they occur it means, as a rule, little or nothing. The exception is when the tear is deep enough to involve the sphincter. Any operation which considers purely the middle line of the vagina misses the chief part of the difficulty. In the beginning Dr. Noble did the Hegar operation for a number of years, then became dissatisfied because, with this operation, the rectocele is not well disposed of; he then did the Emmet operation for about ten years. This operation is far superior to the Hegar because it deals with the sulci where the lacerations are and it also takes care of the rectocele; especially in the worst cases it enables one to fasten the rectocele back in the vagina and attach the loose tissues to the levator muscle as no other operation does. He said that it is inconceivable how anyone can put sutures in the perineum that would have any effect on the uterus. If the vaginal wall is pushed into the pelvis and the suture is placed directly through the vaginal wall and into the levator ani muscle, so far from drawing the vagina out, it is fastened back within the pelvis, and when the suture runs up on the rectocele, it rolls it back and fastens it in the pelvis. The tip of the rectocele is drawn down to the caruncles in the typical Emmet operation. The defect of the operation as usually done is that we draw down between the lateral structures this central tip of mucous membrane so that there is a tendency to prevent union where it is so desirable. Some years ago Dr. Noble modified the operation by making the central denudation higher up, utilizing the principle of the

Hegar operation at the outlet. This gives a much firmer introitus than the typical Emmet. It allows one to roll the rectocele back into the pelvis, fastening the vagina to the levator ani muscle; and by denuding in center a little higher up, from one-third to one-half inch within the hymen, the lateral structures at the outlet are brought directly into contact. Dr. Noble read a paper about ten years ago, in which he referred to splitting the anterior border of the levator muscle, rolling the fascia in and suturing them together. As a result of that experience he found that he made a cicatricial band in the vagina in a considerable number of cases, which was a nuisance, especially in middle-aged and elderly married women with inelastic tissues. He agrees that it is impossible, in doing a secondary operation, to restore the parts absolutely to the original anatomic condition, but one can approximate very closely. In the normal pelvic floor, just within the hymen, there is a slip given off from each levator ani which meets its fellow in the middle line, in the tendinous center of the perineum. In doing a secondary operation it is impossible to find these slips, but they can be imitated by suturing the anterior borders of the levator muscle, covered by fascia, caught deep in the sulci, and bringing them together in front of the rectum. It is very simple and, while it is not strictly anatomic, it does reproduce, as nearly as one can, the original condition. That should be a part of each perineal operation, and is an improvement on the typical Emmet operation. Its value is best proved in proctidientia cases.

DR. H. W. LONGYEAR, Detroit, agreed with Dr. Burtenschaw that the Emmet operation, or any other operation which simply denudes, is inadequate, for the reason that only the mucous membrane is removed and the operator does not get down to the retracted tissues. When there has been a laceration, the muscular tissue constantly pulls toward its origin; thus the ruptured transversus perinei muscles are constantly pulling away from their insertion toward their origin at the rami of the ischii. If the sphincter ani has been ruptured, it retracts in the same manner and the characteristic dimples marking the sites of the retracted ends are seen. We can not take up these muscle ends of the sphincter by a simple denudation, neither can one take up the retracted transversus perinei by that method. Dr. Longyear considers that the only operation by which these can be uncovered and united is the split flap operation, because by that method one can get down beneath the overlying cicatricial deposits. By cutting into the torn muscles and fascia and bringing the split fibers together, a broad base of union is made, then by using the buried suture method the perineum is built up firmly. Examine carefully before beginning the incision, find the extent and direction of the tear and, after the initial incisions are made, dissect upward according to the necessity of the case or according to the directions of the tear or tears. Dr. Longyear uses kangaroo tendon moderately hardened, but catgut may be used. If the tissues are bunched in a mass surface, in many cases one gets imperfect approximation. After one has examined a few of these primary lacerations and put them together properly, he gets a comprehensive idea of the condition the parts assume when left to heal by themselves. In the split flap operation, after the cross-cut and cut on each side are made, the flap is dissected upward, on either side and underneath it, according to the depth of the tear, and the muscles are brought together by buried sutures. The Emmet clover-leaf operation is a failure because it is a superficial denudation. It does not bring the tissues together from side to side deep enough. Tait made his incision in a perfunctory way with scissors and did not dissect according to the tear. He made five cuts, no matter what the nature of the laceration. The last two incisions, forming the letter H of the U, are made one on each side of the anus.

DR. A. GOLDSPOIN, Chicago, said that the primary operation, restoring a recent tear, within a few hours after labor, can be one of exact restoration of severed parts; but the secondary operation, done months or years after labor, can never be of that type. Lacerations occur laterally from the

center, usually to one side or the other, and one or the other lateral half of the levator ani, lying in the deep pelvic fascia, is injured. The attempt has been made by Dr. M. L. Harris to theoretically reunite the injured levator ani on the side where the injury occurred. That, Dr. Goldspohn thinks, is a theoretical vagary, especially if it is taken with Dr. Harris' contention that it is the levator ani muscle lying between two layers of pelvic fascia that is the only important thing to deal with, and not the fascia also. The levator ani muscle is too frail a structure to be dealt with successfully by any such end-to-end union. Such restoration of this muscle certainly is not practical and can not give good results. Furthermore, the isolation of the torn parts after cicatrization has occurred is so extremely difficult and imperfect that it is not a practical procedure. Dr. Goldspohn considers that the Hegar, Martin and Emmet operations have not at all dealt with the levator ani muscle or the pelvic fascia, the two structures that are the real supports of the pelvic floor. This matter was first brought out by a German about twenty years ago, who called attention to the correct anatomy of the levator ani muscle and the pelvic floor. The subject was next overhauled by Dickinson about ten years ago, and two years later Dr. Goldspohn devised a procedure of his own, a flap-splitting operation of external structures, not like the Tait, which is purely a cosmetic procedure, but inside of the pelvic cavity—intrapelvic; lifting the posterior vaginal wall, therefore infravaginal, dissecting up the posterior vaginal wall, not simply posteriorly but also laterally, until he came to the lateral descending portions of the levator ani and pelvic fascia. The work can be guided by the left index finger on both sides, holding the rectum back and searching out the levator and fascia on opposing sides and uniting these two important structures in front of the rectum with buried sutures. All the sutures in this operation that have any holding effect are buried sutures of catgut; those that are removed serve a cosmetic purpose only. The natural bridge in front of the rectum, which is composed of a union of the median portions of the two lateral parts of the levator ani muscle that descend from the pubic rami from both sides, is thus restored. After that union has been restored the vaginal wall is allowed to come down on the newly constructed bridge in a ruffled shape and is held there by being caught submucosally by the buried continuous catgut suturing beneath, which reconstructs the bridge of levator ani. Then the outer skin wound or cosmetic portion of the operation is closed by interrupted silk-worm-gut sutures. Dr. Goldspohn says that prolapsus uteri thoroughly developed is only exceptionally curable by the best plastic operations on the vagina and pelvic floor alone. It is usually necessary to attach the fundus uteri above, either on the anterior vaginal wall or on the anterior abdominal wall, in addition to the above mentioned plastic operation below. This fixation of the fundus, however, dare not be done unless the patients are sterile, or are made so by excising the tubes at the same time. Fortunately, the marked prolapse cases are usually in elderly women, who either have no more conceptive capacity or are very willing to surrender it. The best operation for anterior colporrhaphy is one suggested recently by a German, not simply denuding the mucous membrane on the anterior vaginal wall, but making a median longitudinal incision, dissecting off the epithelium on one side superficially, and undermining the vaginal wall as a flap on the opposite side, and then drawing this flap over the denuded surface of the other side, so that for a certain distance an antero-posterior strip of nearly double vaginal wall results. It is not so important how we operate on the anterior vaginal wall for cystocele as it is important that we restore a good pelvic floor for the anterior wall to rest on. Many a cystocele of not very extensive proportions will do better with the pelvic floor thoroughly restored alone than by doing ever so good a plastic operation on the anterior vaginal wall and neglecting the pelvic floor.

DR. D. H. CRAIG, Boston, said that these plastic operations constitute the highest type of surgery; they involve the highest degree of anatomic knowledge in distinguishing the normal from the abnormal. It requires more study, skill and ability

to restore parts to their original condition than to merely remove diseased structures such as intra-abdominal neoplasms. If, because of lack of time, one is going to learn one operation, and only one, to do on all perine, it is well enough to speak of this or that operation, but if one is to pose as a gynecologist, as a specialist, one must be fitted to exercise good judgment in every individual case, and no one operation will fit all cases. So one must know the Emmet, the Hegar, the flap-splitting and every other operation, and must decide which fits the case and do it. One can not succeed in bringing muscles together except by cutting down through the vaginal wall to reach them. It is true that some one particular operation is the best for some one particular case, but there are cases in which no operation ever described is suited, and we must devise one to fit that case if we wish to restore the parts to their normal condition, no matter whether or not it has ever been described before.

DR. GEORGE TUCKER HARRISON, New York City, agreed with Dr. Noble that we must know how the original lesion was produced in order to restore the parts to the normal condition. In other words, an obstetric practice is absolutely indispensable to the gynecologist. As an assistant, Dr. Harrison followed Dr. Emmet in the gradual evolution which culminated in his last operation, and thinks the profession owes Dr. Emmet a debt. No surgeon ever recognized the true mechanical principles underlying the operation for repair of the perineum more clearly than Emmet. Dr. Harrison said that whenever a man introduces a complex and complicated method, one may be sure it means retrogression. The beauty of the operation described by Dr. Tucker lies in its simplicity. His operation has regard to the original lesion, and it endeavors to restore parts to their normal condition. There may not be any tear of the skin externally, still the levator ani muscle may be torn, and then there is a rectocele. Dr. Tucker's operation brings the separated fibers of the levator ani and the fascia into true relation with each other, and that was one of the great merits of Dr. Emmet's operation. He demonstrated that it was the injury to the fascia that was the important part in this lesion, and that you must get support from the fascia. Dr. Harrison considers that Hegar's operation has no regard for the physiologic functions or relations, although he builds up a perineum. Therefore, it was a great advance when Lawson Tait, whose operation was deficient, although not original with him but with Langenbeck, devised the flap-splitting operation, showing that it was useless to take anything at all away. Dr. Tucker takes away only superficial cicatricial tissue.

DR. JOSEPH PRICE, Philadelphia, said that Dr. Noble's remarks on the necessity of an apprenticeship in maternity ought to impress everyone. It was very exceptional for us in Philadelphia to see a patient coming from Dr. Goodell's large service at the Preston Retreat, or from the Sloan Maternity, with a deep tear, favoring a large cystocele or rectocele. Dr. Price delivered 1,500 women at the Preston Retreat and never had any of those cases come to him for a secondary operation, because he never permitted the patient to have more than a few minutes to pass before a complete primary repair. There one has an opportunity of repairing an injury after mutilation as in no other part of the body. Many of these repairs are not done properly. He makes repair of the vaginal injury by putting in only one or two perineal sutures. All others are in the vagina. The old methods of putting in three or four or five sutures are errors in surgery. Labor, if simple, never shocks the patient, and repairs can be made in a few seconds with a boiled needle and any of the suture materials. There are a number of procedures that one must resort to. The simple median tears of the first or second degree rarely, in fact never, cause protrusion of the pelvic viscera or relaxation of the vaginal outlet, more than a deep central gaping. The Hegar operation, in these central tears without a rectocele, gives a good pelvic floor, when the operation is done well. The flap-splitting operation of Tait is a simple procedure; it is an external operation and easy of execution. Men have not been willing to serve long enough as apprentices, assistants or observers to be able to do the Emmet operation well. There are only four

or five men in Philadelphia who are thoroughly familiar with this operation for the restoration of the pelvic floor or diaphragm. The operation as Tait did it was a very common one, sometimes done in his hands while the patient was trying to get away from him.

Dr. J. RIDDLE GOFFE, New York City, stated that in a fresh lesion one can restore the parts absolutely; in a long-standing lesion that, practically, is impossible, and when men talk about dissecting down and getting hold of muscle and fascia, bringing them out distinctly and separately and fastening them together, they are indulging largely in flights of the imagination. Coming in from either side are the transversus perinei muscles and the levator ani, which, as described by anatomists, is a very delicate structure and amounts to little. The transversus perinei are powerful and immediately retract, pulling the tear apart. In the course of time a rectocele develops, which is a falling down of the perineal floor. Dr. Goffe follows the line of the caruncles until he reaches the lowest. He denudes, then goes to the highest point of the rectocele, which he depresses with the finger, and with the knife draws a line from there down to the lowest caruncle, and then connects the caruncles from one side to the other, making a large flap. He strips the flap off in five minutes, pushes the rectocele back into the vagina and brings together the ends of the transversus perinei muscles, because in there are fascia and muscles all together. Commencing at the upper angle of the denuded surface (the high point of the rectocele) the sutures are entered on the mucous surface and passed obliquely downward under the denuded surface on one side and back in a reverse manner on the opposite side. Two or three sutures are passed in this way; when tightened they draw the rectocele up into the vagina and allow the fascia and musculature of the levator ani of either side to be brought in contact with each other in front of the rectocele, where they naturally belong. Then the ends of the perinei muscles are brought together with two sutures and tightened and the perineum is restored as satisfactorily as is possible.

Dr. J. H. BURTENSHAW agreed with Dr. Craig that the operation must in every case be adapted to the pathologic condition present. No single operation is applicable to every case of laceration. Dr. Burtenshaw said that the underlying principles of repair of a wounded pelvic floor, which he had attempted to emphasize, are simply these: First, in the case of primary repair, the edges of the torn muscles and fascia are raw, and will unite if properly approximated by sutures; second, when months or years are permitted to elapse before operation, unless these muscular and fascial edges are individually freshened they will not unite, but will be held in apposition only so long as the tightly-drawn sutures remain in place. It has not been denied that practically every colpoperineorrhaphy, as performed to-day, is a superficial operation, a portion of the muscular wall of the vagina being denuded and backed up against itself, in which position the surfaces unite. He does not advocate the Hegar operation in preference to all others, but asserts only that exaggerated claims are made for the Emmet method which are not borne out by the pathologic entities present. He acknowledges that, in the presence of a Y-shaped tear, if Emmet's method provided for the isolation, freshening and suturing of the separated muscles and fascia, it would approach the ideal; but it does not do these things; it is a superficial operation like the others and, therefore, does not accomplish more than the simpler Hegar. In the closure of an abdominal wound a special effort is made to accurately approximate the several layers of tissue; and the parts are restored practically to their former normal condition. In pelvic-floor lacerations these principles are completely ignored, or at least the object is frustrated by the technic adopted, yet a similar claim of normal restoration is made, and entirely without foundation in fact.

Centenary of the Author of the Wandering Jew.—It is not generally known that Eugene Sue was a navy surgeon before he acquired fame as a novelist. He was born in 1804, and his centenary will be duly celebrated at Paris, December 10.

TYPES OF CHILDREN.

W. S. CHRISTOPHER, M.D.

CHICAGO.

(Concluded from page 1623.)

There is a condition found in new-born babies, and usually confounded with sepsis neonatorum, which seems to me to be entirely autotoxic in character. This condition is often manifested on the first day of life, but may be delayed two or three days. The symptoms are vomiting, cardiac depression, poor circulation, frequently cyanosis, irregular and weak respiration, convulsions in the severer cases, and special symptoms on the part of the bowels and skin. The stools, which are generally frequent, do not become yellow, but remain green, and contain considerable mucus. A peculiar skin eruption appears about the third day, but may be delayed for a week or even more. This eruption consists of pustules, so small that their pustular character is often overlooked. These pustules are located principally on the upper portion of the chest, the neck and chin, and in the bends of the elbows. About each pustule is a slight red areola. The pustules are never close together, and in a marked case they may not number more than 50 altogether. They very quickly dry up and scale off. Sometimes there is fever present. In one case I found temperature twelve hours after birth, in another four and one-half hours, and in a third two hours after birth, and in each case the mother was free from fever, both before and after confinement. This early appearance of elevated temperature under the circumstances can hardly be attributed to anything but an autotoxic condition. At least, we know of no infection that could produce it. In no case have I found the navel other than apparently normal. In all these cases there is deficiency of urinary secretion, and the urine itself is often dark. I have records of the urine of two of these cases, one of which recovered and the other proved fatal on the twentieth day.

Of the first case I have six analyses, which were as follows:

	Age—					
	14 Days.	17 Days.	18 Days.	23 Days.	31 Days.	38 Days.
Acid	8.0	0.5	0.8	0.4	2.0	1.1
Urea	1.55	0.1	0.15	0.17	0.1	0.025
Indican	0	+	+	0	0	0
Safranin .....	.12	.5	2	.5	.5	0

The second child was found to have a temperature of 101.5 four and one-half hours after birth. The temperature never became normal. The child was seen in consultation with Dr. Sawyer of South Bend, Ind., a few days before its death. The urine obtained the day before its death showed acid, 7.5; urea, 1.6; ind., 0; saf., 3.

The urine of young infants is normally very pale and of very low specific gravity. In estimating the constituents the figures obtained are often so small that they seem unimportant, and when compared with the norms previously given they at first give the impression of being entirely without significance. When, however, the numerical relations of these constituents with each other is determined, a different situation is revealed. If the ratios of normal acidity to normal urea, and of normal safranin to normal urea be determined for each year of childhood and the results charted, very significant curves are found.

These ratios are given in Table 2, and the curves drawn from them are shown in Chart 3.

TABLE II.

Age.	Ratio Urea Per Cent., to Safranin Index.		Ratio Urea Per Cent., to Acidity Index.	
	Males.	Females.	Males.	Females.
0	1.31	1.11	2.69	2.59
1	0.98	0.88	2.12	2.13
2	1.05	0.94	2.07	1.93
3	0.97	1.03	1.87	1.93
4	1.02	0.95	1.92	1.75
5	0.89	0.82	1.83	1.75
6	0.85	0.75	1.76	1.67
7	0.86	0.85	1.74	1.86
8	0.84	0.73	1.51	2.49
9	0.92	0.81	1.82	2.45
10	0.83	0.72	1.71	2.45
11	0.84	0.95	1.79	1.61
12	0.79	0.92	1.51	1.63
13	0.70	1.01	1.38	1.66

The safranin-urea ration curve shows that the excretion of physiologic sugar is relatively high during the first year of life, lower during the next four years, and lower still during the next six or seven years. That the ratio should be kept high during the first years of life is not surprising, when we recall that during fetal life the liver is a glyeogenic rather than a urea-forming organ. The high acidity ratio is also indicative of possible acid toxemias during the first year of life, and we know from clinical experience that such is the case. But I have shown these curves principally for the purpose of show-

history, with ultimate perfect recovery and gain in weight, but the urinary history of the first few days that she was under observation are interesting and instructive. The urine was entirely negative, except as to acidity and urea, which was as follows for five consecutive days:

	Age.			
	30 Days.	31 Days.	32 Days.	33 Days.
Acidity	0.6	0.7	0.4	0.3
Urea	0.00125	0.00250	0.0025	0.005
Ratio of urea to acidity	480	280	160	80

The actual acidity is certainly not high; lower, indeed, than the normal. But the relative acidity compared to the urea is simply tremendous. We further note that the alkali produced little or no effect on the acidity, but under its influence the urea rapidly increased. Croftan has said that the organism is so jealous of its alkalinity and guards it so carefully that when fixed alkalies are wanting it uses ammonia molecules that would otherwise be built up into urea, thus cutting down the urea formation. It looks very much as though this was the process going on in this baby. We must further notice how Nature in her effort at protection

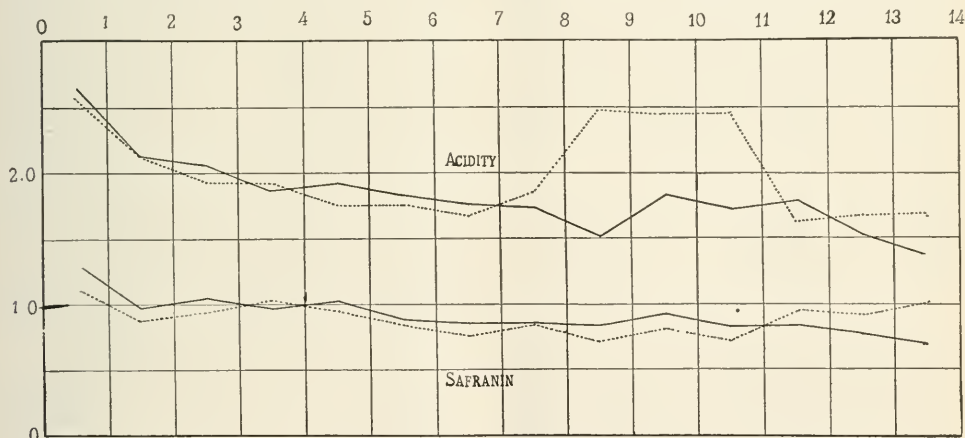


Chart 3.—Ratios of safranin and acidity to urea (urea being considered as 1.0). Solid line, boys; dotted line, girls.

ing their application in interpreting urinary findings in infants. Patty C. was first seen when one month old; had been colicky since third day of life; much flatulence requiring many enemata; stools generally dark green, with small seed-like lumps, and thin, odor often offensive, not sour. Has had no fever. An eruption said to have appeared when one week old, which lasted three days, and which was described as consisting of miliary pustules on red background, generally distributed over the whole body, but especially marked on neck and chest. On the second, third and fourth days of life urine showed brickdust deposit, but clear and free since. Weight a little less than at birth. The child was put on a mixture of cream one part, water three parts, boiled, and the coagulated lactalbumin removed. Was also given calomel gr. 1/24, q. three hours, and one-half teaspoonful soda bicarb. daily. Colic immediately became less, and in three days the child was quite comfortable and had gained 2 ounces in weight.

It is unnecessary to follow further the ups and downs of this baby, which were mere repetitions of the previous

produced a profuse diuresis. While the normal ratio of acidity to urea at her age is 2.59—say 3 for the sake of round numbers—it was here on the first day of urinalysis 480, on the next 280, next day 160, next 80, and on the last day of the series 6, and with the return to approximately normal ratio, was a return to normal comfort. These tables of ratios, since I have had them, have explained to me many otherwise inexplicable urines.

Another phase of the subject involves the relation of urea excretion to body weight. I have accepted as the normal rate of daily urea excretion 500 mg. of urea per kg. of body weight, or one two-thousandths of the body weight. Some children persistently excrete an excess of urea. This may be due to two causes—either excess of ingestion of nitrogenous food by children whose urea excretion would otherwise be normal, or to excessive disassimilation. This latter condition is, of course, found in fevers, but I here refer to children free from fever, and who would lose weight rapidly if they did not make up for the loss of nitrogen by heavy eating.

Children of this latter class are generally underweight and gain very slowly. They must be carefully distinguished from children who are under weight and size, because of hereditary tendency to smallness, and from children who from deficient appetite fail to take sufficient food. The particular class to which I refer I commonly call the greyhound type because no amount of food can make them stout.

In estimating the significance of various physical measurements, I have found very convenient the tables of norms worked out by the corps of the Child Study Department of the Chicago Public Schools under my direction as chairman of the department. These norms are based on the measurements of 6,259 pupils of the Chicago schools, selected as to neighborhoods, so as to secure data from children in fairly comfortable walks of life. When measuring each child its birthday was recorded so that its age in years, months and days could be computed. From these data norms were computed to the even years and half years of school life, with the average monthly variations. When I measure a child I put down at the head of the column its exact age, and after each measurement, the age in years and months for which the particular figure is normal; this I call his weight-age, height-age, etc. This explanation is necessary for the ready understanding of what is to be said of the case about to be reported, illustrating excessive urea output with failure to gain weight.

Robert B. first came under observation at the age of 7 years and 12 days. The following table illustrates his progress:

Age in Yrs. and Months.	Increase.	Weight-Age.	Increase.	Height-Age.	Inc.
7 and 0	2	5 and 0	..	7 and 9	..
7 and 2	2	6 and 4	16	8 and 1	4
7 and 6	4	6 and 11	7	8 and 7	6
8 and 3	9	6 and 7	8	9 and 1	6
9 and 3	12	8 and 1	6	10 and 0	11
9 and 9	6	8 and 4	3	10 and 3	3
10 and 1	4	8 and 8	4	10 and 7	4
	37		44		34

In thirty-seven months' time this boy made a weight increase of forty-four months and a stature increase of thirty-seven months, and was still seventeen months below the average weight for his age, although six months' taller than the average. The large weight increase during the first two months was partly, probably largely, due to the fact that when the first weight was taken he was just recovering from a rather severe illness. If this be thrown out, there remains only an increase of twenty-eight months' weight in thirty-five months' time, notwithstanding the efforts which were being made to increase his weight. That these efforts were of some value is shown by the fact that during a certain twelve months he made his slowest increase in weight, and during this particular time he was not under observation. During the periods he was under observation, he was seen many times, and his weight was very variable, but showed a slow general increase. During this time I made 31 analyses of twenty-four-hour collections of urine. In 3 only of these analyses was the urea output below normal, i. e., less than 500 mg. per kg. of net body weight. The lowest output found was 350. Twenty-eight times the urea output was above normal, the greatest being 1,032 mg. per kg., and the average urea excretion for all the 31 examinations was 707 mg. per kg. In each case the net body weight was determined by subtracting from the weight with ordinary indoor clothing 51½ per cent. of that weight, which gives remarkably accurate results. The other peculiari-

ties of this boy, which are also characteristic of the class he is intended to typify, are rapid pulse, quick perception, high grade of intellect generally, ready response to all kinds of stimuli, a nature extremely sensitive to rebuke, pupils often dilated. In this boy the thyroid isthmus is large, which is not always found in children who belong to the same class. Two younger sisters of this boy have clinical histories practically identical with his. As to his heredity, his mother was slender as a child, although not so now, and has very large eyes, but no prominence of the eyeballs. His father, a successful business man, is described as small, active and nervous. On both sides of the family there has been some mental trouble. The family is Jewish, and in my experience there are more such children among the Jews than among Gentiles.

I am inclined to correlate with this type of children, those infants who without gastroenteric or other local or infectious disease of any kind, persistently fail to gain weight, so that at nine or ten months of age they may weigh only nine or ten pounds. After a certain time these infants generally suddenly change and rapidly become of normal weight, and so also do older children of this type, and in adult life it is not uncommon to find obesity. This statement I base on personal knowledge of several individuals whom I knew sufficiently well in childhood to confidently put them in this class. The two well-known pictures of Napoleon Bonaparte as lieutenant and as emperor, together with what we know of his physical and mental peculiarities, would apparently put him in the same class. These are the children who are the little frail, bright pupils at school, frequently among the youngest in their classes, who constitute the great exception to the law that superiority of physique and superiority of mind go hand in hand, while inferiority of physique and inferiority of mind are likewise associated.

Since writing the foregoing, Robert R. and his sisters again came to the office. May 12, 1904, after an absence of nineteen months, eight months of which were spent in various parts of the continent of Europe.

On this date his measurements were as follows:

Age	11-7-25
Weight	29.650 kg.
Weight-age	10 and 5
Height	1,409 mm.
Height-age	12 and 3
Height, sitting	722 mm.
Height, sitting-age	11 and 0
Urea factor	638

When the Chicago school measurements were made, the cards representing the several individuals were separated into sexes and years. Then for each measurement for each year and sex, the cards were arranged in order, from the greatest to the least. They were then divided into ten equal groups, and the measurements at the beginning of each group recorded. These tables enable us to determine the percentile group into which any measurement of any child will fall. Applying these percentile tables to Robert R., taking his measurements of June 27, 1902, and May 12, 1904, for comparison, the following is found:

	June 27, 1902.	May 12, 1904.
Age	9-9-10	11-7-25
Weight (percentile group)	20—	20+
Height (percentile group)	70—	70—
Height, sitting (Do)	40—	40—

This shows that he still belongs to the same type which he did two years ago.

His sister Helen who, while she formerly presented the features of the same metabolic type as Robert, never presented those features in as marked a form, has now entirely departed from the type. Figures for her. cor-

responding to the above table relating to Robert, are as follows:

	June 27, 1902.	May 12, 1904.
Age	6-4-6	8-2-21
Weight (percentile group)....	30	60+
Height (percentile group)...	30	30+
Height, sitting (percentile group) 20		20—

Her urea output was 424 mg. per kg. These figures take her entirely out of the class to which she formerly belonged, and her general appearance fully supports this view. In the third child of the family the type persists.

What is the reason for the existence of this type? These children certainly seem to be individuals with excessive thyroid activity. So far as their peculiarities go, they are those of Graves' disease of later life. Many of their symptoms are produced by the administration of desiccated thyroid. For me such children represent the puerile form of Graves' disease, from the accepted form of which they differ only in degree.

Whether from the children in whose urine the physiologic sugar runs high, as shown by a high average safranin index, the diabetics of later life are recruited, it is as yet impossible to say.

How are the children with high acidity to be classified? As shown in Table 1, high safranin is generally associated with high acidity. Also in diabetes certain acid toxemias are among the gravest manifestations. On the other hand, high acidity is found more commonly than either of the other abnormalities here considered, and also is found to exist without either of the others and independently of indicanuria. Hence high acidity of urine, while undoubtedly of complex origin, is most commonly found in conditions which do not even remotely suggest either diabetes or hyperthyroidism. This independent cause I shall tentatively speak of as gout, because it is usually accompanied by symptoms which we are prone to associate with gout. Urines which contain excess of urates are highly acid. Some urines with excess acidity seem not to be toxic.

This deduction seems justifiable. In children three diathetic states are determinable by urinary findings and anthropometric observations which correspond to three great metabolic diseases of adult life, viz., gout, diabetes and Graves' disease. Is Addison's disease, the fourth great metabolic disease of adult life, represented in childhood? I do not know, but I have suspected it when watching those rare and fatal hemorrhages of the newly born. In one of these hemorrhagic babies I found a toxic urine, and treatment directed to this condition for a time seemed to stay the disease, but ultimately death ensued.

In considering these diathetic conditions, it must be borne in mind that they are all manifestations of peculiar metabolism and that the resulting symptoms are explicable as evidences of autotoxemias. The mechanism of autotoxemia may be considered as follows:

1. The toxins may act directly on the nervous system, producing symptoms referable to it.

2. The effort to rid the body of the offending agents leads to efforts at vicarious elimination with frequent production of pathologic states in the vicarious eliminating organs.

3. In a secondary way the toxins produce disturbance of general nutrition.

The following effort at a partial classification of the symptoms found in these autotoxemias may be found useful:

CENTRAL NERVOUS SYSTEM.

SENSORY.	
Pain	Vomiting
Various neuralgias	Aschma
Headache	Somnambulism
Paresthesia	PSYCHIC.
Disturbed sleep	Bad temper
Morfon.	
Convulsions	
Epilepsy	

VICARIOUS ELIMINATING ORGANS.

Vaginal catarrh	Eyes—
Vulvar catarrh	Conjunctival catarrh
Balanitis	Phlyctenular keratitis
MUCOSAE (CATARRHS).	
Gastroenteric tract—	SKIN.
Stomatitis	Eczema
Mucous diarrhea	Erythematia
Serous diarrhea	Furunculosis
Gastric catarrh	
Appendicitis (?)	
Respiratory tract—	
Nasal catarrh	
Bronchial catarrh	
Tonsillar involvement	
Genital tract—	

GENERAL NUTRITION.

Weight anomalies. Excessive weight. Deficient weight.

It might be well to make this distinction between diathesis and autotoxemia as here used. Autotoxemia is due to the occurrence of poisons produced in the body in sufficient quantity to cause symptoms. Diathesis is the type of metabolism which produces the autotoxemia. In other words, the autotoxemias are the principal ways in which the diatheses manifest themselves.

In considering the management of the diatheses and their autotoxemias, the autotoxemias demand first attention. The efforts are to be directed toward neutralization and elimination of the poisons. In the acid toxemias the alkalis hold the first place as therapeutic agents, and of these the potash salts have proven the most serviceable in my hands, with the soda salts next. Lithia has not been so useful. The quantities given must be large enough to reduce the urinary acidity to normal and keep it there. Mercury is extremely serviceable, and so also is colchicum. When the alkalis are given freely over a long time, and the tongue becomes coated, hydrochloric acid may be given with them; it does not increase the acidity of the urine under these circumstances. The high degree of physiologic sugar in the urine which is so commonly found with high acidity is efficaciously managed on the same lines. I do not know of any specific drug treatment for it.

The thyroid type of trouble, though less common in occurrence than either of the other two, is more constant in its manifestations. The drugs which have been most serviceable to me in its management have been arsenic, in the shape of sodium cacodylate, which is well borne in large doses, desiccated thymus (not thyroid, the use of which in such conditions has always seemed to me most illogical) and opium. In treating any of these autotoxemias, it must not be forgotten that the toxins absorbed from putrefying bowel contents often assist in producing the symptoms, and must be taken care of in ways which are well understood.

Dietetic management is directed principally to the diatheses themselves, for they certainly may be influenced to some extent by diet.

In infants, in whom the acid diathesis is very common, diet is the best means at our disposal in its management. Some of these acid babies do fairly well on the breast, but when the condition is very marked it is a proper cause for weaning. Fresh milk is badly borne by these babies, and fresh cow's milk is decidedly worse than breast milk. Cooked milk, however, is very useful. Sometimes sterilizing the milk is sufficient to fit it to these babies; in other cases the milk must be actually boiled and the coagulated lactalbumin

removed. With others it is necessary to resort to milk so thoroughly cooked as condensed milk, and even in some instances to use the dried milks. Condensed milk is generally the best, and condensed milk has a large field of usefulness with babies with acid diathesis, and that means with a large number of babies. I am, of course, perfectly familiar with the fact that condensed milk is accused of being a most powerful agent in the production of rickets and scurvy, and I have been loth to follow its use. I am not advising the indiscriminate use of condensed milk, but I am testifying to its utility for babies who have the acid diathesis. It is to some extent serviceable with thyroid babies. Any one who watches his bottle-fed babies and to those who are on condensed milk gives orange juice and cod-liver oil, need not worry about scurvy and rickets. I have fed many babies on condensed milk, but I have watched them carefully, as I do all bottle babies, and I have yet to see a case of scurvy develop in them, and no more rickets than occurs in other forms of feeding.

I have described several cases to illustrate certain points, and shall here give another to illustrate the point just made. This case is by no means unique in my experience, but it has always been a type case with me, perhaps because it occurred rather soon after my conversion to the utility of condensed milk:

Willie S. was on the breast for three weeks and one week on a milk and barley mixture, and then on Walker-Gordon modified milk, which was doubtless prepared *secundum artem*, as the formulas were prescribed by the laboratory people themselves. He was always a vomiting baby and had had colic from three months to four and one-half months. His weight at birth was 8½ pounds. He was brought to me Nov. 17, 1896, at the age of 5 months. He then weighed net 10 pounds 2 ounces. He was immediately put on condensed milk. At the end of a week the vomiting was reported as much less, sleep good, and he had gained five ounces in weight. In three weeks he had gained one and one-half pounds and the vomiting had practically ceased. At 10 months of age his weight was 20 pounds net and he had three teeth. There was some beading of the ribs, but this was noted as present when first examined, and he had had cod liver oil most of the time. At 13 months he weighed 23 pounds 3 ounces net and had seven teeth. He was kept on condensed milk until he was about 20 months old. The original rickets made no headway and there never was any scurvy. He was last seen April 24, 1901, then nearly 5 years old, while on a visit to Chicago. He was then a fine, healthy boy, weight 40 pounds 7 ounces, and stature 1,045 mm. net. What modifications were made in his food by the laboratory people I do not know; they certainly, however, did not control the vomiting, while they succeeded in producing marked deficiency in weight and great malnutrition. It is doubtful if this boy would have survived if he had been kept on his fresh milk. The trouble lay in the lactalbumin, and when this was rendered indigestible and hence unabsorbable by the process of condensing, the baby's difficulties ceased.

Fresh milk is poisonous to quite a number of babies. I remember a baby—its type I can not tell you, as it was before the days when I began to differentiate babies into types—that was very badly nourished on Nestle's food. I recommended fresh milk. The mother demurred, saying that fresh milk always made the baby sick. I was not convinced, believing then that any baby could take fresh milk, and after cleaning out the intestinal tract put the child on a fresh-milk mixture that would with a normal child have been satisfactory, but with this child, however, it produced serious vomiting and diarrhea in a few hours. After a short time on arrow root, it was again put back on the fresh milk with the same result. I then put it back on the Nestle's food to get time to think. After matters straightened out

on the Nestle's food, I tried the baby on equal parts of prepared Nestle's and the fresh-milk mixture. Again disaster. Then I put a single teaspoonful of fresh milk in the Nestle's food. This was borne, and slowly the fresh milk was increased, one teaspoonful at a time. It bore well six teaspoonfuls in each feeding, but when seven teaspoonfuls were used vomiting and diarrhea followed. The variation between six and seven teaspoonfuls was tried a number of times until both the mother and I were convinced that while the baby could stand the six teaspoonfuls it could not stand seven. I am quite sure that if prior to this experience any one had told me that any baby's stomach could make such a differentiation, I should have denied it. Some years ago a baby came under my care at the age of three months, covered with an ugly eruption, partly eczematous and partly furunculular. It was in constant pain and very badly nourished. This baby seemed to me to be of the thyroid type, and I put it on beef juice exclusively. In about a week the eruption cleared up and the pain ceased. Later arrow root was added to its diet, and some two months later it was able to take some milk with its arrow root and beef juice. Throughout the life of the thyroid child the beef proteids seem better borne than the milk proteids.

Why do children show diatheses? At birth the child is a very incomplete human being. Its anatomic deficiencies are obvious. Its physiologic or chemical deficiencies are less obvious but more important. Attention is often called to the crisis through which the child passes at birth when its heart changes from a three-chambered to a four-chambered organ. Yet this is trifling compared to the crisis which occurs when the first food enters the stomach, and that organ suddenly assumes entirely new functions; when the products of digestion reach the liver and that organ commences a series of heretofore untried chemical processes; when the products from this new organ, instead of those from the old, practiced and well-developed liver of the mother, start on their way through the circulation to do good or to do harm. It would be absurd to suppose that the physiologic processes of the new-born baby are completely developed when the anatomic elements are so markedly deficient. We know positively that these processes are not the same as those of the adult, otherwise the infant could utilize the same food as the adult. It is because of this physiologic incompleteness that autotoxemias occur, and this also explains the greater frequency of autotoxemias in childhood than in adult life, and their still greater frequency in infancy.

It may have been noticed that in describing the acid and saccharin diatheses, I described them together, not making a sharp line of distinction between them. This is in accordance with the facts as I have observed them. All these diathetic conditions constantly intermingle with each other, and at times one or another seems to exist alone, to be in its turn supplanted by another. Of them the acid or gouty toxemia is by far the commonest; next in frequency come the saccharin or diabetic manifestations, and least frequent of all is the thyroid type. As age increases and organs develop, one diathesis after another normally disappears. How fine it would be if we should hereafter find out that the great metabolic diseases of later life—gout, diabetes, Graves' and Addison's diseases—are but the exaggerated outgrowth of conditions found normally enough in early infancy. It would be the chemical analogue of Cohnheim's theory of the origin of new growths.

Clinical Report.

DISLOCATION OF THE CARTILAGE OF THE NOSE.

IRVING McNEIL, M.D.,
MESCALERO, N. M.

The following unusual case seems of sufficient interest to deserve publication:

Patient.—Mrs. W., Mexican, 30 years of age, came to me Aug. 1, 1904, complaining of a "sore nose."

History.—About a year before she accidentally struck her nose violently against a door. There was no hemorrhage, nor even broken skin, but the blow was a severe one, and her nose had troubled her ever since, hurting severely one week, and appearing to get almost well another.

Examination.—Inspection showed nothing abnormal except a little redness and swelling about the lower left ala. On palpating the nose lightly with my finger there was a most peculiar sensation of something slipping or giving way beneath. This also caused some pain.

I diagnosed dislocation of the left lower lateral cartilage of the nose. Ordinarily there was no displacement because the elasticity of the surrounding tissues held it in place. Yet it had not been allowed to remain in place long enough for complete repair to be effected; being moved about in the act of blowing the nose.

Treatment.—The indication—fixation—was clear, but how to accomplish it satisfactorily was a problem. Adhesive plaster could not be applied so as to give sufficient firmness; and an ordinary plaster mold could not be fastened on without binding up the patient's whole head. I adopted the following method, which proved successful: After protecting the surrounding parts and covering the nose with a very thin coating of vaselin, I applied over the entire projecting part of the organ a coat of flexible collodion. Quickly, before this could harden, I sprinkled in plaster of paris. Then, waiting a moment for it to "set," I applied in a similar manner another layer of collodion and another layer of plaster, and so on until there was a mold over the nose one-eighth of an inch thick. When finished, this was nearly as hard as an ordinary plaster mold, and held on securely by the adhesion of the collodion.

Result.—As the patient lived some miles away, I did not see her again, but several weeks later her husband told me that the cast had come off of itself within two weeks, that there had been no recurrence of the trouble since, and that his wife's nose seemed to be perfectly well.

New Instrument.

A RECTAL VALVE CLIP WITH APPLICATOR.

WELLS TEACHNOR, M.D.
COLUMBUS, OHIO.

Since the operation of valvotomy has been established as a means of relief from obstinate constipation or obstipation, the tendency has been to simplify the armamentarium and the operative procedure.

I have devised an instrument in the form of a clip, which painlessly divides the muscular fibers contained in the rectal valve in from three to five days without fear of hemorrhage or peritonitis. Figure 1 represents the applicator with clip in its grasp, ready for application to the hypertrophied valve. The clips are made in three sizes, short, medium and long. Each consists of two fenestrated elliptical jaws controlled by a set-screw (Fig. 2). The apposing surfaces have a slightly elevated serration in their center running from the base of one side around the tip to the opposite side. This represents the cutting surface. On the outer side of the serration is a narrow, smooth surface that makes enough gradual pressure to produce sufficient inflammatory exudation to

seal the blood vessels and lymphatics. This prevents hemorrhage and infection. At the base of the apposing surface a slight elevation is made so that when the screw is driven home the pressure will be the same at the tip as at the base. At the base of each jaw, directly opposite the center of the screw, is a slight oval depression to receive the end of the

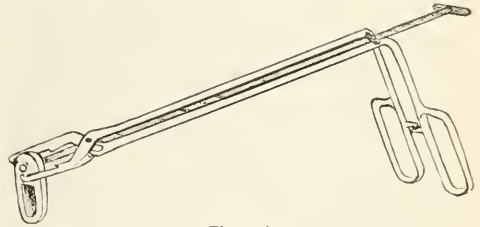


Figure 1.

applicator. The applicator consists of two forcep handles and blades nine inches long, armed with a lock. Running parallel with and between the blades is a screwdriver which fits in the head of the screw when the base is properly grasped. It has play back and forth of about half an inch, to accommo-

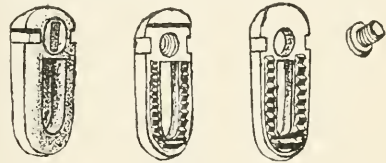


Figure 2.

date the inner jaw of the clip when adjusted for application (Fig. 3). The advantages claimed for this instrument are as follows:

First, the clip presents a perfectly smooth surface and will not irritate the surrounding gut wall nor become entangled with the fecal matter.

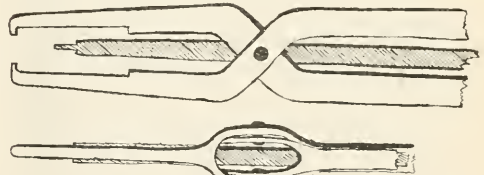


Figure 3.

Second, the pressure can be regulated by the set-screw.

Third, the simplicity and ease with which the applicator is released when the clip is firmly adjusted on the valve.

Fourth, it places the operation in the hands of any competent physician or surgeon.

187 East State Street.

Psoriasis.—Pouffé concludes from a study of the subject that psoriasis is due to a slow chronic intoxication from defect of the internal secretion of the ovary or testicle, thus failing to neutralize cellular poisons formed in the system by failure to oxidize substances due to vitiated nutrition. The disordered cell function in arthritis, instead of a zymase, diastase or ferment needed in the general nutrition, produces a pathogenic secretion especially acting in the local manifestation of psoriasis. This indicates a serious trouble of cellular nutrition requiring a general internal medication to neutralize the toxin and favor its elimination.

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ARE THERE PSEUDODIPHTHERIA BACILLI VIRULENT
FOR MAN?

For a long time it was thought that the clinical and anatomic picture of typhoid fever was always caused by one definite organism, namely, the typhoid bacillus. But when systematic bacteriologic examinations of the blood came to be made during the life of patients suffering with infections diagnosed clinically as typhoid fever, it was soon learned that a small percentage of these patients were suffering not from typhoid fever in a strict etiologic sense but from infections with bacilli closely related to, yet different from, the typhoid bacillus and thus the existence of paratyphoid fever was established. Later careful clinical and anatomic studies have shown that paratyphoid fever may differ considerably from typhoid fever in its clinical course as well as in the nature of the anatomic changes it produces. This differentiation in so thoroughly studied a disease as typhoid fever may be held up as a lesson indicative of similar possibilities in other equally well-trodden fields when submitted to careful and critical, open-eyed investigation.

The question of the relationship between the bacillus of diphtheria and the so-called pseudodiphtheria bacillus has been the subject of much and constant controversy ever since 1887, when the "pseudodiphtheria bacillus" was first described by Loeffler and by Hoffmann-Wellenhof. The general medical reader is probably not interested in the details of the various methods—cultural and morphologic—that have been emphasized as important, even essential, in the differentiation between diphtheria and pseudodiphtheria bacilli, but only to be abandoned because unreliable and inadequate for the purpose. Even the belief that the so-called pseudodiphtheria bacilli were non-virulent to animals has had to give way to the results of recent experiments. It is true that the bacilli of the pseudo group appear to have only moderate degrees of virulence, but it must be remembered that members of the diphtheria group proper may manifest the most varying degrees of virulence for animals. If we grant that bacilli, resembling each other so closely as to be with great difficulty, if at all, distinguishable by means of morphologic and cultural characteristics, are virulent, then the question arises, what is the nature of this virulence? If the pathogenic effects are promptly neutralized by means of diphtheria serum, then the problems involved would be greatly simplified, inasmuch as we would appear to be dealing with

a group of organisms which, though distinct in many respects, yet are identical in the most important feature from the standpoint of practical medicine, namely, the nature of their pathogenic action. But, unfortunately as it would seem, the recent work of Spronek, E. H. Ruediger, and Alice Hamilton shows that by the method just now suggested it has been found that there exist virulent pseudodiphtheria bacilli the pathogenic effects of which can not be neutralized with diphtheria antitoxin. Indeed, the mode of pathogenic action of the pseudobacilli appears to be radically different from that of the diphtheria bacillus which is a typical toxicogenic germ, the infection remaining local while the toxins are absorbed, whereas the pseudobacilli cause a general invasion of the blood. And Alice Hamilton,¹ in a careful study of a variety of pseudodiphtheria bacilli, isolated principally from the throats of scarlet fever, measles and diphtheria patients, shows that the loosely constituted group of pseudodiphtheria bacilli contains organisms that differ fundamentally because a serum produced by immunization with one member of the group protects against some but not against all other members of this same group. Hence the term pseudodiphtheria has in the past been applied not only to organisms that are diametrically different from the diphtheria bacillus, but also differ radically among themselves.

Naturally the next question that suggests itself will be: Does this group contain organisms virulent for man, and if so what is the character of the clinical picture? This question can not be answered dogmatically as yet. The facts and observations necessary therefore are now being gathered. Yet the following instance from Hamilton's article can not but be suggestive and instructive:

"No. 11 was isolated from the throat of a child who, without appearing very ill, had swollen tonsils covered with a delicate, veil-like exudate. Smears from the throat showed typical diphtheria bacilli, and 2,000 units of antitoxin were administered. At this time the child was playing about the room, but soon after the injection of antitoxin his temperature rose, he became markedly worse, and died in less than twenty-four hours. Pure cultures from the throat on Loeffler's serum showed short and long, straight and curved, rods with Neisser granules, which, however, were of narrower diameter than the rods. On all culture media the growth resembled that of a diphtheria bacillus. Less than 1 per cent. of the body weight of a broth culture killed guinea-pigs in twenty-four to forty-eight hours, producing a general bacteriemia and no change in the adrenals. Diphtheria antitoxin exerted no protective influence; indeed, the animal's injected with it died somewhat earlier than those without (six to eight hours). On the other hand, the Ruediger serum [a serum produced by immunization with a virulent pseudobacillus] did protect, so that we have here again a virulent pseudodiphtheria bacillus"

Cases like this teach the lesson that every instance of apparent failure of diphtheria antitoxin, whenever possible, should be subjected to rigid bacteriologic study with diversified animal experiments. Such cases should not be explained off-hand as due to mixed progenic streptococcal infection; this may explain many such cases, but in all probability it can not account for all. It is self-evident that if it should prove true that the general clinical picture of diphtheria may be caused by bacilli other than the true diphtheria bacilli, and consequently not prove amenable to diphtheria antitoxic serum, then this of course would not in any way reflect on the efficacy of this serum, which in the nature of things can not be expected to have any curative effect on infections of a radically different nature than the one we are wont to call true diphtheria. A rapid means of diagnosis would be demanded, as well as proper specific means of treatment, for the "new disease."

In view of the natural tendency of many minds to resent all disturbances in conditions long regarded as well established, let us take to heart once more the great truth contained in these words of Huxley: "Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads, or you shall learn nothing."

THE YOUNG PHYSICIAN AND MEDICAL DISCOVERY.

An old Greek philosopher said that if a man had not accomplished something worth while before he was forty, there was not much use looking for anything novel and original from him. In more modern times it has been said that unless a man has written a successful book during his first two-score of years he is not likely to do so afterward. In general, there is the feeling that if a man has not proved himself possessed of a talent for investigation before early middle age is passed, he may succeed in doing conventional things reasonably well and may make a commonplace success in life, but he will scarcely accomplish anything that will really enlarge the scope of knowledge. As a matter of fact, while old men have made many great discoveries, it is mainly to young men that the world owes those steps across the boundary of the unknown which constitute landmarks in the development of knowledge.

There is a very interesting exemplification of the truth of this principle in the history of medicine. Most of the important discoveries have been made by comparatively young men. Morgagni, for instance, began the famous set of "Adversaria," or note-books, in which he set down the details of the clinical history of the patient side by side with the autopsy findings, when he was as yet only a medical student not out of his teens. This seems a simple and ordinary thing to do now, but it was the beginning of the modern science of pathology. It is because he carried out in after-life the work

thus begun that Virchow referred to him at the International Congress at Rome some ten years ago as the father of modern pathology. Virchow himself, it may be said in passing, was only about twenty-five when he began his series of noteworthy observations in pathology, and before he was thirty-five the whole idea of his cellular pathology had taken form in his mind.

Auenbrugger, to whom we owe the beginnings of modern physical diagnosis and the demonstration of the value of percussion as a means of recognizing and differentiating conditions within the thorax, got his genial idea before he was thirty, and worked it out during the years between thirty and forty. Laennec, the discoverer of auscultation, who so amply complemented Auenbrugger's work in physical diagnosis, began the regular observations on which his method of diagnosis was founded in his early twenties. He continued his studies of the subject faithfully for twelve years before he published his famous book, which appeared before he was thirty-five. That book is probably the greatest marvel in medical literature of exact and absolutely accurate observation combined with careful determination of the etiology of symptoms observed.

About the time that Laennec was doing his work in Paris, Corrigan, at the age of twenty-five, began making observations on aortic disease in Dublin. He completed and published his observations¹ in 1832. His essay of scarcely ten pages establishes definitely for all time the knowledge of aortic insufficiency, or, as it was then called, permanent patency of the mouth of the aorta. Trousseau, the greatest of living clinicians of the time, suggested that aortic disease should henceforth be called Corrigan's disease, so completely did the young Irishman settle all the disputed points with regard to it. When he published his essay he was only twenty-nine years of age, and the hospital in which his observations were made had only six beds for medical patients. Corrigan was evidently a man who studied cases faithfully and did not merely go through wards seeing patients.

Stokes, who was Corrigan's contemporary in Dublin, published his first book on the use of the stethoscope when he was twenty-one. The instrument was almost unknown out of France at the time, and Stokes' little book did more to advance the cause of physical diagnosis in the English-speaking countries than any other contribution to medical literature. Before he was thirty, he had described the form of breathing now referred to as Cheyne-Stokes respiration. His friend, Graves, whose notable first description of exophthalmic goiter ought to prevent its being called Basedow's disease, did his best work also before he was thirty-five. Richard Bright had worked out nearly all we know, even down to the present time, of kidney disease, when he had reached the same age.

1. Edinburgh Med. and Surg. Journal, vol. xxxvii, p. 225.

The one thing that it seems worth while, then, to emphasize for the sake of progress in medicine, is that young men can not too soon begin to do something more than routine work; that they should not allow themselves to be burdened all too much with the complex technic of their generation, but should be encouraged to grasp the opportunity to see things for themselves, and not entirely nor always through the spectacles of the past, or of others.

ALBUMINURIA.

Nothing is simpler in the routine work of the clinician than the detection of albumin in the urine when it is present in considerable quantities. Every physician, however, sees cases in which only traces of albumin are present or in which the reactions obtained are atypical; it is then that he often hesitates to trust his own results, and prefers to send the specimen to an expert physiologic chemist for a definite opinion. So many different tests have from time to time been recommended for the detection of minute traces of albumin, and so many warnings regarding fallacies have been made, that it is but little wonder that the physician who lacks time to follow the advances in analytical chemistry should sometimes become confused. It would be helpful if some chemist in whom the profession has confidence would at intervals "take stock," so to speak, of the various practically important urinary tests, sift out the less essential reactions and present to practitioners, as the result of the application of his critical judgment, a few simple and reliable methods of procedure.

Out of the host of tests for albumin in the urine, a satisfactory selection for the average practitioner might, we think, be made somewhat as follows: In the first place, a very delicate test might be applied, like that of Spiegler as modified by Jolles, which, when applied as a ring test, will demonstrate the presence of as little albumin as 0.002 gram in a liter. If with this very sharp test a negative result is obtained, the urine may at once be pronounced absolutely free from albumin; if a positive result be yielded, confirmatory tests should be made with less delicate reagents—the heat and nitric-acid test, Heller's test, and the test with ferrocyanid of potassium and acetic acid. If all are positive the presence of albumin in pathologic quantity may be safely diagnosed.

Albumin being present, it is desirable to determine if it be serum-albumin or globulin, or both. For clinical purposes the presence or absence of globulin can be ascertained by simply diluting the urine, making sure that it is acid in reaction. Globulin is soluble in salt solutions of the concentration of ordinary urine, but is insoluble in very dilute salt solutions; it falls out as a flocculent precipitate if the urine be well diluted with distilled water. Thus, if 50 c.c. of filtered urine be diluted with 500 c.c. of distilled water, and one or two drops of dilute acetic acid be added, the urine will

remain clear if globulin be absent, but will show flocculi if it be present.

Whether albumin be present or absent, the urine should next be tested for the presence or absence of albumoses. In ordinary practice, as safe a method as any recommended for the purpose is to add five drops of dilute acetic acid and 2 c.c. saturated solution of common salt to 10 c.c. urine; boil and filter while hot; if the filtrate on cooling becomes turbid, albumoses are almost certainly present.

The delicate reagent of Spiegler, as modified by Jolles and recommended above, is not nearly so well known as it should be. The test fluid consists of 10 grams corrosive sublimate, 20 grams succinic acid, 20 grams sodium chlorid and 500 c.c. distilled water. To 5 c.c. filtered urine is added 1 c.c. dilute acetic acid, and this mixture is, by means of a pipette, gently and gradually passed down the side of an obliquely held test-tube containing 4 or 5 c.c. of Spiegler's reagent, so that the acidified urine forms a layer on the surface of the reagent without mixing with it; if albumin be present, a sharp white ring appears immediately, and the precipitate will not disappear on warming.

There has been much demand among physicians for a safe and practical test for albumin in the urine, applicable at the bedside, or, at any rate, at the patient's home. For this purpose there is nothing better than the sulfosalicylic-acid reaction; the physician may carry in his pocket or medical case a small phial of dry crystals of this acid. To apply the test one simply drops a few crystals of the acid into a little fresh acid urine and shakes; if albumin be present, a precipitate will be formed or the urine will become turbid; even if only a trace exists, the urine will gradually become opalescent. This reaction, though very simple, is delicate enough; if the test yield a negative result the urine may be assumed to be free from albumin; if a positive result be obtained, the urine contains albumin, and a specimen should be taken to the physician's office laboratory and examined according to the outline given above.

THE RELATIONS BETWEEN PULMONARY TUBERCULOSIS AND VALVULAR DISEASE OF THE HEART.

It was long maintained that an antagonism exists between valvular disease of the heart and pulmonary tuberculosis by reason of the increased amount of blood present in the lungs as a result of stasis, although the view did not remain undisputed. As a matter of fact, however, the coincidence of the two conditions, while it does occur, is not altogether common. It has also been contended that pulmonary tuberculosis develops especially in individuals with small hearts, cardiac enlargement when present being attributed to complicating conditions.

With the view of studying the frequency and relationship of tuberculous lesions of the lungs, pleura,

pericardium, heart and great vessels, Dr. George W. Norris¹ analyzed 7,040 postmortem records in three Philadelphia hospitals. Among this number there were 1,764 cases of tuberculosis of various kinds. Tuberculosis of the lungs was found so frequently in association with valvular disease of the heart that the conclusion could not be avoided that the latter exerts little or no influence on the former, either inhibitory or curative, even if satisfactory compensation is maintained. Mitral stenosis seemed to be not less often coincident with tuberculous disease of the lungs than other varieties of heart lesion. It appeared doubtful whether smallness of the heart predisposes to pulmonary tuberculosis in greater degree than is explainable by the general systemic underdevelopment and lack of resistance that individuals with such abnormality often exhibit. The heart was commonly found to be small in the bodies of individuals dead of tuberculosis, as the result of either wasting or hypoplasia, while the heart was not often large in uncomplicated cases. Stenosis of the pulmonary orifice seems to favor the development of tuberculosis of the lungs, death occurring from the latter disease in a large proportion of cases presenting the former condition.

Arterial and endocardial thickening is a common result of tuberculosis, but it is doubtful whether this process attains a sufficient degree to give rise to valvular incompetency. Tuberculous endocarditis and myocarditis, particularly the former, occur with considerable rarity, but pericarditis, and especially the chronic varieties, is frequently due to the tubercle bacillus. Tuberculosis of the aorta also is found but rarely. The condition, when present, may result in the formation of an aneurism. The cardiac muscle undergoes various forms of degeneration in cases of pulmonary tuberculosis, fatty and fibroid changes being exceedingly common, a fact that explains the failure of digitalis and certain other heart stimulants to bring about beneficial results in cases of this character. Uncomplicated cases of pulmonary tuberculosis often exhibit such striking differences in resistive power and frequently evince such a remarkable tendency toward recovery, even when seemingly hopeless, that only the most absolute evidence should be accepted as proof that either the coincidence of another pathologic condition or the administration of a special remedy has conferred benefit on the patient.

EXCHANGING PROGRAMS. A HINT TO SECRETARIES.

An excellent suggestion was made at the recent meeting of the Federation of Medical Societies of Belgium, held at Brussels. As given in a brief report of the gathering in our foreign news columns last week, the president, Dr. Merveille, who is also editor of the *Gazette Med. Belge*, called attention in his address to the habit of the secretary of one of the federated soci-

eties of sending to the central office of the federation a copy of each program, notice, etc., issued to the members of his society. Dr. Merveille spoke of the value of the information thus obtained in keeping the central office in touch with what is going on in the branches. Commenting on this he suggested that it would be a splendid thing if all the secretaries would not only do this, but also send to each other these evidences of what each society is doing.

Why would not this plan be a good one for the county societies of each state to adopt? The extra expense would be trifling in comparison with the good that would surely result. It would keep the different societies in touch with what the others are doing and would be a stimulation to more activity on the part of those which are inactive. The secretaries would thus exchange ideas regarding forms of programs and notices, methods of conducting meetings, etc. It would encourage exchange of essayists, for a secretary would learn that a member of another society was to read a paper on a practical subject, and would thus be encouraged to invite the essayist to read the same paper before his society—especially if it proved to be one that was well received. The programs and notices should be sent also to the councilor of the district, and of course to the secretary of the state society. This would be a stimulation and an inspiration to these officers, who in turn would become more interested in the work. Dr. McCormack, in his report of the work in Indiana (see *THE JOURNAL*, Nov. 26, page 1648), spoke of the excellent work being done by one society in a scientific way and by another from the business viewpoint, and yet neither knew what the other was doing; nor did the members of societies of adjoining counties know but that these two societies were as inactive as were their own.

If successful work is to be done it will come through co-operation, even to the exchange of ideas. Co-operation, not only among state societies but among county societies, is the fundamental principle in the new plan of organization, and we believe that the suggestion of the president of the Belgium federation, if carried out in those states which have reorganized, will prove to be most excellent and effective co-operation in scientific work.

HOTEL ACCOMMODATIONS AT THE PORTLAND SESSION.

There seems to be considerable fear that Portland will not be able to entertain the Association in a satisfactory manner, because of the Lewis and Clark Centennial Exposition, which will be open at the time of the session of the American Medical Association. To avoid overcrowding from this cause, arrangements have been made so that no other convention or attraction whatever will take place during the week of the Association session. It is advised, however, that all intending visitors make contract immediately for rooms, so that the managers

1. *Amer. Jour. of the Med. Sci.*, October, 1904, p. 649.

of the hotels will have a fair idea of what they may expect. Mr. H. C. Bowers, of the Hotel Portland, agrees to accommodate 4,000 guests comfortably. There are a large number of buildings going up, and Mr. Bowers is making contracts for every available room that is desirable for the week. The rates will be \$4 per day for each person, two to go in a room without bath, and \$6 per day for each person, for a room with bath. These rates are on the American plan.

I-RAYS AND N-RAYS.

Since the discovery of the Roentgen ray, there has been a vast stimulation of research in this branch of science, but the scientific merits of some of the claims which have been made are still in doubt, while those of others are clear over the line of probability. The N-rays of Blondlot are still *sub judice*, and their reality is doubted by some competent physicists. We are not sure by any means that the really crucial experiments which would demonstrate their existence have yet been made. Now comes the alleged discovery of a still further form of emanations, called by the describer, Di Brazza, the I-rays, closely allied to the N-rays, and given off from the brain during certain psychic processes, such as concentration of the attention. Until these can be proved to be real by physical experiments, absolutely free from suspicion of any subjective errors, it is well to reserve our opinions as to their existence. That they will ever be demonstrated by such positive tests as are the x-rays is doubtful. Now comes a British physician, claiming that the N-rays or something of their character emitted by the human body, vary according to the character and disposition of the individual. There will, perhaps, be other announcements of discoveries of the sort, as there is almost no end to the possibilities of subjective deception and credulity. The desire to correlate the psychic and physical takes on this particular development frequently, but invariably fails in the scientific demonstrations.

MR. HULL AND THE ARMY MEDICAL BILL.

Representative J. A. T. Hull of Iowa, chairman of the House Military Committee, in a recent interview published in the *Army and Navy Register*, concerning prospective Army legislation, is reported to have spoken as follows with reference to the Army Medical Bill now before his committee: "The doctors all over the United States are insisting that the Medical Corps should be increased, but to my mind they are asking too much. They all want to be officers of high rank, and think the flow of promotion too slow for them." Such a statement makes those who have had an opportunity to see the Surgeon General's statement of his case wonder if Mr. Hull can have read this strong and convincing argument. The Surgeon General makes it clear that his corps is nearly 200 officers short of the number needed to do the work of the Medical Department in time of peace, that this deficiency is made up by the obsolete, extravagant and unsatisfactory device of employing physicians under contract, that these contract surgeons, not being commissioned officers, have not the honorable and dignified status befitting members of a

learned profession. As regards the question of rank and promotion, it is shown that in the reorganization of 1901 the Medical Department suffered severe and unjust discrimination—that the proportion in the higher grades asked for by this bill is less than that enjoyed by the Medical Department before 1901, and less than that at present existing in the Medical Corps of the Navy. An examination of the Army list shows that if the Medical Corps is given everything it asks in this bill, the proportion in the higher grades (and so their prospects for promotion) will still be inferior to that existing at present in most of the other staff departments. When it is remembered, in addition, that only the medical officer has to bear the expense of a long and costly professional education, it is difficult to see on what basis of justice Mr. Hull concludes that the Medical Department "is asking for too much."

MEDICAL ERRORS IN FICTION.

It seems to be the rule, unfortunately, for writers of fiction, when dealing with medical subjects, to pay no attention to facts. This leads to the most ludicrous combinations of symptoms and to descriptions of conditions that can not exist. It is an old fault, and a repetition of this fault from an ordinary writer of fiction would hardly deserve attention here. We have to regret, however, its occurrence in the recent writings of a celebrated author who was educated as a medical man. Dr. Conan Doyle, in "The Adventure of the Golden Pince-Nez," just published, makes Sherlock Holmes say, in commenting on a pair of glasses that had been found, "You will see, Watson, that the glasses are convex and of unusual strength." In another place, speaking of the owner of these glasses, Holmes says: "Unfortunately for her, she had lost her glasses in the scuffle, and as she was extremely short-sighted she was really helpless without them." To make a short-sighted person wear convex glasses, even in fiction, is not to be commended. In dealing with medical subjects, why do not writers of fiction properly inform themselves and so avoid making such ridiculous errors? Not to do this is slovenliness. In this particular instance, the result of the neglect of attention to facts is unusually unfortunate, for it involves our friend, the famous detective, and also his friend, Dr. Watson; and this involvement shows them in a very unenviable light—they are shown to be weak where they should be strong—for Mr. Holmes appears as a poor observer and Dr. Watson as a poorly informed medical man. Holmes calls attention to the physical characteristics of the myope, and speaks of the convex glasses which had been used to counteract short-sightedness. Had this detective been a good observer of people he would have known that concave glasses go with such physical characteristics, and had Dr. Watson been a well-posted physician, he would have set his friend straight as regards the kind of glasses used for correcting myopia. We can agree with Mr. Sherlock Holmes that it would be difficult to name any article which affords a finer field for inference than a pair of glasses, but one is very apt to go wrong if he infers from a pair of convex glasses that the owner is short-sighted.

Medical News.

CALIFORNIA.

Health Officers Appointed.—Dr. Clarence L. Six, Stockton, has been appointed health officer of San Joaquin County, vice Dr. Samuel R. Arthur. Lodi, term expired, and Dr. Fred W. Colman, health officer of Lodi.

Brennan Freed.—Dr. Thomas F. Brennan, accused of embezzling \$36,000 from Rev. P. J. Grey, after a long and stubborn fight in the criminal courts, gained his freedom November 12, by the decision of the judge that the information was not filed within three years after the date of the alleged offense.

Needless Apprehension at Merced.—The health officer of Merced reported to the State Board of Health that there were two suspicious cases in Snelling's Chinatown. One case proved to be leprosy, and the other, which it was feared was one of bubonic plague, was demonstrated to be eczema rubrum universale.

Redlands Hospital.—The new hospital for Redlands has been completed at a cost of \$25,000, and the equipment is proceeding rapidly, so that the institution will soon be ready to receive patients. The hospital is governed by the following board of directors: Dr. Christopher A. Sanborn, president; Dr. Hoell Tyler, vice-president; Dr. Gayle G. Moseley, secretary, and Drs. J. E. Payton and Charles E. Ide.

COLORADO.

Women Start Free Dispensary.—At a meeting of women practitioners of Denver, held November 23, it was decided to establish and maintain a free dispensary, devoted exclusively to the treatment of women and children.

October Deaths.—The total number of deaths reported in October was 726, equivalent to an annual death rate of 14.71 per 1,000. There were 52 deaths from typhoid fever, 15 from diphtheria and one from scarlet fever during the month.

Communicable Diseases.—During October 349 cases of typhoid fever, 86 of diphtheria, 62 of scarlet fever and 15 of smallpox were reported to the State Board of Health, an increase over the preceding month of 15 cases of diphtheria and 17 cases of scarlet fever, and a decrease of 46 cases of typhoid fever and 4 cases of smallpox.

Pertinent Suggestions to Health Officers.—In order to secure accuracy and uniformity, the State Board of Health has made the following suggestions:

In case of death from cancer, require a statement of the organ or organs involved in the process, or a statement as to whether the process was general.

In case of death from septicaemia, peritonitis or hemorrhage in an adult female, require a statement as to whether it was puerperal in character.

In case of death from inanition, marasmus, malnutrition or dropsy, secure, if possible, a definite statement of cause.

In case of death from violence or poison, have the death certificate state whether it was suicide, accident or homicide.

In case of death from tonsillitis, spasmodic croup or other suspicious disease of the throat, investigate as to the question of diphtheria, and require the certificate to show the facts.

Do not accept the statement "heart failure" as a cause of death.

Do not accept senility unless deceased is 65 years of age or more.

Death certificates are required for still births and premature births, provided the fetus is twenty-eight weeks old. In all such cases be sure to see that the death certificate states whether the child lived.

DELAWARE.

Diphtheria in Laurel.—Several cases of most virulent diphtheria are present in Laurel. Two deaths were reported from the disease during the week, and the schools have been closed.

The Ridgely Will Probated.—The will of the late Dr. Henry Ridgely of Dover has been probated. The estate is estimated at from \$300,000 to \$500,000. With the exception of a few bequests the entire estate is devised to his widow.

IDAHO.

Is State Law Constitutional?—In the case of Dr. J. J. Raaf, arrested at Hailey on the charge of practicing medicine without a license from the State Board of Medical Examiners, the hearing was postponed pending the decision of the District Court on the constitutionality and other features of the medical practice act.

State Society Meeting.—The Idaho State Medical Society met at Lewiston, October 6 and 7. Dr. Robert L. Nourse, Hailey, was elected president; Dr. J. B. Morris, Lewiston, vice-president; Dr. Lucien P. McCalla, Boise, chairman of com-

mittee on legislation; Dr. John X. Alley, Lapwai, chairman of committee on nominations; Dr. Ed. E. Maxey, Boise, chairman of committee on publication, and Dr. Carol L. Sweet, Boise, chairman of committee of arrangements. Boise was selected as the next meeting place. The society agreed to contribute \$1,000 toward the expense of the meeting of the American Medical Association in Portland.

ILLINOIS.

Smallpox in Marshall.—On November 25 it was reported that there were 10 cases of smallpox in Marshall, with at least four foci of infection. An isolation hospital to accommodate 18 to 20 patients has been prepared, as an epidemic is feared.

Personal.—Dr. Chauncey H. Wilder, De Kalb, first lieutenant and assistant surgeon, Illinois National Guard, assigned Third Infantry, has resigned and will move to Oakland, Cal.—Dr. Robert C. J. Meyer, Moline, lieutenant commander and chief surgeon Naval Militia, Illinois National Guard, has resigned after nine years' service.—Dr. W. E. Taylor, Watertown, superintendent of the Illinois Western Hospital for the Insane, has been elected chairman of the committee on insane and feeble-minded adults, at the state charities convention, November 16.

Recommendations of State Charities Convention.—The convention held at Rockford, November 16, asked for appropriations of \$500,000, and adopted resolutions recommending:

The transfer of the Cook County Hospital for the Insane, Duning, from the care of the county to the state.

The transfer of all insane patients from the various county poorhouses to the state institutions.

The substitution of a "more modern system" for the present grand jury system.

The establishment of an epileptic colony and an appropriation for that purpose from the state legislature.

Investigation and correction of all faulty tenements and dwellings in Chicago.

Passage of a bill compelling the disinfection of houses in which there has been death from consumption.

More adequate appropriation for the state factory inspector's office to enable a more rigid enforcement of the laws pertaining to space and light.

Passage of a bill to regulate the surrender, placing and transfer of children.

Passage of a bill to provide for the visitation of children placed in family homes.

Custody of all feeble-minded women by the state.

CHICAGO.

Resignation.—Dr. Albert Woelfel has resigned his position in the Memorial Institute for Infectious Diseases to accept an appointment in the department of physiology of the University of Chicago.

Not Proven.—Drs. Earl J. Dennis and T. Henry Ryan, charged with having forged the signatures of 22 professors of the College of Physicians and Surgeons to a diploma issued to David Arthur Moses, have been discharged on account of insufficient evidence.

Deaths from Respiratory Diseases.—In Chicago, from October 15 to November 26, there were reported 2,611 deaths from all causes, 309 from consumption and 294 from pneumonia—ratios of 11.8 per cent. of consumption and of 11.2 per cent. of pneumonia. Since the week of November 12, however, when the Chicago pneumonia season of 1904-05 began, there have been 1,317 deaths reported from all causes, 140 from consumption and 182 from pneumonia—ratios of 11.3 per cent. for consumption and of 13.8 per cent. for pneumonia, and these proportions may be expected to continue until the close of next April.

Vital Statistics of the Week.—During the week ended November 26, 425 deaths were reported, an annual death rate of 11.49 per 1,000. The deaths were 54 fewer than the previous week and 87 fewer than in the corresponding week last year. These figures represent reductions of the annual rates, per 1,000 of population, of 11.2 per cent. and 19.3 per cent. respectively. There is also a substantial reduction from the previous week in the number of pneumonia and typhoid fever patients reported in hospital. On the other hand, there is a continuing increase of minor ailments of the nose, throat and air passages, due to the prolonged dry weather.

MARYLAND.

Hospital Soon to Open.—The Peninsula General Hospital at Salisbury will be opened during Christmas week. President William P. Jackson of the board has furnished the building at a cost of \$4,000, and Mr. Walter B. Miller donated a \$500 ambulance. The building, a gift of Congressman Jackson, will cost about \$60,000. It is heated by steam and lighted by elec-

tricity and will accommodate about 50 patients. The teachers' institute of the county will furnish and maintain one private room. The colored teachers will also furnish a room for their race.

Baltimore.

Club Election.—At the annual election at the Johns Hopkins University Club, November 19, Dr. J. Whitridge Williams was elected president and Dr. Henry J. Berkley governor, for four years.

Personal.—Dr. Claribel Cole, pathologist at the Woman's Medical College, is doing research work under Metchnikoff at the Pasteur Institute, Paris.—Dr. Roland B. Whitridge has returned from Europe.

New Building for Johns Hopkins.—Plans have been completed for a new building to be used for research work at the Johns Hopkins Medical School. It will be 30 by 80 feet, two stories in height and will accommodate the animals susceptible to the various toxins.

New Tuberculosis Building.—The new tuberculosis building at the Johns Hopkins Hospital, adjoining the general dispensary, will be formally opened about January 15. It is the gift of Mr. Henry Phipps of Pittsburg, who gave \$20,000 last winter, through Dr. Osler, for a separate dispensary for tuberculous patients. The building is two stories high. It will be equipped with a special library on tuberculosis. The walls are of brick and are painted with white enamel paint and the floors are treated with a non-absorbent preparation. The Laeance Society will have charge of the exercises at the opening. For several years special provision has been made in the general dispensary for the treatment and visiting of tuberculous patients through the generous gifts of two Baltimore ladies.

MASSACHUSETTS.

A Good Ambulance Service.—Boston City Hospital has one of the largest ambulance services in the world. The seven horse ambulances and one automobile at the main hospital and seven other at the relief stations brought in last year 6,767 patients, of whom 1,644, mostly emergency calls, went to the relief station. Besides these, 1,200 patients were taken to the relief station by police ambulances and patrol wagons.

Anniversary of Consumptives' Home.—The Cullis Consumptives' Home, Grove Hill, Boston, celebrated its fortieth anniversary November 20. During these years more than 5,000 patients have been cared for and most of these have ended their days there. The expenses have been over \$1,000,000, entirely contributed by friends of the institution. No salaries are paid except to matron and nurses. The property, valued at \$225,000, is now free from debt and 150 patients are cared for each year.

Year's Work of Floating Hospital.—At the annual meeting of the Boston Floating Hospital, November 22, Dr. Robert W. Hastings, resident physician, reported that during the season, July 6 to September 15, 290 patients were cared for in the permanent wards, an average of 13 1/3 days each. On 54 days trips were made with day patients, of whom 652 individuals made 2,484 trips, or an average of 46 on each trip. This is a considerable advance over the work done in previous years. Among the permanent patients 133 were 6 months old; 97, 6 to 12 months; 46, 1 to 2 years; 11, 2 to 3 years, and 3, 3 to 5 years; 122 were discharged well, 66 relieved, 13 unrelieved, 88 dead and one untreated. Of the 88 who died, 24 were moribund at entrance and survived less than 48 hours and 279 patients were refused, mostly for lack of room. Urgent efforts are now being made, with good prospects of success, to provide a new and larger boat for next season, which shall have beds for 100 patients instead of the present number, 57, which is inadequate.

Petition for Tuberculous Hospital.—The Boston Association for the Relief and Control of Tuberculosis has elected the following officers for the coming year: President, Dr. Edward O. Otis; vice-president, Dr. Arthur K. Stone; clerk, Alice L. Higgins; and treasurer, George S. Mainford. The good work done during the past year is shown in the report of the secretary. Eighty-two lectures have been given in schools, churches, settlements and before labor unions, to 10,500 people; 80,000 leaflets and cards have been distributed showing how to prevent the spread of the disease, and a tuberculosis exhibit at the fair held in the great Mechanics' Building in October attracted the attention of thousands. A visitor is employed to instruct and care for consumptive poor and is able to help 35 new cases each month. As a result of this contact and the

fact that Boston provides only 40 free beds for them at the institutions on Long Island, they have drawn up and are securing signatures to the following petition to the mayor and city council of Boston:

We, the undersigned, citizens of Boston represent:

1. That twelve hundred persons die annually in this city of pulmonary tuberculosis;
2. That at least three thousand persons in the city are not afflicted with this disease;
3. That a very large proportion of these patients can not be properly cared for in their homes, are not fit for the Rutland Sanatorium, and that the present hospital accommodation for such patients is utterly inadequate;
4. That many die who might with proper care be saved;
5. That being inefficiently cared for they infect other members of the family, already worn out by prolonged nursing and watching, and so rendered more susceptible to the disease;
6. That provision for the suitable care of such cases is urgently demanded, both from a philanthropic and an economic point of view.

Therefore, we petition for the immediate erection and maintenance, by the city of Boston, of a hospital for the reception and treatment of all patients in whatever state of the disease who are unable to receive proper care and treatment in their homes.

NEW JERSEY.

Anti-Mosquito Law Failed.—Dr. Henry Mitchell, secretary of the New Jersey State Board of Health, in an address before the Orange Mountain Medical Association, November 18, declared that the work of mosquito annihilation in New Jersey was far from being effective, as the health boards in the state were not willing to advance the money necessary to drain the swamps.

A Malpractice Verdict.—A citizen of North Plainfield who brought suit for \$20,000 damages against Dr. Albert Wickham, Newark, for injuries alleged to have been caused by the improper application of a plaster jacket, was given a verdict of \$780 in the Supreme Court. The defendant will appeal the case to the Court of Errors and Appeals if the Supreme Court refuses to set aside the verdict.

Sanitarium to Be Enlarged.—The Agnes Memorial Hospital in Montclair, recently erected at a cost of \$250,000, with a capacity of 80 patients, now has 100 patients and a second hundred on the waiting list. Mr. Laurence C. Phipps proposes to build a large wing, to cost \$100,000, which will have capacity for 100 additional patients. Pending the erection of the wing it is planned to put up tents to accommodate 50 or more patients.

New Sewage System for Atlantic City.—Efforts are being made to install a modern sewage system in Atlantic City. The bad condition of the present system is well known and has long been condemned. A comprehensive plan for a complete reconstruction of the sewage facilities has been adopted by the authorities and will involve an expenditure of \$300,000. The system, it is said, will be the most modern and complete in the state.

NEW YORK.

Measles Prevalent.—Fourteen cases of measles have been reported from one public school in Buffalo and closure of the school is contemplated.

Joint Hospital and Asylum Illegal.—Attorney General Cunnene has informed the State Board of Charities that the "Baptist Home of Monroe County" can not be organized under the corporation law, because it proposes to combine a hospital with an orphan asylum. The decision affects a number of similar applications before the board.

Longevity of Abstainers.—A number of actuaries and medical directors of New York insurance companies have been working on statistics running over a period of several years. From the records it is claimed that total abstainers as a class live longer by from 20 to 50 per cent, than moderate drinkers, so that this class of applicants will soon have to pay less for insurance than the moderate drinker.

Vote Against Consumptive Sanitarium.—The Sullivan County Board of Supervisors has denied New York City's application to build a sanitarium for consumptives at Mamakating because of the objections raised by keepers of summer hotels. The city has begun negotiations for 1,000 acres on the top of Mount Shawangunk. The plans for the proposed institution will entail an outlay of \$1,000,000 and the cost of maintenance will be \$100,000 annually.

Oppose Optometry Examiners.—The committee on legislation of the Medical Society of the State of New York has issued a circular letter to the medical profession of the state giving a history of the attempt of the Optical Society of the State of New York to have enacted a law creating a state

board of examiners in optometry. The state society, various county societies and the Optical League secured the defeat of the measure. The organization is now endeavoring to gain the indorsement of the medical profession, to be used before the next legislature. On account of the irregular methods practiced by the promoters of the scheme, the committee urges the profession to refuse to indorse the measure and to present the case in its true light to the members of the legislature and urge them to oppose it.

Typhoid Statistics.—The health department has made a detailed investigation concerning cases of typhoid fever reported to the department. According to the report of the inspector approximately 30 per cent. of the cases were incorrectly diagnosed typhoid fever, many cases indicating intestinal toxemia, while others had intestinal disturbances in all likelihood occasioned by temporary water disturbance. Many cases sent to the hospitals as typhoid turned out to be some other sickness than typhoid. All cases in which the Widal test was positive were typhoid. Of the 145 cases examined 97 occurred in families which were not boiling their drinking water, and 41 cases occurred in families in which the drinking water was boiled. Of the 145 cases of typhoid, 95 were mild and 50 severe; 10 lasted less than two weeks, 98 from two to seven weeks, 12 from six to ten weeks, and 7 from ten to eighteen weeks. Only 27 of the patients had been out of the city during the incubation period.

New York City.

Seaside Camp for Tuberculous Children.—This work, begun by the Association for Improving the Condition of the Poor, met with such success that it has been decided to keep the tent camp open all winter.

Brooklyn Jewish Hospital.—The annual report of this institution, which has been in existence only three years, shows that it has grounds and buildings valued at \$175,000* and \$80,000 in cash and pledges.

Eulogium to Dr. Pryor.—At the annual meeting of the New York Polyclinic Medical School and Hospital, November 10, resolutions were adopted eulogistic of the late Dr. William Rice Pryor, and expressing the sorrow of the faculty at his death.

New Brooklyn Hospital.—The application of the Brooklyn and Samaritan Hospital Association for articles of incorporation has been granted by the State Board of Charities at Albany. A building will be erected near Fifteenth street and Fourth avenue.

The Pure Milk Crusade.—Recently the fines imposed in Brooklyn for adulterating milk have been accompanied by the severer penalty of imprisonment. Even after the active work of the Health Department, during the past three months 205 dealers have been arrested and 32,000 gallons of milk destroyed.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended November 19, 323 cases of diphtheria, with 36 deaths; 275 cases of tuberculosis, with 147 deaths; 107 cases of typhoid fever, with 18 deaths; 174 cases of scarlet fever, with 15 deaths; 83 cases of measles, with 7 deaths; 114 cases of varicella, 4 cases of smallpox, and 13 deaths from cerebrospinal meningitis.

Disease in Schools.—Pediculus capitis has prevailed to an alarming degree in the public schools. It is said that of 283,000 children 23,000 are thus afflicted. It has been customary hitherto to send these cases to the school nurses for treatment, but the Board of Health has instituted a plan by which the nurses are sent into the homes, where they instruct the mothers as to the proper method of coping with this condition. If parents refuse to follow instructions, affected children will be excluded from school, and when they are kept out too long, the parents will be arrested on the charge of interfering with the compulsory education law.

Need Endowment.—At the one hundred and fiftieth anniversary of King's College, Columbia University, Dr. McCracken, the chancellor, called attention to the fact that in point of numbers, medical instruction in this city was declining. Twenty years ago there were in New York City and state 2,085 medical students and, at the present time, there are 2,374. In the whole country there has been an increase of 153 per cent., while in New York state the increase has been only 13 per cent. In New York City itself there has been an actual decrease of 10 per cent. This is not because the medical schools are unworthy of patronage, but because of lack of endowment and paucity of material equipment of the

schools. There is a lack of building room and a large number of well qualified students have been turned away.

PENNSYLVANIA.

Diphtheria in Coventry.—Diphtheria is widely prevalent in East Coventry and the northern section of Chester County. Numerous cases and several deaths have been reported in the last week.

A Tall Legislator.—Dr. Andrew J. Barchfield, Pittsburg, who has recently been elected representative from the Thirty-second congressional district, will be the tallest member of the House of Representatives. He is a member of the local and state societies and of the American Medical Association.

Food-Analysis Laboratory.—The state has instituted measures whereby a laboratory for the analysis of food samples secured by the pure food department will be established. A building for this purpose has been secured in Harrisburg. At present all food samples are sent to West Chester and State College for analysis.

Goiter in Rossiter.—Goiter seems to be epidemic in Rossiter, Indiana County. Investigation shows that the disease is peculiar to that neighborhood. The hamlet is situated about 1,800 feet above the level of the sea, and it has been demonstrated that every third inhabitant is a subject of the disease. Healthy persons moving into the section soon become affected. One family of nine persons contains four with goiter and four cretins. The population is made up of Americans who have lived there three generations. The cause of the disease is attributed to the water supply, which is impregnated with salts of lime and magnesium.

State Health Report.—Dr. Benjamin Lee, secretary of the State Board of Health, in his annual report emphatically recommends a law making vaccination compulsory. The recent epidemic of smallpox demonstrates the importance of this step. His report shows that 5,172 cases of smallpox, with 13 deaths, occurred in this state last year. The number of cases at present is only 42. He further urges a law for the immediate registration of deaths and births at the state capital, a law establishing local health authorities outside of the cities and boroughs, and a law providing for state control over public water supplies. He commends the activity of the Philadelphia Board of Health in enforcing vaccination. In that city during the year 1903, 142,397 vaccinations were performed, with the result that the number of cases of smallpox decreased from 396 in December last to 26 in June of the present year and none in July.

Philadelphia.

Donation to German Hospital.—At the annual donation day on Thanksgiving Day, the German Hospital received \$12,000 in cash.

Frazier Receives Appointment.—Dr. Charles Frazier, dean of the Medical Department of the University of Pennsylvania, was appointed on the major surgical staff of the Hospital of the Protestant Episcopal Church, November 25, vice Dr. Richard Harte, resigned.

Vaughan in Philadelphia.—Dr. Victor C. Vaughan of the University of Michigan will deliver an address before the Philadelphia Pathological Society at the College of Physicians, December 8, on "The Relation of Food Adulteration to the Public Health." Immediately after the meeting a reception will be tendered to Dr. Vaughan.

New Animal Hospital.—The directors of the Zoological Gardens have just completed the erection of a thoroughly equipped infirmary and pathologic laboratory, the first of its kind in this country. The purpose of this infirmary is to study the comparative pathology and also the cure of animal diseases. The laboratory work will be carried on under the direction of Dr. Charles B. Penrose, a director of the society, and Dr. Cortland Y. White, assistant director of the Pepper laboratory of the University of Pennsylvania.

Jefferson Library Report.—The report of the librarian of the Jefferson Medical College library for the year just ended showed some interesting and noteworthy facts concerning the contents and circulation of the college library. There were 3,009 volumes in the library, of which 439 were added during the year; 203 by gift and 236 by purchase and binding, the largest gift being 78 volumes from the library of the late Dr. C. W. Horner. There are fewer than 2,000 volumes of general text-books in the library and from these there was a circulation of 10,663 volumes.

Health Report.—Typhoid fever seems to be decidedly on the increase. The cases reported for the week were 29 more than those of last week. The increase is reported from wards not supplied with filtered water. Diphtheria also prevails to an alarming degree. The record-breaking figure of 119 cases reported last week was exceeded this week by 5. There were 296 cases of contagious disease reported, with 13 deaths, as compared with 249 cases and 18 deaths for the preceding week. The death rate for the week was about normal, and the total number of deaths reported was 417. This is an increase of 10 over those of last week, and a decrease of 78 over the corresponding period of last year. Diseases of the respiratory tract caused 111 deaths.

GENERAL.

Professor Hirschberg to Attend the Portland Session.—The officers of the Section on Ophthalmology announce that Professor Hirschberg of Berlin has accepted an invitation to be the guest of that section at the Portland session and to present an address. In his letter to the chairman of the section, Professor Hirschberg says: "This will be my third, and, I think, my last trip to the United States." The section officers are to be congratulated on securing Professor Hirschberg, as his reputation among ophthalmologists is worldwide.

Gross Prize.—The Samuel D. Gross prize of \$1,200 will be awarded Jan. 1, 1905. The conditions are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding 150 printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded on original investigations, the candidates for the prize to be American citizens." The competitor who receives the prize must publish his essay in book form, and deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery. The essays must be written by a single author in the English language and must be sent to the "trustees of the Samuel D. Gross prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South Thirteenth street, Philadelphia," on or before Jan. 1, 1905. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

American Public Health Association.—The latest information concerning rates to this meeting in Havana, Cuba, in January is given by Dr. H. L. E. Johnson, 1821 Jefferson place, Washington, D. C., as follows: Members of the Public Health Association can take advantage of an excursion from Washington, D. C., Virginia and the Carolinas to Havana, Cuba, via Tampa, round trip, meals and berth included on ship, for \$52. Leave Washington, Jan. 5, 1905; arrive Havana, January 8, a. m. Number of passengers limited to 150 out of above territory. Tickets good to leave Havana not later than January 19, reaching the starting point January 22, with stop-overs south of Jacksonville within life of ticket. Members can purchase locally to Washington or other nearer points in above territory, then purchase the special excursion ticket. If 18 passengers go via Washington, we can arrange for a special sleeper attached to train No. 29, Southern Railway, leaving Washington, D. C., 10:51 a. m., January 5. Those desiring to take this trip can communicate with Dr. Johnson. In this connection consult the published statements concerning rates to the Pan-American Medical Congress. As we go to press we receive the following information from Dr. Guiteras: "The program of the American Public Health Association will be an inviting one and of an important character. The Cuban committees are making extensive preparations for the entertainment of the congressists. From the returns now coming in it would seem that at least one-half of the members of the Public Health Association will make the round trip to both medical meetings. It is understood that the Pan-American 'congressists' who do not belong to the Public Health Association will be invited by this association to take part in their discussions as guests, and that they will also be invited by the Cuban entertainment committee to participate in the festivities."

Cuban Yellow Fever Report Denied.—Dr. Carlos Finlay, chief of Department of Health and Sanitation, Havana, is reported as saying that in three years only one case of yellow fever has occurred in Cuba, while Dr. Delgado, also of Havana, disclaims any knowledge of yellow fever cases this year, except in six persons who arrived from Mexico and who were imme-

diately isolated. Of these, two died and the others recovered. The U. S. Public Health and Marine Hospital reports state that Cienfuegos is in an insanitary condition. "There is practically no sewerage system in the city. The streets in the business section are kept fairly clean by daily sweeping. In the residence section, especially near the bay front, the streets are not kept at all clean, fruit and food refuse being allowed to remain in them all the time. The houses of the poorer people—who are three-fourths of the population—are positively filthy from accumulation of ordinary house refuse. There are very few flush water-closets, and none that connect with sewers. Nearly all are surface closets in the houses of the poorer class, and these are seldom cleaned. The better classes of houses have cesspools. These have not been cleaned for four years. The drinking water of the city is of poor quality and not in nearly sufficient quantity, the water pipes being open only from one to two hours in the day. Cienfuegos is in a very insanitary condition from every point of view."

Pan-American Medical Congress.—Physicians desiring to contribute papers on internal medicine at the next meeting of the Pan-American Medical Congress at Panama, Jan. 2-6, 1905, are asked to send titles at their earliest convenience to the secretary of the section on medicine, Dr. Judson Daland, 317 South Eighteenth street, Philadelphia. In view of the facilities offered to reach Panama via New Orleans it is expected that many will choose this route and those who intend to do so are asked to forward their names to Dr. R. Matas, secretary of section on general surgery, 2255 St. Charles avenue, New Orleans, not later than Dec. 22, 1904. Dr. H. L. E. Johnson, chairman of the transportation committee, sends the following further information about rates, etc.: The Di Giorgio line of Baltimore offers a special ship for the exclusive use of party, including meals and berth, at sea and in ports, to Panama, Havana and return, attending both meetings and visiting Kingston and Port Antonio, Jamaica, for \$130—provided 50 persons take passage. The *Athos* will leave Baltimore December 27, 11 a. m.; arrive Panama, January 2, p. m. or 3, a. m.; leave Panama, January 7, a. m.; arrive Havana, January 9, a. m.; leave Havana, January 13, p. m. or January 14, a. m. for Jamaica; arrive Baltimore, January 18. All arrangements must be made ten days before date of sailing. Passengers limited to 70. Apply to Ralph F. Nolley, 103 Park avenue, Baltimore, Panama Railroad and Ship Company; Rate from New York to Panama, one fare and a third for round trip; upper deck, \$123.33; lower deck, \$113.33. United Fruit Ship Company; Rate from New Orleans to Panama and return, \$50; one way, \$25. In connection with this, read previous announcements in THE JOURNAL. Dr. Ramon Guiteras sends the following names of secretaries of sections which were not in his letter of October 25, which was published in THE JOURNAL, Nov. 5, 1904: Dr. C. W. P. Brock, Richmond, Va., railway surgery; Dr. H. P. Newman, Chicago (present headquarters at the New St. Charles Hotel, New Orleans), gynecology and abdominal surgery; Dr. Howard Morrow, San Francisco, dermatology. Dr. Guiteras is secretary of the International Executive Commission of the congress and may be addressed at 75 West Fifty-fifth street, New York City, for further information. He remarks that the cruise of the *Athos* will probably be a memorable one like those of the old buccaners.

CANADA.

No Sanitarium for Kamloops.—The government of British Columbia has assured the Anti-Sanitarium League of Kamloops, B. C., that they have no intention of thrusting a sanitarium for consumptives on that place if the feeling of the citizens of Kamloops is against it. British Columbia will, therefore, have to look elsewhere for a location for their provincial sanitarium.

Vancouver Hospital Report.—Drs. G. D. Johnston and Glen Campbell of Vancouver have been appointed on the staff of the Vancouver General Hospital as ophthalmologists, otologists and laryngologists. The house surgeon's report for the month of October is as follows: Remaining from September, 39 males and 11 females; admitted during the month, males 54, females 15; cured, males 44, females 14; died, 2; remaining in the hospital, males 47, females 12.

Form Inebriate Reform Society.—The Inebriate Reform Society of Ontario has been organized in Toronto to promote the adoption of the probation system for the reformation of inebriates and of the home or dispensary treatment in suitable cases, and to promote the establishment of municipal sanatoria for indigent inebriates. The society will endeavor to push

through the bill which has been drafted at the next meeting of the legislature. Dr. A. M. Rosebrugh, who has taken a great deal of interest in this movement, will be the permanent secretary.

Municipal Sanatoria for Ontario.—The initial step has been taken in establishing municipal sanatoria for the indigent consumptives of Ontario. Special assistance will be provided by the legislature. Representatives from Brant, Oxford, Perth, Wellington and Waterloo counties met in convention at Galt, Ont., and each of these representatives will have the matter brought before their respective county councils. Dr. Radford of Waterloo presided, and gave the statistics for the Dominion of Canada as regards tuberculosis. According to his report there are 6,000 deaths in the dominion every year; 2,694 in the province of Ontario. The approximate number of consumptives in the dominion is 40,000 and in the province of Ontario 15,000.

Army Medical Corps.—A recent militia general order states that, for the purposes of promotion, the officers of the permanent active militia army medical corps and officers of the militia army medical corps will be considered as belonging to two distinct branches, and promotion will take place on the same principle as that in a regiment or corps. Promotions subject to the necessary qualifications will take place as follows: After one year's service as lieutenant, to be captain; after four years' service as captain, to be major. After ten years' service as major, regimental officers may be given the rank of honorary lieutenant-colonel, and their period of service extended or they may be transferred to the reserve of medical officers or the retired list, as the case may be.

Montreal General Hospital Report.—At the quarterly meeting of the board of governors of Montreal General Hospital last week, the report of the medical superintendent, Dr. Campbell, for the three months ended September 30, showed that 829 patients had been treated to a conclusion during that quarter and that there had been 57 deaths, 21 of which had occurred within three days of their admission. This makes the mortality rate for ordinary hospital cases 4.3 per cent. In the outdoor departments there were 10,235 consultations, as compared with 9,692 for the corresponding quarter of 1903. The ambulance responded to 375 calls. The committee of management reported that the receipts for the quarter were \$14,918, or \$942 less than for the same quarter last year. The expenditure amounted to \$24,888, showing a decrease of \$4,155, as compared with 1903.

FOREIGN.

Lectures on Sexual Hygiene.—Prof. Max Gruber is to deliver a course of six lectures at the College of Technology at Munich on "Hygiene of the Sexual Life."

Endowment Fund for Library of Berlin Medical Society.—Professor Lassar has started an endowment fund for the purchase of works of historical value, libraries, etc., to add to the library of the Berlin Medical Society.

The Mayor of Strasburg an Honorary M.D.—The medical faculty of Strasburg, Germany, has conferred an honorary degree on the mayor of the city, on the occasion of his seventieth birthday. The honor was in appreciation of his great services in promoting the public health.

New Psychiatric Clinic at Munich.—The new clinic was formally inaugurated by Professor Kraepelin, November 7. It is said to be the most completely equipped and convenient institution of the kind yet erected. It has 100 beds and a number of innovations designed by the late Professor Bumm.

Convalescent Home at Wiesbaden for Russian Officers.—The Russian Red Cross has opened a convalescent home at Wiesbaden for Russian army officers. The institution is also to admit German army officers when there is room. Dr. Prüssian is the resident physician, with von Noorden of Frankfurt as consultant.

Postgraduate Courses for Life-Insurance Examiners.—The medical examiners in Germany held their annual meeting at Berlin last month. One of the addresses was on the subject of the training in this specialty. The speaker urged that the new academies for practical medicine—the first one was recently inaugurated at Cologne—are pre-eminently the institutions to establish postgraduate courses in scientific medical examination for life insurance.

Spanish Physicians Heroes in Smallpox Outbreak.—The *Siglo Médico* of Madrid is circulating a petition asking for the reimbursement and reward of certain physicians in the smaller

towns who, during recent epidemics of smallpox, tended the victims, obtained food and served it to them after they had been deserted by their friends, and finally buried with their own hands those who succumbed. Eight physicians are mentioned by name, residing in as many different towns, who have done this, their unassisted efforts restricting the epidemic to the houses where the first isolated cases occurred.

Testimonial to Naunyn.—The attention of all who have at any time been pupils of Professor Naunyn at Berlin, Dorpat, Berne, Königsberg or Strasburg, is called to the following notice:

STASSBURG I. E., im November, 1904.
An die Schüler von Prof. Naunyn:
Herr Prof. Naunyn bat am Schluss des vergangenen Semesters sein Amt als Lehrer der Inneren Medizin niederzulegen.

Wir wenden uns an alle, die während seiner annähernd 40 jährigen Thätigkeit durch seine Schule gegangen sind, mit der Aufforderung, ihm in einer gemeinsamen Adresse zu danken.

Die Schüler Prof. Naunyns werden gebeten, uns ihre Namen und Adressen mitzuteilen, damit wir ihnen Blätter zum Eintragen der Unterschriften zusenden können.

PROF. NAUNYNS LETZTE SCHÜLER.
I. A. Heimendinger, cand. med.; Zschocke, cand. med.
Zuschriften zu richten an: Zschocke, Lesingstrasse 31, III, Strasburg I. E.

Educational Number of the Progres Medical.—The issue for Nov. 5, 1904, of the *Progres Médical*, Paris, rue des Carmes 14, is devoted entirely to the institutions for medical instruction and information in France and other French-speaking countries. The list of the latter includes, beside those of Montreal and Quebec, the medical schools at Brussels, Ghent, Liège, Lausanne and Geneva, and the school of medicine and pharmacy at Beyrouth, Syria. It states that the scientific information bureau established at Paris in August, 1903, has had from forty to eighty applicants a day. It is designed to supply all the information desired in regard to the lecture courses, laboratories, hospitals, clinics, museums, public and private services, etc., existing at Paris. It is open from 10 to 5, and can be reached by telephone. The attendants are versed in the current foreign languages, and all the details are classified on the card catalogue system, grouped by establishments, specialties and persons. Another system of cards comprises the details that might have special interest for applicants from given countries. The data in regard to medical institutions in this country and elsewhere are also classified for the benefit of French students. The office is in the Sorbonne, and is in charge of Dr. Blondel, who is secretary general of the International Association of the Medical Press. Berlin and London are planning similar information bureaus.

Annual Burlesque Number of the Munich Medicinische Wochenschrift.—Two numbers of our esteemed contemporary arrived in the same mail, the general make-up apparently identical, the stately list of the collaborators, however, in one being headed—in very small type—"without the slightest participation of." The ads include one for an assistant who "knows enough not to criticise his chief and not so much that the clientele will prefer him." Another advertises for a librarian capable of cataloguing the drug pamphlets and circulars that arrive in the mail daily. A health resort advertises for a resident physician, "a handsome musician preferred, no testimonials required, merely the photograph." One of the original articles describes a new mode of narcosis with ethyl chlorid. The essential principle of the ethyl chlorid was extracted, that is, its refrigerating property, and that was transferred to a vehicle which carried the refrigerating property into the digestive tract. The vehicle found most appropriate is champagne. After long spraying of the bottle with ethyl chlorid the contents were ingested and, after a stage of agitation, profound narcosis was induced. The only drawbacks are nausea and oppression in the *cavum crani* the next morning. The radiogram of a remarkable fracture is given, the picture being merely a solid black square. The "Rights and Duties of the Physician's Wife" are discussed, and the practice of one wife is commended who always added a cipher to the bills her husband made out before she had them mailed. The abstract department contains reviews of the *Grenzgebiete der Utopie und Ironie*, xiii. The first—"Laparotomies under Water" summarizes a description of an epoch-making operating chamber, filled two-thirds with warm water. The head of the patient is enclosed in a helmet like that of a diver, into which the anesthetic is conveyed in a tube. The surgeon and aids wear rubber suits. The purpose of this operating chamber is to prevent the cooling of the interior of the abdomen, and also to insure its being thoroughly rinsed, so that any bacteria introduced during the operation will be rapidly destroyed. As the heads of the operators project, they can be given refreshments from

time to time. The second abstract states that Strahler has found that the eruption in scarlet fever vanishes under intense application of red light. The effect is only temporary, however, the eruption recurring as soon as the red light is withdrawn. Another adverting an indelible ink, invented by Schmierer, to mark on the patient's body the various findings to enlighten other examiners later. Gynecologists should stamp their patients after hysterectomy with some device. The wittiest article in the burlesque is a letter purporting to be from a school girl to her chum in another city describing the progress she is making in the new course on "sexual enlightenment" which the doctors say is indispensable and which has recently been introduced into her school. She writes that the study was tedious at first, when there was nothing but the everlasting division of the cells of the protozoa, algae and sea urchins, but when they got to the mammals it became very interesting, especially when the class was taken to the medical museum to see the babies in whisky. She adds that none of the girls play with dolls any more. They find that dolls have no sex. They have all told the younger children about the "sexual enlightenment," and all play at "getting married." Class B in the fourth grade have recently written to Haeckel, "the biogenesis man," to ask him to send them some human eggs for Easter. She further informs her friend that the girls know now that when they fall in love it is merely on account of concern for the sexual products. The burlesque is well conceived and carried out, especially the skits on the medical conflicts with the sick insurance companies, the opposition to the new academies for practical medicine, etc.

Correspondence.

National Association for the Study and Prevention of Tuberculosis.

BALTIMORE, MD., Nov. 21, 1904.

To the Editor:—At a meeting of the board of directors of the National Association for the Study and Prevention of Tuberculosis in New York, Nov. 16, 1904, it was decided to hold the first annual meeting in Washington, D. C., May 16-17, 1905; having one or two general sessions with distinguished speakers on the broad topics of tuberculosis, and special meetings of the three following sections: sociologic, pathologic and bacteriologic, clinical and climatologic, and that, so far as possible, these sectional meetings should not conflict one with another, each section to be presided over by men distinguished in their respective work, and only papers of undoubted merit and interest may be presented.

The membership of the association includes a large proportion of the most eminent workers in the subject of tuberculosis throughout the country, and it hopes to make its first annual meeting an important one in the crusade in this country against tuberculosis.

HENRY BARTON JACOBS, Secretary.

11 Mt. Vernon Place, West.

Prophylaxis of Tuberculosis in Children.

SKIPPACK, PA., Nov. 16, 1904.

To the Editor:—On page 1460 of THE JOURNAL, November 12, Dr. C. F. Wahrer, in discussing Dr. Louis Fisher's paper, "gave it as his opinion that if a child born of two healthy parents was exchanged for a child born to one or two diseased parents, so that the healthy parents were to take care of the child born of diseased parents, and the diseased parents were to care for the child born of healthy parents, the child that is reared by the healthy parents will have a far better chance of life, notwithstanding its inheritance, than the child that was born of healthy parents but reared in unhealthy environment."

Possibly if some of us would not be blinded by the brilliant (?) statistics emanating from our laboratories and specialists, and would use our eyes a bit, along with just a small amount of the common sense with which we are all more or less endowed, we would not be guilty of such an assertion. Tuberculosis does not just happen because one inhales or swallows a billion or two of the bacilli. The insane, the epileptic, the

drunkard, the thief, the cancerous, the syphilitic, as well as the tuberculous, inherit as children whatever diseased or vicious tendencies they may manifest in after life. Practicing in a section where I lived as a boy, and where the past and present history of every family is known to me, I know that of a certain family, a certain percentage of the immediate or remote descendants will be degenerates and will manifest their faulty inheritance by drunkenness, insanity, epilepsy or other moral or physical weakness; of others that a certain proportion, depending on environment, will develop tuberculosis in its various forms. And I know, just as sure as night follows day, that these things will happen. Heredity is law always and ever. Let us not work ourselves into a frenzy over the presence of a few bacilli, but rather strive to make all soils barren to them, by having our children better born. This is the real work cut out for us; all the rest is simply kindergarten. We will all wake up bye and bye to a full realization of the law of heredity. But we are sleeping very soundly.

J. NEWTON HUNTSBERGER.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

SPECIFIC GRAVITY OF BLOOD—HAMMERSCHLAG'S METHOD.

LOS ANGELES, CAL., Nov. 16, 1904.

To the Editor:—In THE JOURNAL, March 19, 1904, page 801, an article on the specific gravity of the blood recommends the use of Hammerschlag's method. Will you be kind enough to give a full description of his method, one that would be suitable to give to a freshman medical class? T. H. ULLYOT.

ANSWER.—Hammerschlag's method is described in all books on examination of the blood. We reproduce here the statement in regard to it in Cabot's book: "The simplest and most available method for clinical use (in estimating specific gravity of the blood) is that of Hammerschlag, a modification of Roy's method. Chloroform is heavier than blood; benzol is lighter. Mix in a urinometer glass such quantities of the two that the specific gravity taken by an ordinary urinometer is about 1055. I. e., that of normal blood. Puncture the ear, draw a drop of normal blood into the tube of a Thoma-Zeiss pipette, a small medicine dropper, or any other capillary tube, and blow it out again into the chloroform-benzol mixture. The blood does not mix at all with these liquids, but floats like a red bead. If it sinks to the bottom, add chloroform, if it rises to the top, add benzol, until finally the drop remains stationary in the body of the liquid, showing that its specific gravity is just that of the surrounding mixture. Then take the specific gravity of the liquid, as we do of urine, and you have the specific gravity of the drop that floated in it. The following precautions are needed: 1. Have the inside of the urinometer glass perfectly dry and clean; otherwise the drop of blood may cling to it and flatten out against it. 2. It is usually well to have more than one drop of blood in the glass in case any mis-lap occurs with the first one. 3. Add the chloroform and benzol a few drops at a time, and after each addition stir the whole mixture thoroughly with a glass rod. 4. If we have reason to suppose the blood will be lighter than normal (I. e., if the hemoglobin is probably low, vide supra), it saves time to start with a lighter mixture of chloroform and benzol. 5. Avoid having any air within the blood drop. This can generally be seen either in the capillary tube or after the drop is in the mixture. It is safer to take the middle portion of the blood drawn into the capillary tube, as both the first and last portions of the column are more apt to have air in them. 6. The whole process should be done as quickly as possible, else the chloroform or benzol may work into the blood drop and affect its weight. It is better to have a urinometer with a scale running as high as 1070, but this is not essential, for the clinically important specific gravities are low, not high."

INTERNAL VACCINATION.

PHILADELPHIA, November 25, 1904.

To the Editor:—While agreeing with your editorial (p. 1,636), and the reply to a correspondent on p. 1,642, vol. XLIII, No. 22, as to the mistaken idea of the value of the ingestion of small-pox virus, I want to call attention to the fact that certain antitoxins may rightly be administered by the alimentary canal.

Maragliano, and others, have shown that tuberculous antitoxin is effectual so administered (Annali dell' Instituto Maragliano, Genova, September, 1904).

It seems reasonable that antitoxin should be effectual if so given, for any organic matter is not entirely broken up in the alimentary channels, at least to the immediate loss of identity. Maragliano shows that the milk and the proleal tissue of immunized animals exerts a decided antitoxic influence on other animals ingesting the same.

T. H. EVANS, M.D.

ANSWER.—We discovered the report referred to after we had written the answer to the query. Maragliano's announcements that tuberculous antitoxin is effectual administered by the mouth were summarized in THE JOURNAL, pages 71 and 961 of the last volume, and also mentioned on page 579 of the current volume. His latest confirmatory researches corroborate his previous statements, both in regard to the action of antitoxin in the alimentary canal and in regard to the antitoxic and agglutinating power acquired by the milk of immunized animals, which von Behring has also been proclaiming. (See page 621 of the last volume.)

RATES TO PORTLAND.

HARTFORD, Conn., November 24, 1904.

To the Editor:—Can you inform me whether it is probable that arrangements will be made for reduced rates from the East to Portland and back, which can be availed of by say June 1, so that those wishing to take the Alaska trip may do so before the session on July 1? I am told that June is the time for the trip. Will stop-overs at Yellowstone Park be allowed? I would like to attend and incidentally to give my family an outing.

S. B. ST. JOHN.

ANSWER.—The probability is that the rates will be proportionately reduced from all parts of the country, i. e., half rates to Missouri River points, from which the rate will be \$45 for the round trip. It is probable that the special rates will go into effect about the third week in May, but official announcement of the time has not been issued. Stop-overs will be allowed at Yellowstone Park. In this connection read the editorial in this issue and the one printed November 12, page 1,474.

PHYSIOLOGY OF THE BRAIN.

OCONTO, WIS., November 25, 1904.

To the Editor:—I have been reading of late Loeb's "Physiology of the Brain." I would like to read more in that line: could you advise me? I invested in the latest edition of Kirke's Physiology, but that gives me little satisfaction. I also possess Sajons', vol. 1, "The Internal Secretions," etc. I should like to have some works to show things developed along this line during the last twenty years.

C. W. STOELTING.

ANSWER.—You will find five chapters on the "Physiology of the Brain," also on the "Physiology of Internal Secretions" in the last edition of the American Text-Book of Physiology, two volumes, by Wm. H. Howell of Johns Hopkins University. Published by W. B. Saunders & Co., Philadelphia, 1900.

LAWS OF PRACTICE IN MEXICO.

TULSA, IND. TER., ———, 1904.

To the Editor:—Please give the laws governing the practice of medicine in Mexico.

J. C. B.

ANSWER.—The practice of medicine in Mexico is free, but to have any legal standing, to be able to sign death certificates, to give testimony or to hold medical positions, one will have to pass an examination, in Spanish, varying in severity in the different states. There would be some inconvenience in general practice without such a license in certain states of the republic. In others, a license may be less a requisite. A very full description of the laws and the conditions of the practice of medicine in Mexico was published in THE JOURNAL, Dec. 23, 1899, p. 1629.

Marriages.

GEORGE SEAY, M.D., to Miss Rosa Cardoza, at Blackstone, Va., November 15.

HARRY A. MEISNER, M.D., to Miss Mary L. Wernig, at Baltimore, November 16.

LEONARD K. HUSHBERG, M.D., to Miss Edna Dalsemer, at Baltimore, November 24.

CHARLES E. BENSON, M.D., to Miss Angelina J. Keenan, at Baltimore, November 14.

JOHN NEVINS, M.D., to Miss Bessie Haggarty, both of Greene, Iowa, November 15.

JOHN A. TOMPKINS, M.D., to Miss Fredericka Gore McLane, both of Baltimore, November 19.

REMY G. DUCOTÉ, M.D., to Miss Florence Bordelon, both of Bordeloville, La., November 15.

ALPHONSO J. McLAUGHLIN, M.D., to Miss Stella Potter, both of Sioux City, Iowa, November 16.

A. LEE CARMICHAEL, M.D., Little Rock, Ark., to Miss Rose Beach of Kansas City, Mo., November 16.

NICHOLAS LEEKE DASHIELL, M.D., to Miss Amelia Eleanor Marine, both of Baltimore, November 23.

ERNEST D. HAMMOND, M.D., to Miss Inez Blanche Wilson, both of Salt Lake City, Utah, November 24.

JAMES A. FARRER, M.D., Dayton, Ohio, to Miss Cora L. Kauffman of Miamisburg, Ohio, November 16.

GEORGE DEMPSTER HAWLEN, M.D., to Mrs. Estelle Louise Berckmans, both of New York City, November 21.

WILLIAM CHARLES KEETTEL, M.D., Lyons, Neb., to Miss Eunice Una Rohde of Oakland, Neb., November 9.

FREDERICK UPHAM DAVIS, M.D., St. Clair, Minn., to Miss Erna Marie Lassow of Mankato, Minn., November 28.

HOWSON W. COLE, JR., M.D., assistant surgeon U. S. N., to Miss Helen Fay Pendleton, at Annapolis, November 19.

J. B. DOUGHERTY, M.D., New Berlin, Ohio, to Miss Jeannette R. Evans of Emporia, Kan., at Granville, Ohio, November 17.

Deaths.

Nelson L. North, M.D. College of Physicians and Surgeons in the City of New York, 1854, of Brooklyn, a member of the American Medical Association, New York State Medical Association, New York Academy of Medicine; physician and consulting surgeon to the Methodist Episcopal Hospital, and the Williamsburgh Dispensary, one of the oldest and most esteemed physicians of the Eastern District of New York, died suddenly from pulmonary hemorrhage, November 23, in Brooklyn, aged 74.

Seth S. Ultrich, M.D. Jefferson Medical College, Philadelphia, 1881, associate professor of surgery in Baltimore Medical College, a member of the Medical and Chirurgical Faculty of Maryland; surgeon-major Maryland National Guard, attached to the Fourth Infantry; surgeon to the Baltimore & Ohio Railroad, died suddenly from angina pectoris at his home in Baltimore, November 20, aged 46.

D. Bird Miller, M.D. Bellevue Hospital Medical College, New York City, 1874, formerly county physician of Richland County, S. C., and assistant superintendent of the State Hospital for the Insane, Columbia, died suddenly at his home in that city November 11, from heart disease, aged 54.

Elbert Mortimer Somers, M.D. College of Physicians and Surgeons in the City of New York, 1853, surgeon of the 146th New York Volunteer Infantry in the Civil War, and postmaster of Deansboro, N. Y., from 1861 to 1869, died at his home in that city after a long illness, aged 79.

Joseph Hume Taylor, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1876, a member of Lapeer County, Michigan State and Northeastern medical societies, died at his home in Lapeer, Mich., November 24, from general tuberculosis, aged 53.

Driesbach Smith, M.D. Cooper Medical College, San Francisco, 1885, and professor of nervous diseases in that institution, formerly assistant physician at the Napa State Hospital, died at the Marine Hospital, San Francisco, November 16, from disease of the spinal cord, aged 42.

Charles V. Mottram, M.D. Indiana Medical College, Laporte, 1847, surgeon of the Sixth Michigan Volunteer Cavalry during the Civil War, for several years under treatment at the Northern Michigan Asylum, Traverse City, died in that institution November 6, aged 85.

Robert Morris, M.D. Albany (N. Y.) Medical College, 1846, surgeon of the Ninety-first New York Volunteer Infantry in the Civil War, who retired from practice a year ago on account of ill health, died at his home in Ogdensburg, N. Y., November 14, aged 94.

James A. Bond, M.D. University of Louisville Medical Department, 1881, an eye and ear specialist of Kansas City, at one time surgeon of the Third Infantry, N. G. Mo., died at his farm in Craig, Mo., November 19, from tuberculosis, aged 48.

Charles H. Cockey, M.D. University of Maryland School of Medicine, 1867, for three years instructor in microscopy in that institution, died at his home in Baltimore, November 19.

George A. Beck, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1875, of Flemington, Pa., died recently and was buried at Jacksonville, Pa., November 17.

Orison B. Damon, M.D. Harvard University Medical School, Boston, 1866, assistant surgeon in the Navy during the Civil War, for many years a resident of Chicago, died at his home in Normal, Ill., November 18, from apoplexy, aged 67.

Daniel Fordyce Randall, M.D. Vermont Medical College, Woodstock, for many years a practitioner of Chesterfield, N. H., died at the home of his daughter in North Hinsdale, November 7, from heart disease, aged 76.

Spencer J. Northrup, M.D., one of the pioneer physicians of Minnesota, was run over by a freight train, November 7, and died from his injuries at his home in Buffalo Lake, November 8, aged 62.

Richard H. Meserve, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1853, who retired from practice in Limerick, Maine, two years ago, died in Augusta, November 11, aged 85.

A. Frank Taylor, M.D. Cleveland Medical College, 1868, a member of the Broome County (N. Y.) Medical Society, died recently at his home in Castle Creek, and was buried November 13.

Lewis W. Sutherland, M.D. Albany N. Y.) Medical College, 1855, of Pittsburg, Pa., died at the South Side Hospital in that city, November 12, after an illness of nine months, aged 78.

John W. Thomas, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, died at his home in Charleston, S. C., and was buried November 12, aged 68.

Daniel P. Putnam, M.D. College of Physicians and Surgeons in the City of New York, 1850, died from cerebral hemorrhage at his home in Cleveland, Ohio, November 4, aged 82.

Plato M. White, M.D. Medical College of Ohio, Cincinnati, 1882, shot himself through the heart while despondent, at his home in Los Angeles, November 10, aged 45.

C. T. Taggart, M.D. Central College of Physicians and Surgeons, Indianapolis, 1886, once member of the state legislature, died recently at his home in Sullivan, Ill.

W. E. McCord, M.D. Kentucky, 1894, died at his home near Crafton, Ky., November 17, from intestinal obstruction, after an illness of one week, aged 67.

Corbin F. Hargis, M.D. University of Maryland School of Medicine, Baltimore, 1890, of Pocomoke City, Md., died at Baltimore, November 18, aged 43.

Daniel F. Burton, M.D. Rush Medical College, Chicago, 1878, died at his home in Galesburg, Ill., November 17, from peritonitis, after a short illness.

George W. Lampton, M.D. Indiana, 1897, died at his home in Jeffersonville, Ind., November 19, from consumption after a lingering illness, aged 67.

J. P. Willett, M.D. Medical College of Ohio, Cincinnati, 1883, died November 15 from an accidental gunshot wound at his home in Webb City, Mo.

George Dallas Streeter, M.D. Pennsylvania, 1872, died suddenly at his home in Waco, Texas, November 18, from heart disease, aged 60.

J. R. Porter, M.D., a prominent physician of Jones County, Mississippi, died at his home in Moselle after a short illness, November 19.

Harvey H. Stamper, M.D. Kentucky School of Medicine, Louisville, 1892, died recently at his home in Campton, Ky., aged 34.

Richard K. Paine, M.D. Illinois, 1873, died suddenly at his home in Manitowoc, Wis., November 14, from heart disease, aged 63.

John S. Boyd, M.D. Ohio, 1874, died at his home in New Brighton, Pa., November 19, from tubercular peritonitis, aged 59.

Charles H. Craddock, M.D. Kentucky School of Medicine, Louisville, 1894, died at his home in McLoud, Okla., November 16.

William W. Newburn, M.D. Memphis (Tenn.) Medical College, 1860, died at his home in Memphis, November 18, aged 65.

John S. Petrie, M.D. Louisville Medical College, 1858, died suddenly at his home in Bardwell, Ky., November 9, aged 72.

Stephen W. Moore, M.D. Illinois, 1873, died at his home in Marion, Ind., November 14, after a short illness, aged 71.

John Bunn, M.D. Starling Medical College, Columbus, Ohio, died recently at his home in Batavia, Ohio, aged 68.

Henry Moore Humphrey, M.D. Philadelphia, died at his home in Dresden, Germany, November 13, aged 83.

Samuel R. Thompson, M.D. Ohio, 1859, died at his home in Uhrichsville, Ohio, November 14, aged 75.

Jesse R. Jones, M.D. Ohio, 1856, died at his home in Jackson, Miss., November 24, aged 71.

Herr H. Woods, M.D., died at his home in Granby, Mo., November 19, aged 104.

F. E. Marsh, M.D., died at his home in Quincy, Mich., November 12, aged 71.

D. C. Scarborough, M.D. Texas, died recently at Alba, Texas.

Death Abroad.

Herbert William Allingham, F.R.C.S.

The brilliant career of one of the best known of the younger surgeons of London has been cut short under tragic circumstances by his death at Marscilles, France, November 4. Herbert William Allingham was born in 1862, the eldest son of Mr. William Allingham, who was for many years the leading authority in England on diseases of the rectum and the author of the standard work on the subject. He passed the membership examination of the Royal College of Surgeons in 1883 and the fellowship examination in 1887, and in the same year was appointed surgeon to the Great Northern Central Hospital and demonstrator of anatomy in St. George's Hospital. Soon after he was appointed surgeon to St. Mark's Hospital for Fistula, the hospital at which his father had worked and made his reputation. In 1894 he became assistant surgeon to St. George's Hospital. He made the best use of his ample opportunities and soon acquired a great reputation not only as a specialist on diseases of the rectum, but as one of the best operators in general surgery in London. From an early age he assisted his father in his work and thus was armed with an experience and skill which many surgeons could not acquire until after years of hospital work. He edited the later editions of his father's work on "Diseases of the Rectum," wrote an excellent book on "Operative Surgery," and contributed an article on the diagnosis of diseases of the rectum to "Allbutt's System of Medicine." His reputation extended to the highest circles. In 1902 he was appointed surgeon-in-ordinary to the Prince of Wales and surgeon to the king's household. He was very kind and courteous and the services which he rendered to members of his profession in difficulties are remembered with gratitude by many. The death of his wife in last January, who had long been an invalid, was a severe blow to him. To add to this he had the misfortune about eighteen months ago to contract a chronic disease while operating on a patient. To this fact his friends attribute his inability to shake off the depression which followed his wife's death and his yielding to the strain.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Nov. 26, 1904:

Sweeney, Verge E., asst.-surgeon, granted two months' leave of absence.

Borden, Wm. C., McCaw, Walter D., surgeons, and Darnall, Carl R., asst.-surgeon, appointed members of a board of officers to meet at Army Medical Museum Building, Washington, D. C., Nov. 29, 1904, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion.

Cox, Walter, and Marrow, Chas. E., asst.-surgeons, ordered to Army Medical Museum Building, Washington, D. C., for examination for promotion.

Johnson, R. W., surgeon, granted leave of absence for two months. Barron, Noel L., asst.-surgeon, died at Iloilo, P. I., Oct. 20, 1904.

Maus, Louis M., deputy surgeon general, leave further extended twenty days. Mearns, E. A., surgeon, granted thirty days' sick leave with permission to apply for thirty days' extension.

Lashford, B. K., asst.-surgeon, granted thirty days' leave of absence about Dec. 20, 1904.

Davis, Oscar F., contract surgeon, returned to duty at Fort De Soto, Fla., November 13 from leave of absence.

Van Kirk, Harry H., contract surgeon, returned to duty at Fort Sil, Okla., November 13 from leave of absence.

Lemmon, Robert, contract surgeon, ordered from Fort McKinley, Me., to Fort Du Pont, Del., for temporary duty.

Plunkston, Omar W., contract surgeon, left Madison Barracks, N. Y., November 17, on leave of absence for two months.

Cooke, Robert P., contract surgeon, granted leave of absence for twenty days.

Rietz, Hugo C., contract dental surgeon, granted leave of absence for one month.

Merriek, John N., contract surgeon, left Fort Missoula, Mont., November 16 on leave of absence for two months.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Nov. 26, 1904:

Lando, M. E., asst.-surgeon, ordered to the Naval Hospital, Mare Island, Cal.

Wright, C. K., A. A. surgeon, ordered to the Naval Hospital, Norfolk, Va.

Nelson, H. T., Jr., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant (junior grade) from Nov. 14, 1904.

Berryhill, T. A., surgeon, detached from the *Baltimore*, and ordered to the *Oregon*.

Diehl, C., surgeon, detached from the *New Orleans* and ordered to the *Baltimore*.

Crandall, R. P., surgeon, detached from the *Oregon* and ordered to the *New Orleans*.

Nelson, H. T., Jr., asst.-surgeon, ordered to the Naval Hospital, Washington, D. C.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the six days ending Nov. 22, 1904:

Carmichael, D. A., surgeon, Bureau letter of Sept. 21, 1904, granting leave of absence for one month from Oct. 18, 1904, amended so that said leave shall be for 28 days only.

White J. H., surgeon, granted leave of absence for eight days from November 20.

Greene, J. B., P. A. surgeon, granted leave of absence for four days from Nov. 11, 1904, under Paragraph 191 of the Regulations.

Lumsden, L. L., P. A. surgeon, granted leave of absence for one month and ten days from November 20.

Goldberger, Joseph, P. A. surgeon, granted leave of absence for five days from Nov. 10, 1904, under Paragraph 191 of the Regulations.

Amesse, J. W., asst.-surgeon, granted leave of absence for fourteen days from Jan. 9, 1905.

Ebersole, R. E., asst.-surgeon, granted leave of absence for fifteen days.

Duke, B. F., A. A. surgeon, granted leave of absence for twenty-five days from November 15.

Frick, John A., surgeon, granted leave of absence for thirty days from December 1.

Frissell, C. M., A. A. surgeon, granted leave of absence for fifteen days from November 9.

Goldborough, E. W., A. A. surgeon, granted leave of absence for three days from November 26.

Hume, Lea, A. A. surgeon, granted leave of absence for thirty days from November 7.

Kimmer, W. A., A. A. surgeon, granted leave of absence for fifteen days from November 16.

Sibree, H. C., A. A. surgeon, granted leave of absence for seven days from November 18.

Townsend, W., A. A. surgeon, granted leave of absence for thirty days from December 15.

Miller, Charles, pharmacist, Department letter of Nov. 7, 1904, granting leave of absence for fourteen days from Nov. 10, 1904, amended to read fourteen days from November 15.

Hanrath, F. R., pharmacist, to report to medical officer in command at Cleveland, Ohio, for temporary duty and assignment to quarters.

Southern, F. A., pharmacist, granted leave of absence for twenty-six days from November 20.

Public Health.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Nov. 19 to Nov. 25, 1904:

SMALLPOX—UNITED STATES.

California: Los Angeles, Nov. 6-12, 1 case.
Illinois: Nov. 13-19, Chicago, 21 cases, 2 deaths; Danville, 1 case; Springfield, 1 case imported from East St. Louis, Ill.
Louisiana: New Orleans, Nov. 6-19, 4 cases.
Michigan: At 48 places, Nov. 13-19, present.
Missouri: St. Louis, Nov. 13-19, 10 cases.
New York: New York City, Nov. 13-19, 4 cases.
Ohio: Toledo, Nov. 13-19, 1 case.
Pennsylvania: Philadelphia, Nov. 13-19, 2 cases.
South Carolina: Georgetown, Nov. 16, 2 cases; Greenville, Nov. 13-19, 2 cases.
South Dakota: Sioux Falls, Nov. 13-19, 2 cases.
Washington: Tacoma, Nov. 6-12, 2 cases.
Wisconsin: Milwaukee, Nov. 6-19, 42 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Oct. 15-29, 43 cases, 2 deaths; Rio de Janeiro, Oct. 9-23, 578 cases, 183 deaths.
China: Chefoo, Oct. 8-15, 1 case; Shanghai, Oct. 15, 3 deaths.
France: Paris, Oct. 30-Nov. 5, 12 cases.
Great Britain: Oct. 30-Nov. 5, Bristol, 7 cases; Manchester, 1 case; Newcastle-on-Tyne, 5 cases; Nottingham, 2 cases.
Italy: Palermo, Oct. 30-Nov. 5, 16 cases, 2 deaths.
Netherlands: Rotterdam, Oct. 30-Nov. 5, 1 case.
Philippine Islands: Manila, Sept. 19-24, 2 cases, 2 deaths.
Spain: Barcelona, Oct. 21-31, 15 deaths.

YELLOW FEVER.

Brazil: Para, Sept. 1-Oct. 20, 16 deaths; Rio de Janeiro, Oct. 9-23, 2 cases.
Ecuador: Guayaquil, Oct. 26, 1 death.
Mexico: Nov. 6-12, Merida, 1 case; Texistepec, 21 cases, 4 deaths.
Panama: Colon, Nov. 7, 1 case from Panama.

CHOLERA.

Egypt: Suez, Nov. 4, 2 cases from Br. S. S. *Coulsdon* from Java.
India: Calcutta, Oct. 8-22, 22 deaths.
Russian Empire: Baku, Oct. 11-18, 60 cases, 24 deaths; Merv, Oct. 1-7, 1 case.

PLAGUE.

Africa: Cape Colony, Port Elizabeth, Oct. 13-19, 1 case.
Brazil: Bahia, Oct. 15-Nov. 4, 18 deaths; Rio de Janeiro, Oct. 9-23, 72 cases, 25 deaths.
Chile: Iquique, Oct. 1-15, present.
India: Bombay, Oct. 19-25, 63 deaths; Calcutta, Oct. 8-22, 5 deaths; Karachi, Oct. 17-25, 9 cases, 8 deaths.
Peru: Callao, Oct. 1-15, 3 cases; Lima, Oct. 1-15, 5 cases.
Straits Settlements: Singapore, Oct. 26-Nov. 8, 1 case, 1 death.

Medical Organization.

SPECIAL WORK IN WISCONSIN.

By J. N. McCORMACK, M.D.

CHAIRMAN OF THE COMMITTEE ON ORGANIZATION.

The itinerary arranged for me in this state was even more extensive than the one heretofore reported in THE JOURNAL for Indiana. Dr. Sheldon is nearly a model of what the secretary of a state association should be, and, having ample notice of my intention to visit his state for detailed work, with the advantage of the experience gained by the Indiana Council in similar efforts, and the assistance of their circular letters and programs, he was soon able to put the entire machinery of his new organization in operation to secure a full attendance at the meeting in each council district.

Dr. Sheldon made the Indiana circulars and programs and his own suggestions into a kind of "Round Robin," and, beginning with the district in which the first meeting was to be held, had them sent from councilor to councilor until all had had the benefit of the information thus easily furnished. The success of this plan was soon made evident in both the attendance and interest.

Beginning at La Crosse, November 3, in a little less than three weeks I visited Eau Claire, Superior, Ashland, Wausau, Marinette, Oshkosh, Sheboygan, Milwaukee, Burlington and Madison, holding a meeting in each district except the one in the extreme southwestern part of the state and two in the Superior district.

Wisconsin is new in this work, having reorganized and adopted the county society plan only eighteen months ago, but the progress made in that time is remarkable. Many of the counties in the lumber regions in the central and northern sections are very sparsely settled, making it necessary for the present, at least, to organize two or more counties together, but nearly every county is embraced in some local organization and over two-thirds of the entire profession of the state have been brought into the membership.

While in none of these counties were the societies up to the standard of two or three of the best in Indiana in their practical work and in the results secured, considering their age, and especially in view of the enthusiasm aroused by these district meetings, the outlook is most promising. The younger element abounds here and dominates the profession to a degree not observed elsewhere, although this condition of affairs should have been expected in a new country. The districts were usually so large that only a representative attendance was possible from some of the counties, but these promise to begin work on the lines laid down by the Association as soon as they returned home to make each county society a vital, practical force for the scientific, social, moral and financial benefit of every physician and citizen within its jurisdiction.

In this state, as in many others I have visited, the most serious obstacle to real organization lies in the absence of any practical co-operation or even understanding between the state societies and the state licensing board, and between the county societies and the county boards of health. Even where there are sectarian boards, or sectarian representatives on one board, the difficulties of such co-operation are being constantly minimized as the work of organization progresses and will soon be entirely removed by complete frankness and fair dealing on all sides. This would all have been made easier if we had provided for a representative from all such boards in the House of Delegates in each state association, as I believe should be done.

The hospitality of the physicians of Wisconsin was only limited by time and opportunity. The only complaint which could be made was that the refreshments and social entertainments were often so elaborate as to consume time needed for the practical. Altogether the experience there was pleasant, profitable and an inspiration for even better work on my part in the future.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Southern Surgical and Gynecological Association, Birmingham, Ala., December 13-15.

Western Surgical and Gynecological Association, Milwaukee, Wis., December 28-29.

American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Nov. 2, 1904.

Dr. Harold N. Moyer in the Chair.

Stenosis of the Lower Portion of the Esophagus.

DR. B. W. SIPPY presented a man who, five or six weeks ago, began to have difficulty in swallowing. During the act of swallowing he feels great discomfort below the lower portion of the sternum, which is more pronounced in swallowing liquids than solids. The onset of the trouble was rather sudden. Some days the difficulty in swallowing is greater, and on these days food is regurgitated without any effort at vomiting. The food does not taste sour, but is regurgitated in practically the same condition as when swallowed. Dr. Sippy said that when a patient presents himself with pain in the lower portion of the sternum on eating, and when food regurgitates, or even before the symptom of regurgitation is present, esophageal stenosis should be suspected. Many things produce pain on eating, among them obstruction of the esophagus, ulcer of the cardiac end of the stomach, carcinoma of the cardiac end of the stomach, perigastric inflammation, either acute or chronic, perigastric adhesions and epigastric swelling. Dr. Sippy introduced an esophageal bougie of large size, and located the obstruction in the esophagus at about 40 centimeters from the incisor teeth, the obstruction being near the cardia. A diagnosis of esophageal stenosis at its lower portion was made. After considering at length the differential diagnosis, he said it is advisable to place the esophagus as nearly at rest as possible. Foods should be given which are mushy in character, neither too hot nor too cold, and which will pass readily without causing irritation.

He said that Mikulicz fed a patient through the gastrostomy wound for five years, and still the spasm continued. He subsequently cut down through the gastrostomy wound and forcibly stretched the cardiac orifice, producing a submucous rupture of the fibers, and the patient has had no trouble since. He has operated on three other cases since, with good results. Dr. Sippy said that cases which are recognized early may be so managed that the process does not continue. Spasmodic esophageal stricture may continue for a period of a few months, then followed by spontaneous recovery. Once dilatation occurs, it is very improbable that a patient ever recovers, and sooner or later there comes a time when there is so much spasm that the patient can no longer obtain a sufficient quantity of food for nourishment. Some patients die in two or three years, while others live many years, but it is a serious condition after dilatation is once present. Dr. Sippy passed the esophagoscope (after thorough cocaineization of the esophagus), so that the members of the society could see the point of constriction. He said that in this case a bougie would be passed day by day; the patient would be given food that was non-irritating; between 30 and 40 grains of bromid of sodium would be given every four hours, and the patient's body would be given as much rest as possible. With this line of treatment he hoped to succeed finally in overcoming the spasm, as there was no ulceration, no erosion, and no sacculation in this case.

DISCUSSION.

DR. NORMAN BRIDGE stated that Dr. E. Fletcher Ingals once found the cardiac extremity of an esophagus absolutely open. Dr. Bridge has no doubt that this was due to some pathologic state. He urged the utmost care and caution in passing esophageal bougies, as he has known of some instances where great violence was done by exerting too much

force in introducing bougies into and against the spasm of the cardiac end of the esophagus. He related the case of a woman who had a spasm of the esophagus, which was extremely unyielding at times, so that it made swallowing of food difficult, yet at other times it would relax so that she could swallow without the slightest difficulty.

DR. NORVAL H. PIERCE has used the esophagoscope in the diagnosis of tumors and in extracting foreign bodies. He thinks the instrument has a rather limited, though well-defined, sphere. In diagnosis it is extremely important, and for the purpose of removing foreign bodies it stands pre-eminently to all other measures.

DR. SIPPY said that until recently spasm of the esophagus, producing dilatation, was seldom diagnosed. Probably not more than 75 or 80 cases are reported in the literature up to the present time. The condition, however, is relatively common, but is overlooked. Within the last eight months he has seen 7 cases of idiopathic dilatation of the esophagus with cardiaspasm. He has previously reported 3 cases. Physicians must diagnose this condition of the esophagus early to prevent the serious results which will certainly follow if dilatation once takes place.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Nov. 3, 1904.

Dr. Andrew H. Smith in the Chair.

The Present Status in the Investigations of the Subject of Internal Secretions.

DR. WILLIAM H. THOMSON made this the subject of the Anniversary Discourse. He said that laboratory reports have shown us how ignorant we are in regard to certain pathologic and physiologic processes. The mechanism of secretion has always been more or less obscure. There is no common agreement regarding the urinary secretion nor even regarding a single element in the urine. It is still a question what the kidney has to do with urea, for when three-quarters of the kidney have been removed from healthy dogs, the remaining one-quarter has secreted more urea than a sound and whole kidney until the animal died from a general breakdown of the proteid tissues into urea. He said that uremia is not due to the suppression of the functions of the kidney, because one could have an impacted calculus, with complete suppression of urine, without developing uremia. The secretions, no matter in what amounts nor how easily procured, have but little to tell of the vital processes to which they owe their origin. He reviewed the functions of different glands in the light of recent research. The spleen must be an important organ, as it is present in all vertebrates, yet it has been proved that all animals can get along without the spleen, and its extracts show no special properties. The thymus gland seems to be in some way associated with the origin of white blood corpuscles, and, as the lymphatic tissues increase, this body becomes superfluous. The autopsies on 18 cases of marasmus that have been reported show that the only lesion found was that of atrophy of the thymus. Dr. Thomson concluded that atrophy of the thymus is always found in cases of infantile atrophy and that the condition of the thymus is an index to the general nutrition. The general increase of lymphatic tissue throughout the body, accompanied by enlargement of the thymus, is best treated by cod-liver oil. In regard to the thyroid gland, he said that myxedema has been artificially produced, and is unmistakably the result of atrophy of the gland itself. The administration of thyroid extract holds myxedema in abeyance, and the elements that this gland adds to the blood are very important. The question as to whether this gland is necessary to life has received various answers, but more recently it has been held that certain small bodies, called parathyroids, which are closely associated with the thyroid, and in some animals imbedded in the gland itself, while they can not compensate for the thyroid if this latter is removed, yet if the parathyroids are removed the animals experimented on are taken with tremors, convulsions, etc.: no such condi-

tions result if the thyroid is removed and the parathyroids left. He thought that some internal secretion may have antitoxic functions by which poisons in the body are neutralized. It is claimed that Graves' disease is accompanied by hypertrophy of the thyroid and this charges the blood with an excess of its own secretion. In all cases of Graves' disease, he has found the parathyroids smaller than normal. He has concluded that the thyroid is not primarily the seat of Graves' disease, but is only a secondary involvement, much as the spleen is involved in ague. He maintains that the treatment of this disease by diet and gastrointestinal attention gives better results than symptomatic or surgical procedures. He believes that the internal secretion of the thyroid is intimately related to the nutrition of connective tissue. Thyroid extract has been prescribed for almost every condition, but its real value is still undetermined. The fact that so small a body as the pituitary gland should interfere with nutritive changes, as in acromegaly, seems strange. One can not but concur, however, with the opinion that disease of this body is a common accompaniment of acromegaly. He believes that the normal growth of the body represents the sum of the interaction of the growth of different organs of the body. In acromegaly a general derangement of the processes of nutrition may include the functions of one or more of the ductless glands. He said that there is no doubt that the pancreas has much to do with the origin of diabetes; if the whole gland is excised, diabetes will develop in its most severe form. The extent of the influence of the islands of Langerhans on the development of diabetes is not clearly known. Diabetes is not dependent on the quantity of secretion, for if one-quarter or one-fifth of the pancreas is left in the body no diabetes occurs. Addison's disease is caused by disease of the adrenals. The chief property of adrenalin seems to be to cause arterial contraction. A not improbable surmise is that the high tension of the pulse in many forms of kidney disease is due to the action and excess of adrenalin in the blood. The inference is that a high tension pulse goes with a contracted kidney; if this action is exerted by some agent in the blood, the administration of some vasodilator should be followed by increased urinary secretion. He considers it very important that the adrenals should be carefully examined in every case of kidney disease.

Travel Notes.

XVIII.

BENGAL MEDICAL COLLEGE AND CALCUTTA GOVERNMENT GENERAL HOSPITAL.

NICHOLAS SENN, M.D.
CHICAGO.

PORT SAID, EGYPT, Sept. 26, 1904.

The medical interests of Calcutta, a city of great commercial importance, with nearly a million of inhabitants, center in the Bengal Medical College and the Government General Hospital; its clinical department, college and hospital are located on the same spacious grounds, artistically laid out, intersected by well-made and well-kept walks and ornamented with trees, shrubbery and flowers. (Fig. 1.) Both institutions are managed by officers of the Indian Medical Service, who constitute the faculty of the college and attending staff of the hospital, thus cementing together the didactic and clinical teaching and uniting them practically under one administration, and securing uniformity in the methods of teaching and a systematic progression of the courses from term to term and year to year.

BENGAL MEDICAL COLLEGE.

The Bengal Medical College was founded in 1830, and from a small beginning has gradually developed into a great medical school with an attendance at the present time of about 600 students. The original structure is an imposing, massive stone building with graceful fluted columns and broad stone steps on the side of entrance. The college, as well as the hospital

which in reality forms an integral part of it, had to be enlarged from time to time in order to accommodate the rapidly increasing number of students. The requirements for admission and graduation correspond with those of the other medical colleges of India. Separate laboratory buildings have been erected, well adapted for the purposes for which they are intended and fairly well equipped. The medical classes are very much mixed, not only in nationality and color, but also in the different aims pursued by the students. Thus there are "regular" and "casual" students; the former continue their studies for five years with a view of passing the final examinations for the L.M.S. or M.B. degree; the latter are permitted to take a partial course of lectures or any department of hospital



Fig. 1.—Bengal Medical College, Calcutta.

practice, with the permission of the principal of the school and the professor, on payment of the fees in advance at the fixed rates.

Then there are special provisions made for female medical students and military pupils. Admission to the female certificate course is granted by the principal, provided the student has passed the preliminary arts examination. Admission to the military pupil course is regulated by the director-general of the Indian Medical Service. I am particularly anxious to define in connection with the Bengal Medical College the status of female medical students in the medical colleges of India. Female students may enter: a, As regular students for the



Fig. 2.—Quarters for military pupils.

university course; b, as female certificate students; c, as casual students. The preliminary arts examination required before entering is: a, The F.A., Calcutta, or its equivalent; b, the entrance, or its equivalent; c, the entrance, or its equivalent. A student who has entered for the university course may be permitted by the principal to change her plans of studies at any stage, and to join the certificate class instead. Female students entering as regular or female certificate students are eligible for a government scholarship, 20 rupees per month, and are not charged any fees.

FEMALE CERTIFICATE CLASS.

Admission to this class is granted by the principal. The



Fig. 3.—Eden Hospital, Calcutta.



Fig. 4.—Elephantiasis of legs. By courtesy of Capt. Rogers, I. M. S.

number of admissions is determined by him. Students of this class must be over 17 years of age before commencing their studies. They must have passed a preliminary arts examination before admission to the college, viz., 1, entrance examination of the Calcutta university or an equivalent; 2, a preliminary arts examination recognized by the British general medical council.

THE SURNOMOVE HOSTEL.

All female students are expected to reside in the hostel, located in the college grounds, and only under exceptional circumstances will they be allowed to live with friends or guardians outside the college. Applications may, therefore, have to be refused on the ground that there is no accommodation in the hostel. Under the rules of the hostel preference is given to native students. While in the hostel students are under the supervision of the lady superintendent and must conform to



Fig. 5.—An undiagnosed case. By courtesy of Capt. Rogers, I. M. S.

the rules laid down for their guidance. While within the college precincts students are under the disciplinary control of the principal.

MILITARY PUPIL CLASS.

The present attendance of Bengal Medical College includes 96 military pupils who, at government expense, are being edu-

cated for the subordinate Indian Medical Service. These students are in uniform and reside in a separate building across the street from the college (Fig. 2), and besides pursuing their routine studies are drilled daily by a retired captain of the Indian army, who at the same time exercises supervision over them and is responsible for their conduct outside of the college precincts. The following are the regulations for this class:

1. The administrative control of this class, as a portion of the Indian subordinate medical department, rests with the director-general of the Indian Medical Service.
2. Students are admitted to this class under the orders of the government of India, military department.
3. Students must be of European or Eurasian parentage, physically fit, of good character, and between 16 and 18 years of age on admission.
4. While at the college they will be styled military pupils.
5. Their education at the college is intended to fit them for employment in hospitals of British troops and in military and civil appointments.
6. The course of study is four years.
7. Military pupils must obtain permission from the principal before attending lectures on subjects outside their curriculum.
8. The periodical and final examinations of the curriculum will be conducted by the faculty, and students who fail to pass them will be dealt with in accordance with the rules laid down in the prospectus issued by the director-general of the Indian Medical Service.
9. At the end of the course military pupils, if reported qualified, will be attested and admitted into the Indian subordinate medical department.
10. At the same time they will receive a certificate qualifying them to practice physic in India and designate themselves diplomates of the Medical College of Bengal.
11. A military pupil who, at the end of his first year at the college, does not, in the opinion of the principal, give promise of proving a successful or desirable student, will be liable to removal.
12. A military pupil, in the event of failing to pass the periodical and final examinations of the curriculum, or misconducting himself, may be summarily removed by the director-general of the Indian Medical Service, and all certificates to which he may otherwise be entitled withheld.
13. A military pupil desirous of relinquishing his studies can only do so with the sanction of the director-general, and on refunding the whole amount of pay received by him.
14. A military pupil who, after completing the course, declines to be attested, will similarly refund the whole amount of pay received by him, and will not receive any certificates.
15. The order and discipline of the military pupils is maintained by the superintendent of military pupils and the resident staff, under orders of the principal.
16. While under instruction in the college or hospitals military pupils are subject to the rules for the maintenance of discipline applicable to other students.
17. Leave of absence to military pupils is granted by the principal.
18. No certificate of attendance on any course of lectures, or practical work, will be granted to a military pupil unless he has passed the entrance examinations of the Calcutta university, or its equivalent, before commencing the course, and has also paid the fees laid down for casual students.

Female medical students who enter the certificate class continue their studies for four years and are required to pass a satisfactory examination in the following branches:

First Year.—Descriptive and surgical anatomy, general anatomy and physiology, materia medica, elementary chemistry, dissection, practical pharmacy, followed by a test examination in anatomy, physiology, materia medica and chemistry.

Second Year.—Descriptive and surgical anatomy, general anatomy and physiology, materia medica, chemistry (full course), dissections (six postmortems), nine months' hospital practice, three months' out-patient practice, to be followed by a final examination in anatomy, physiology, materia medica, and chemistry.

Third Year.—Medicine and clinical medicine, surgery and clinical surgery, midwifery, medical jurisprudence, pathology, practical midwifery (three labors), ophthalmic medicine and surgery, six postmortems, nine months' hospital practice, three months' ophthalmic hospital practice, to be followed by final examination in pathology and medical jurisprudence.

Fourth Year.—Medicine and clinical medicine, surgery and clinical surgery, midwifery, practical midwifery (six cases of labor), three months' hospital practice, midwifery wards (six months), dental out-patient practice (three months), dental surgery (optional), to be followed by final examinations in medicine and surgery and midwifery.

It will be seen from the above that in the whole curriculum there is only one optional branch—dental surgery. The English teachers of medicine and surgery believe in the wisdom of making the attendance on all lectures and clinics obligatory, as it should be. Some of our best American medical colleges are making a serious mistake in giving the students too much liberty in the choice of their studies, the results of which must necessarily be a fragmentary and imperfect knowledge in some of the most important branches they are expected to master. Optional liberties in a medical college are as harmful as they would be if they were introduced into our primary schools. Students thus privileged will only learn enough of the branches that are distasteful to them to squeeze through the final examinations and no more. Optional studies are in place in post-graduate education, but should not be countenanced in a medical college whose function it is to instruct the students systematically and thoroughly in all branches pertaining to medicine and surgery.

The Bengal Medical College has undertaken the education of midwives, a very commendable extension of its wide field of usefulness.

MIDWIVES AND DAIS.

The regulations for this department are formulated under this heading.

Women who have a fair knowledge of English, but who have not passed the entrance examination or its equivalents, will be admitted into the Eden Hospital to learn midwifery. The government grants 20 rupees (\$6.40) a month toward the board, washing, etc., of each pupil and gives them free quarters. After a year's tuition and bedside practice, if found proficient, they will obtain a certificate qualifying them to practice midwifery. The fee for each certificate is 5 rupees (\$1.60). They are expected to do general nursing in the wards as well as midwifery. Women who have not passed the entrance examination or its equivalents, but who can read and write Bengali, can be admitted into the Eden Hospital as pupil dais. The government grants 6 rupees (\$1.92) each month to eight pupils toward their board, washing, etc., and gives them free quarters. After twelve months' tuition and bedside practice, if found proficient, they will obtain a certificate qualifying them to practice midwifery. They are expected to do nursing in the wards as well as midwifery. The education of these two classes of midwives for country and village practice must meet a pressing need, as in many remote parts of India medical aid is too remote to be available in obstetrical cases. These women can be made also very useful to physicians and patients as nurses in grave cases of illness or accident.

Major F. J. Drury, I.M.S., is principal of the college, and Professor Bird occupies the chair of surgery.

CALCUTTA GOVERNMENT GENERAL HOSPITAL.

The Calcutta Government General Hospital is virtually the clinical part of the Bengal Medical College. The different pavilions and laboratories form a group of buildings of which any city and country might well be proud. The Eden Hospital (Fig. 3), a separate, new modern building, is the maternity in which about 600 women are delivered every year. The strictest cleanliness prevails throughout this building and sepsis in in-patients is almost unknown. The woman in labor is prepared with the same care as for a major operation, and everything brought in contact with her during the delivery and lying-in period is carefully disinfected (hands) and sterilized (dressings). The delivery room has all the aspects of an operating room. Three tables are always kept in readiness. Mother and child remain in the hospital from ten to fourteen days after delivery. The Ezra ward, with forty beds, the gift of a rich Jew, is for the exclusive use of Jews. The original hospital building is an old-fashioned two-story solid stone

building which in the light of modern improvements would appear somewhat antiquated if it were not for the electric lighting and electric punkah motor. The latter is kept in motion night and day during the hot season and is a source of immense comfort to the patients. The hospital can accommodate 450 patients and has a few private rooms for which a charge of 2 rupees (64 cents) a day is made. The operating room has a small amphitheater which affords standing room for the students, but lacks many of the conveniences and appliances considered at the present time so essential for aseptic surgical work. As in all hospitals in India, chloroform is the favorite anesthetic and the bichlorid of mercury takes the first place as an antiseptic. Buried sutures have been abandoned almost entirely and the removable silk and silkworm-gut sutures are in general use. The nursing is in charge of two Anglican sisters, who are also at the head of a recently organized training school for female nurses, which has now an attendance of forty pupils. Male and female ward attendants assist the nurses in their work. The pupil nurses are Europeans or Eurasians and remain for only one year in training.

Among the more interesting cases Professor Bird showed me five patients recently operated on for abscess of the liver. All were doing well, although greatly emaciated from the effects of the disease. Abscess of the liver appears to be extremely common in this part of India, as Professor Bird not long ago operated on twenty cases in two months. Carcinoma in all its forms is met with here with about the same frequency as in Europe. Acute osteomyelitis and surgical tuberculosis, on the other hand, are comparatively rare. Syphilis and gonorrhea are very common, but in the native both of these diseases pursue a benign course. Enlargement of the prostate gland in the aged natives is very rare. This statement is confirmed by all surgeons I met in India. They can offer no explanation for this, but there must be something in their habits or manner of living that protects them against this curse of advanced life so common among Europeans and Americans. Stone in the bladder is very common, but comparatively few of these cases enter the hospital, as they are operated on by physicians who practice in the country districts, the operation being regarded by them as a safe and easy one.

A chronic parenchymatous inflammation of the mammary gland in young men is of frequent occurrence here and is usually treated by excision. Cystitis is very rare as compared with our hospital experience. Two reasons might be advanced to explain this: the rarity of prostatic hypertrophy in India and the very mild course gonorrhoea pursues in the natives.

Professor Quicke of Bombay made the statement to me that he never knew of a rajah to enter on a catheter life. Tuberculosis of the kidney and bladder is also infinitely more rare in India than in our country. As is the case with all colored races, the natives of India are very subject to benign tumors, especially fibroma, keloid, lipoma, papilloma and cystoma. On the other hand, affections of the veins, hemorrhoids, varicocele and varicose veins of the lower extremities, are not nearly as frequent as with us. Among the thousands of bare-legged men I saw in India I did not observe a single instance of well-marked varicosity and, considering the enormous clinical material that passes through the large hospitals, the number of operations for hemorrhoids and varicocele is astonishingly small. Laxative vegetable diet, active exercise, absence of tendency to obesity and looseness or absence of dress will go far to explain the comparative freedom from ectatic disease of the hemorrhoidal, spermatic and saphenous veins, a suggestion which might be of some service to our numerous sufferers from plethora, obesity and stagnant venous circulation.

In the medical wards I found here, as in all hospitals in India, the greatest variety of malaria and its multitude of complications. A large part of the hospital space is occupied by malarial patients and the physicians here have an excellent opportunity throughout the entire year to study malaria in all its endless clinical and pathologic aspects.

What an excellent place Bombay or Calcutta would be for a great school for the study of tropical diseases! (Fig. 4.) The material is here, and not in London nor Liverpool, and if

utilized to greatest advantage it must be studied here and not thousands of miles away from where the diseases had their origin.

Typhoid fever is not so common as we would suspect after an inspection of the water supply and insanitary environments of the masses of the natives. The native prefers to draw his water from the well that has served his ancestors for centuries rather than from the tap of the modern water-works. If it is at all within reach, water from the sacred Ganges is his favorite drink. Most of the cases of typhoid fever I examined in the different hospitals of India were of a mild type, and the mortality from this disease as published in the hospital reports is not great.

India has its share of pulmonary tuberculosis, but for reasons that can not be explained tuberculosis of bones and joints is very rare as compared with the frequency with which this disease attacks our childhood population. In any of our large hospitals we see ten cases of joint and bone tuberculosis to one in the hospitals of India, and on the streets of Chicago ten cripples from this disease to one in India. The same remarks apply to tuberculosis of the lymphatic glands and genito-urinary organs. Diarrhea, dysentery and malaria are the prevailing diseases of India and it is these affections that tax most heavily the therapeutic resources of the physicians, both in hospital and private practice. In this as well as in all clinical hospitals of India, much stress is placed on the practical training of the students, more especially by bedside instruction. The out-patient department is utilized to the greatest advantage and it is here that the students are given the very best opportunities to come in touch with the patients. Under the supervision and guidance of the professors or competent instructors, they are required to make thorough clinical examinations, apply dressings and assist in the operative work, and the last year students are privileged to perform some of the minor operations.

The average medical student in India has a keener taste for practical work than for scientific research, and consequently makes good use of his clinical opportunities. The female medical students are no exception to this rule, although it is generally admitted that at the end of the curriculum, in consequence of a more diligent attendance on the didactic lectures and a more liberal use of midnight oil in reading their text-books, they are ahead of their male colleagues in the theoretical knowledge of medicine. The male medical students are very fond of all kinds of athletic sports, and the time spent by them in developing their physical strength is made use of by the women in committing to memory the contents of their text-books. Then, too, the young men spend more time in amusements when away from the playgrounds and out of the hospital and lecture-rooms than the young women, who have less desire in this direction and are kept under stricter supervision.

If I had any criticism to offer in the methods of teaching clinical surgery in India I would say that the clinical material and specimens obtained by operations and postmortems are not made use of to the greatest advantage for the benefit of the students. Pathology should be made the most important feature in the teaching of surgery as well as of medicine. In defense of this apparent neglect it must be said that the clinical teachers in some of the colleges are without the necessary appliances and equipments to give surgical pathology the prominence it so well deserves (Fig. 5).

It was in the pathologic laboratory of the Bengal Medical College that I was given an opportunity to examine a new parasite, the *Piroplasma donovani*, through the courtesy of the director of the laboratory, Capt. Seward Rogers, I.M.S. He was also kind enough to furnish me with several mounted slides containing this parasite so recently discovered by Leishman and Donovan. In another place I will give a more detailed account of this parasite, history of its discovery and etiologic relationship to splenic anemia. Medical science is much indebted to the researches of the members of this corps, many of whom are indefatigable workers in a climate well calculated to undermine physical strength and paralyze mental activity.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Tinea Tonsurans.

The following outline of treatment is recommended by Gaucher in *Med. Press* in treatment of tinea tonsurans occurring in children: The hair should be cut as closely as possible once a week; massage to the scalp twice daily is recommended, giving special attention to the diseased spots. After the massage the following should be applied by means of a tooth brush, with friction:

R. Olei ricini	.....	℥i	4
Tinct. cantharidis	.....	℥i	4
Spiritus camphoræ	.....	℥iv	120

M. Sig.: To be applied locally once a day.

In adults it is not necessary to cut the hair. The scalp should be washed once a week with tar soap and frequent massage applied by the patient. As a local application the following is recommended:

R. Spiritus odoratus (Eau de cologne)	.....	℥ss	45
Spiritus lavendulæ	.....	℥ss	45
Tinct. capsici	.....	℥i	4

M. Sig.: To be well applied locally once a day.

The following ointment may be substituted for the foregoing liquid preparation:

R. Balsami Peruviani	.....	℥ss	15
Acidi salicylicii	.....	gr. xx	130
Resorcini	.....	gr. xx	130
Liq. petrolati	.....	℥iii	90

M. Fiat linimentum. Sig.: To be applied locally at night.

At the same time the patient may be instructed to rub the scalp every morning with the following stimulating mixture:

R. Essentia terebinthinæ	.....	℥ss	15
Spiritus camphoræ	.....	℥iii	90
Liq. ammoniæ	.....	℥i	4

M. Sig.: Apply locally in the morning.

In the case of a woman the following combination is recommended by the author:

R. Hydrarg. chloridi corros.	.....	gr. iv	25
Acidi aceticii glacialis	.....	gtt. xx	130
Resorcini	.....	℥ss	2
Chloralis hydratis	.....	℥i	4
Tinct. cantharidis	.....	℥i	4
Tinct. jaborandj	.....	℥i	4
Spiritus rect.	.....	℥vii	210
Olei ricini	.....	℥i	30

M. Sig.: To be applied locally once daily.

Lumbago.

The following combinations are recommended by *Med. Press* in the treatment of lumbago:

R. Antipyrini	.....	℥i	4
Sodii salicylicis	.....	℥i	4
Aquæ	.....	℥iii	60

M. Sig.: One teaspoonful four times daily.

The local treatment is important. As a liniment the following is recommended:

R. Methyl salicylicis	.....	℥iii	8
Tinct. belladonnæ	.....	℥ii	8
Tinct. opii	.....	℥ii	8
Spiritus camphoræ	.....	℥iv	120

M. Fiat linimentum. Sig.: Apply locally twice daily with light massage.

Yeo recommends the following local application:

R. Spiritus chloroformi	.....	℥i	4
Olei olivæ, Æ.	.....	℥ii	60

M. Sig.: To be rubbed thoroughly over the affected areas.

Or:

R. Liqnoris ammoniæ	.....	℥ss	15
Olei terebinthinæ, Æ.	.....	℥i	30
Olei olivæ	.....	℥ss	2
Olei limonis	.....	℥ss	2

M. Fiat linimentum. Sig.: Apply locally.

Or:

R. Olei cajuputi	.....	℥i	8
Tinct. opii, Æ.	.....	℥iii	8
Olei terebinthinæ	.....	℥ss	15

M. Fiat linimentum. Sig.: To be applied locally with thorough friction.

Aconite in combination with opium is of value in relieving the pains of muscular or joint rheumatism. The following combination is recommended:

R. Tinct. aconiti	.....	℥iii	8
Olei terebinthinæ	.....	℥i-℥ii	30-60
Tinct. opii	.....	℥i	30
Linimenti saponis q. s. ad.	.....	℥vi	180

M. Fiat linimentum. Sig.: To be used locally three times a day.

Internally the following combination is recommended by Yeo in the treatment of chronic muscular rheumatism:

R. Pulv. resinæ guaiaci	.....	℥i	4
Potassij iodidi	.....	℥i	4
Tinct. colchici sem.	.....	℥iii	12
Syrupi simplicis	.....	℥ii	60
Aquæ cinnamomi q. s. ad.	.....	℥vi	180

M. Fiat mistura. Sig.: A dessertspoonful to a tablespoonful twice daily.

Pruritus Ani.

Pruritus, according to Mr. Malcolm Morris in *British Med. Journal*, is more often a symptom than a disease. As an etiologic factor, gout ranks first as a cause of pruritus ani. Certain articles of diet, such as shell fish and strawberries, are apt to cause it. Other general causes are tobacco, rheumatism, albuminuria and diabetes. Locally, hemorrhoids, constipation, fissure, fistula, foreign bodies, worms, parasites, especially pedicula, growths, irritating discharges and diseases of the sweat glands, all are etiologic factors. It may be a reflex symptom, pointing to disease of the urethra, uterus, bladder, tumors, etc.

In the treatment of pruritus ani, therefore, the cause should be ascertained if possible, and removed. Any disorder of the liver, stomach, intestines and genitourinary tract should be properly treated.

A bland, nutritious diet should be recommended and constipation corrected. Condiments, rich sauces, highly seasoned foods and game should be forbidden. Abstinence from alcohol should be insisted on or it should be used very moderately. Coffee should also be prescribed in very limited quantities.

Autointoxication must be prevented by antisepsis. Small doses of calomel are particularly useful, given at night and followed by a saline the following morning. Ichthyol, five grains (.30) taken on an empty stomach in the morning and late at night is of value. Salol should also be given as an antiseptic. As a laxative aloes is contraindicated because of its irritating action on the rectum. If the appetite is poor and nutrition failing, tonics are indicated. Quinin, arsenic and nux vomica may be given under proper circumstances. Opium should not be given, as it has a tendency to produce itching.

If the pruritus is so severe as to disturb the sleep, succus conii, one dram (4.00), given three times a day, is of value. The bromids with sulphonal or chloral may be cautiously allowed. Thorough flushing of the system with large quantities of weak alkaline waters is often a potent aid in treatment. For this purpose the author recommends a course at certain mineral springs. Scrupulous cleanliness must be observed. The use of paper in the ordinary way is quite insufficient to clear the small portions of fecal matter. And, according to Adler, the use of harsh paper, especially when printed on, is a cause of pruritus. Pledgets of cotton serve the purpose better, moistened in warm water. The application of water as hot as can be borne is recommended by the author as one of the most efficacious measures. Oatmeal, bran, borax or sodium bicarbonate may be added to the water with advantage. In persons who sweat profusely carbolic acid lotion (1 to 60), a

saturated solution of boric acid or permanganate of potassium lotion should be used. After bathing, a soothing or cooling remedy should be applied.

Local remedies for pruritus ani may be classified as anodyne, antiseptic and caustic.

Cocain ranks first as an anodyne. It should be applied in the form of a suppository containing one-half a grain (.03) of the substance, or an ointment (4 per cent.) with boric acid ointment as a base. The patient should not be allowed to use it long at one time. Menthol may be used combined with cocain or alone in a solution as follows:

R. Mentholigr. x | 65
Alcoholisʒi | 30

M. Sig.: To be applied locally.

Sodium bisulphate frequently applied in the form of a poultice in most instances gives relief. Carbolic acid is especially good in many cases, applied in solutions one grain to six (.06 to .40) to the ounce (.30) of water, or in the form of a liniment (1 to 19) of olive oil. Or it may be combined with cocain or mercury in the form of an ointment. The following formulae are recommended by the author:

R. Acidi carbolicim. xx | 30
Cocainæ hydrochlor.gr. x | 65
Liq. petrolatiʒi | 30

M. Fiat unguentum. Sig.: Apply locally after cleansing the parts well.

Or:

R. Acidi carboliciʒss | 2 |
Cocainæʒss | 2 |
Aq. laurocerasiʒi | 30 |
Aq. rosæʒi | 90 |

M. Fiat unguentum. Sig.: Apply locally.

Or:

R. Acidi carboliciʒss | 2 |
Hydrarg. perchlor.gr. ii | 12 |
Olei olivæʒi | 8 |
Ung. zinci oxidii benzoatis q. s. ad.ʒi | 30 |

M. Fiat unguentum. Sig.: Apply locally.

The author also recommends the tar preparations in the treatment of pruritus ani as follows:

R. Lotio picis carbonisʒi | 8 |
Lotio calamineʒviii | 240 |

M. Sig.: Fiat lotio. Sig.: Locally as a wash.

Tar combined with bismuth may also be applied in the form of an ointment as follows:

R. Ung. picis liquidæʒi | 4 |
Bismuthi subnit.gr. xx | 130 |
Adipis q. s. ad.ʒi | 30 |

M. Fiat unguentum. Sig.: To be applied locally.

Compresses soaked in oil of cade or Peruvian balsam in liquid petroleum are of value.

Silver nitrate is also recommended where other combinations fail, applied as follows:

R. Argenti nitratisgr. iiii | 20 |
Spiritus etheris nitrosiʒi | 30 |

M. Sig.: To be locally applied.

Tincture of iodine is also recommended by the author, and when piles are the cause the unguentum gallicæ will relieve the itching. Zinc oxid is best applied as follows:

R. Zincii oxidiiʒi | 8 |
Liq. petrolatiʒi | 8 |
Olei olivæʒss | 15 |
Aque calcisʒss | 15 |

M. Fiat unguentum. Sig.: Apply locally.

As an antiseptic mercury is the best, applied in the form of the oleate and combined with morphin. The mild chlorid of mercury is advised combined as follows:

R. Hydrarg. chloridi mitisʒss | 2 |
Liq. petrolatiʒi | 30 |

M. Fiat unguentum. Sig.: To be applied locally.

Lotio nigra is frequently used to relieve the itching and to effect a cure combined as follows:

R. Lotio nigraʒi | 120 |
Liq. calcis, aa.ʒiv | 120 |
Mucil. tragacanthæʒi | 4 |

M. Sig.: Apply locally.

Another combination recommended by the author is as follows:

R. Hydrarg. perchlor.gr. ii | 12 |
Glyceriniʒss | 15 |
Aque chloroformi q. s. ad.ʒviii | 240 |

M. Sig.: Apply locally.

Or:

R. Hydrarg. ammoniatigr. xx | 130 |
Adipis benzoatisʒi | 30 |

M. Sig.: Apply locally.

As a caustic, silver nitrate is recommended in the following strength:

R. Argent. nitratisʒss | 2 |
Spiritus etheris nitrosiʒi | 30 |

M. Sig.: To be applied locally on an applicator as a caustic.

The actual cautery is recommended, in some cases, first anesthetizing the patient, and running it lightly over the areas at a white heat. If there is spasmodic tightness of the sphincter the muscle ring may be forcibly dilated. In purely neurotic forms the less local treatment the better it will be for the patient. "Straight talking," as he expresses it, is far better than drugs in this class of patients. Tonics such as quinin or strychnia are also indicated in these neurotic cases.

Medicolegal.

Who "Able" to Pay for Care by Board of Health.—Section 51 of chapter 18 of the Revised Statutes of Maine provides, in substance, that when any person is infected with any disease or sickness dangerous to the public health the local board of health may remove him to a separate house, and there care for him at his charge, "if able." The Supreme Judicial Court of Maine holds, *Inhabitants of Greenville vs. Beauto*, that such a person is not chargeable with any part of the expense incurred, if he is not able to pay the full amount. Such a person is not chargeable with the expense incurred, if he is not financially able at the time of his discharge, although he was able to labor, and did labor, and afterwards accumulated sufficient money to pay the expense. The phrase "if able" relates to the pecuniary ability of the party at the time the expenses were incurred.

Pretending to Cure Sickness by Removing Evil Spirits.—The Court of General Sessions of Delaware says, in the case of *State vs. Durham*, that it was claimed on the part of the state that the defendant pretended that a certain Rachel A. Fitzgerald was possessed of an evil spirit, that her sickness was caused by the presence of this evil spirit, and that he alone possessed the power to remove the same, and to heal her disease or cure her of her sickness. The indictment was founded on a statute of that state against pretending to exercise the art of witchcraft, conjuration, fortune-telling, or dealing with spirits, which statute, the court says, is founded in wisdom. The purpose of that statute manifestly is to protect people in certain grades of life from being imposed on by persons pretending to possess a power that they do not have. It is a matter of common experience that persons afflicted with disease rely oftentimes on, or give credit to, persons who claim to be possessed of supernatural powers. Those who are oftentimes subject to that imposition are particularly people who are weak, and who are in great straits of sickness; and this law was designed to protect just such people from impostors, if any such there be, who may go around and make pretense of healing or curing through the exercise of supernatural power, which the intelligence and enlightenment of this day utterly denounce and discredit. If the jury believed from the testimony in this case that the defendant did make pretense that he alone had the power to remove these evil spirits and cure Rachel A. Fitzgerald of her sickness by reason of his influence over these spirits, its verdict should be "Guilty." If the defendant was guilty, he ought not to be turned loose. The verdict returned was "Guilty."

Foundations Required for Opinions as to Sanity.—The Supreme Court of Iowa says, in the case of *Stutsman vs. Sharpless*, that attention has been directed in previous decisions to the difference between the foundations to be laid for a non-expert's opinion of the sanity and of the insanity of a person under investigation. See *Alvord vs. Alvord*, 109 Iowa, 113; *In re Illull's Will* (Iowa) 89 N. W. Rep. 981. The facts on which an opinion that deceased's mind was unsound should appear in their natures somewhat inconsistent with mental soundness, as that the acts or talks of deceased were unnatural or unusual, or such as would not ordinarily be anticipated from a person of his character. In other words, the facts and circumstances must have been such as tended to support the witnesses' conclusion. But the court says that it was only necessary in this case, as already stated, that the circumstances related tended to indicate an unsound mind. Undoubtedly the witness must have enjoyed adequate opportunity of observing the deceased's capacity, but habits of observation, as well as conditions of the subjects of investigation, differ so radically that no general rule as to what character or number of circumstances shall be related before the witness may speak his opinion can be laid down. See *Wigmore's Evidence*, section 659. Having indicated some facts which tend to support the opinion to be given, the witness should be allowed to express it, and its value, as well as the effect thereon of any explanatory circumstances, as that the condition was produced by a stroke of apoplexy, is for the determination of the jury, rather than the court. It will not do to allow juries to say what facts were material in securing the opinion of a medical expert, and to what extent a variance in the facts would have changed his opinion. The only safe rule is to reject the opinion unless the facts hypothetically stated are established by the evidence. If a portion of the facts are to be eliminated, the witness, and not the jury, should be permitted to estimate the difference this change would effect in the opinion he has expressed.

Failure to Register Prevents Recovery for Services.—The Supreme Court of Georgia says that the only question presented by the record in the case of *Murray vs. Williams* for adjudication was whether a physician who has registered, as required by the statute, in the county of his former residence in the state of Georgia can, after his removal into another county in the state to reside and practice his profession, recover for professional services rendered by him in the latter county before he has registered therein. The Code provides that: "Every person lawfully engaged in the practice of medicine within this state, before commencing to practice, shall register in the office of the clerk of the Superior Court of the county wherein he resides and is practicing, or intends to commence the practice of medicine, in a book to be kept for the purpose by said clerk, his name, residence and place of birth, together with his authority for practicing medicine, as prescribed in [Chapter 4 of the Political Code of 1895]. The person so registering shall subscribe or verify, by oath or affirmation, before a person duly qualified to administer oaths under the laws of this state, an affidavit containing such facts, and whether such authority is by diploma or license, and the date of the same, and by whom granted, which shall be exhibited to the county clerk before the applicant shall be allowed to register. The county clerk shall receive a fee of 50 cents for each registration, to be paid by the person so registering."—Political Code of 1895, Sec. 1479. "Any such registered physician in this state, who may change his residence from one county into another county in this state, shall register within the clerk's office of the county to which he removes and wherein he intends to reside and to practice medicine, as provided in the preceding section."—Pol. Code 1895, Sec. 1480. "Any person who shall fail to register or who shall practice medicine or surgery in violation of the provisions of the Civil Code, shall be guilty of a misdemeanor."—Penal Code of 1895, Sec. 455. These sections of the Code, the Supreme Court says, are intended to protect the public against incompetent and unqualified practitioners of medicine, and not for raising revenue, and are, therefore, prohibitory. One who practices medicine without having registered as the Code requires can not

recover for his services. Clark on Contracts (2d Ed.), Sec. 153. "Even where there is no express provision that the contract for remuneration for services rendered by an unlicensed physician shall be void, still, if the statute imposes a penalty for practicing without having obtained a license, or without having complied with other statutory provisions, the courts will apply the prohibition, and a recovery can not be had for professional services rendered."—22 Am. and Eng. Enc. of Law (2d Ed.), 795. See also in this connection Conley vs. Sims, 71 Ga., 161 and citations. Wherefore, the court holds that a physician who has failed to register in compliance with the provisions of sections 1479 and 1480 of the Political Code of 1895 can not recover for professional services rendered by him, and that the judgment of the trial judge, who decided contrary to the views herein expressed, must be reversed.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below

American Medicine, Philadelphia.

November 19.

- 1 The Sphere of Bacteriology. Edwin O. Jordan.
- 2 *The Postdischarge Mortality Among the Patients of the Adirondack Cottage Sanitarium. Lawrason Brown and E. G. Pope.
- 3 The Flinsen Light. Roentgen Rays and High Frequency Electric Currents in Certain Diseases of the Skin; Another Year's Experience. L. Duncan Bulkley.
- 4 The After-effects of Hysterectomy on the Nervous System, the General Health and the Sexual Functions. J. Riddle Goffe.
- 5 *The Treatment of Basedow's Disease, with Report of a Case. O. E. Lademann.
- 6 *The Treatment of Epithelioma by Means of the Roentgen Ray. George C. Johnston.

2. **Postdischarge Mortality.**—Brown and Pope emphasize that the real test of the sanatorium treatment is not the immediate but the ultimate result. The mortality among patients discharged in various conditions affords the best method of studying the permanent results of sanatorium treatment. Of those discharged apparently cured, 93 per cent. of the expected living are alive; of the disease arrested, 65 per cent.; of the cases discharged with active symptoms, 23 per cent. The authors found that the death rate among the apparently cured patients is, during the first ten years, about three times the ordinary death rate. The death rate among the patients discharged with the disease arrested increases during the first few years to many times (10 to 15) the normal death rate, but afterward decreases. Nearly half the patients discharged with an active disease from the Adirondack Cottage Sanitarium died in the first two years. Patients between 30 and 40 when discharged apparently cured, seemed to relapse less than younger patients. This tendency is little, if at all, marked among the patients discharged with the disease arrested. Incipient cases seemed to relapse less than the advanced, when both were discharged in the same condition. These data are based on a study of 1,157 patients.

5. **Treatment of Basedow's Disease.**—In the case reported Lademann made use of the Lanz method of treating this affection—feeding with the milk of thyroidectomized goats. The patient drank three pints daily and in two and a half months her weight increased 15½ lbs.: the pulse rate diminished from 160 to 118; the circumference of the neck diminished 3 cm., and the blood findings improved markedly. The case was an unusually severe one, and surgical interference was beyond question. Therefore, Lademann believes that the result obtained is all the more remarkable. He is convinced that the more severe the disease, the more milk is required to neutralize the poison circulating in the economy as a result of the thyroid cachexia. He suggests the use of desiccated thyroidectomized milk in the form of tablets, as preferable to that in its natural state. He does not, however, regard this treatment as in any way a specific one.

6. **Roentgen Ray in Epithelioma.**—Johnston divides his cases into two classes: 1. Those in which, owing to location, ex-

tent, metastasis, poor physical condition of the patient, and various other factors, no clinical cure may be expected, and the treatment instituted is solely for the relief of pain, cessation of irritating and offensive discharge, and possible prolongation of the patient's life. 2. Those cases in which the location and extent of the disease are such as to enable a favorable prognosis to be given, and a cure may be reasonably expected to follow proper treatment. The treatment of epithelioma possesses one advantage over the treatment of the various internal malignant growths. The disease being superficial, the effect of treatment can be readily seen and the dosage accurately adjusted to the needs of the case in hand. There is also less danger of auto-intoxication in the treatment of such growths. Disadvantages are that the majority of these growths are recurrent and that the majority of patients suffering from epithelioma are old, their vitality is low, the reparative power of the tissue is slow, deficient, in some cases absent, their nutrition is below par, their kidneys weak and inadequate, the skin inactive. The average duration in the 44 cases reported by Johnston was 4 years and 8 months. In 4 patients it was 15 years, and 10 years in 2. Of the 44 cases, 10, or 33 per cent., were recurrent; 34, or 77 per cent., were primary. The average number of treatments necessary in each case was 22. In but 3 cases did metastasis occur. Eight patients, or 18 per cent., were benefited; in 3 cases, or 7 per cent., there was recurrence; 30 patients, or 81 per cent., were cured; 3 cases, or 7 per cent., terminated fatally. In the latter cases a cure could not have been expected by any method of treatment. Johnston says that the mistake most commonly made in the treatment of epithelioma is the use of a tube of high penetration and the employment of protective screens. Success in treatment also depends on the ability of the operator to limit metastasis, and the degree of the success achieved will be in direct proportion to the operator's experience, the correctness of his technic, his familiarity with the apparatus, and his ability to distinguish an active from a worthless tube.

Boston Medical and Surgical Journal.

November 17.

- 7 *The Differential Diagnosis and Treatment of the So-called Rheumatoid Diseases. Joel E. Goldthwait.
- 8 Arthritis Deformans. E. H. Bradford.
- 9 Chronic Joint Disease. Henry Jackson.
- 10 Chronic Joint Disease at the Massachusetts General Hospital. H. F. Vickery.
- 11 Rheumatoid Disease in Children. John L. Morse.
- 12 Types of Rheumatoid Disease. C. F. Painter.
7. The So-Called Rheumatoid Diseases.—In this paper Goldthwait classifies these conditions as follows: (1) Chronic villous arthritis or "dry-joint"; (2) atrophic arthritis; (3) hypertrophic arthritis; (4) infectious arthritis, and (5) chronic gout. The article is illustrated by a number of excellent photographs of casts, bones, x-ray pictures, and affected members.
9. Chronic Joint Disease.—In connection with the treatment Jackson mentions the great help given by properly applied fixation which relieves pain and is instrumental in preventing serious deformity. He urges that inasmuch as the disease is a chronic, depressing, debilitating process similar to tuberculosis, the most nourishing food that can be assimilated must be given in large quantities.

Medical News, New York.

November 19.

- 13 A Case of Enteric Fever Complicated by Polyuria. J. C. Wilson.
- 14 Report of the Medical Director of St. Joseph's Sanatorium to the Advisory Board. E. S. Bullock.
- 15 Feigned Insanity: Malignancy Revealed by the use of Ether. Charles G. Wagner.
- 16 A New Case of Chloroma with Leucemia, with a Study of Cases Reported Since 1893. (To be continued.) George Dock and Aldred Scott Warthin.
- 17 *Complications of Diphtheria; with Suggestions for the Feeding, Medicinal and Hygienic Treatment. Louis Fischer.
- 18 *Uncinariasis as Seen in North Carolina; Its Frequency, Etiology, Pathologic Significance, Symptoms and Treatment. J. L. Nicholson and Watson S. Rankin.
- 19 A Case of Pneumococcal Infection. Frank I. Given.
17. Complications of Diphtheria.—Fischer's paper deals rather with treatment and not with symptomatology. Speaking of antitoxin, he urges the use of large doses, as much as 10,000

units in 24 hours and even more if necessary. Feeding, he says, has an important bearing on the prognosis in malignant diphtheria. As there is a decrease in the quantity of hydrochloric acid secreted, the patient should be given one to five drops of diluted hydrochloric acid after feeding, and if digestion is not improved thereby, peptonized milk should be resorted to. When the usual method of feeding is unsuccessful or when children refuse food, gavage should be remembered. If vomiting is provoked by gavage, the pharynx may be sprayed for several minutes before feeding with a 3 per cent. cocain solution, or rectal feeding can be substituted. He has had some excellent results in the feeding of intubated cases by rectal alimentation when the same was carried out by one who was competent. The rectum and colon are first washed clean by means of soap water. After the feces are washed away, he waits half an hour and then injects two or three ounces of the following:

R. Yolk of egg..... 1 yolk.
Starch water..... 2 ounces.
Fatschlid's peptonizing powder..... 1 tube.
Salt..... A pinch.

Mix thoroughly and inject slowly into the colon through a funnel to which a soft rubber catheter is attached. These injections may be repeated every four hours.

Attention to the nose is more important in diphtheria than in any other disease. Fischer's rule has been to wash the nose with a weak permanganate of potash solution or normal saline solution even in intubated cases. He advocates nasal washing in every case of diphtheria as a routine measure. Septic infection will persist until the nose is thoroughly cleaned. Elimination of the poison through the bowels is next in importance, and for this purpose Fischer favors calomel, first giving a large dose, this to be followed by repeated small doses. The feeble condition of the heart's action requires active stimulation with whisky, champagne and strychnin. Tincture of musk, in 2 to 5 minims doses every hour, is also valuable. Fischer says the temperature alone is not a sure guide as to the outcome of a case of diphtheria. The heart is the guide, hence a study of the pulse is more important in estimating the prognosis in any given case.

18. Uncinariasis.—Nicholson and Rankin have given this study considerable attention and conclude that the mass of evidence obtained favors ground-itch as the most important factor in the transmission of hookworm disease, and that while drinking water and dirt eating are predisposing factors they are not as important as ground-itch. They have noted that in localities where ground-itch is frequent there hookworm disease is also frequent. Where there is no ground-itch there is little or no hookworm disease. Over 99.5 per cent. of 150 cases studied by them gave a history of ground-itch, and in 69 out of 90 cases the history was that ground-itch preceded the development of the other symptoms. In the majority of cases the severity and number of attacks of ground-itch bear a definite relation to the severity of uncinariasis. The disease is definitely associated with the period of life when the child goes barefooted. From this age (3) there is a definite steady increase until the fifteenth year, when there is a decline. Cases are comparatively uncommon beyond the twenty-fifth year, rare beyond 30 and when they do occur are light and nearly always on the decline. When the patient ceases to be troubled with ground-itch it is the rule for improvement to begin. For these reasons the authors feel justified in drawing the conclusion mentioned in the beginning of this abstract.

New York Medical Journal.

November 19.

- 20 Internal Secretions. William H. Thomsom.
- 21 *Nephrotomy and Uretrotomy for Impacted Ureteral Calculus. Willy Meyer.
- 22 Primary Nasal Diphtheria: a Plea for Its Early Recognition and Report of Three Cases. (Concluded.) Anna S. Wilner.
- 23 Long and Short Methods of Calculating Modified Milks. E. K. Shelmerdine.
- 24 Ideal Tent Life for Consumptives. H. Ford Masten.
- 25 Treatment of Diffuse Peritonitis. Joseph A. Blake.
- 26 Passage of a Tooth Plate through the Alimentary Tract. M. K. Elmer.
- 27 *An Improvised Method of Operating for Varicocele. Lucien Lottet.

21. **Impacted Ureteral Calculus.**—Meyer's case offered unusual difficulties in the diagnosis, but the stone was finally located positively by means of the x-ray and removed through an abdominal ureteral lithotomy. Meyer considers it advisable in all cases where profound septic symptoms, especially a chill and rapid pulse, accompany the always present renal colic, promptly to resort to operative treatment. In the presence of subsiding symptoms he strongly urges removal of the stone or stones during the interval.

24. **Ideal Tent Life for Consumptives.**—Masten calls attention to a stretch of territory extending across northern New Mexico and southern Colorado which he believes particularly suitable for the establishment of a tent colony for the treatment of consumption. Aside from the climatic conditions prevailing in that particular region, a strong point in its favor is the fact that cattle are seldom affected with tuberculosis. The construction of a model colony is given in detail.

25. **Treatment of Diffuse Peritonitis.**—The essential factors responsible for the success obtained in the treatment of diffuse peritonitis, Blake believes to be an early operation; a rapid operation, but not necessarily a large incision; the least possible handling of the intestines (if they escape from the wound and cannot be returned they should be emptied through a small enterotomy incision); thorough lavage of the peritoneal cavity; the omission of drainage, when possible, and an after-treatment in which the main features are absolute rest for the alimentary canal and the exhibition of large quantities of fluid. Reference is made by Blake to 51 cases of diffuse peritonitis, comprising 29 cases caused by appendicitis with a mortality of 28.5 per cent.; 5 by typhoid perforation with a mortality of 40 per cent.; 6 cases by perforating ulcers of the stomach or duodenum, with a mortality of 50 per cent.; 1 by perforating ulcer of the ileum with fatal result; 1 by rupture of the jejunum, with recovery; 1 by acute pancreatitis, with recovery, and 8 cases by infection through the fallopian tubes, partly gonorrhoeal and partly pneumococcus and streptococcus infections, with a mortality of 62 per cent. Deep drainage was employed in 26 cases, with 14 deaths; superficial drainage was employed in 25 cases, with 5 deaths. In a number of cases in which deep drainage was employed the conditions which demanded drainage were the ultimate cause of death.

27. **Inprovised Varicocele Operation.**—Lofton offers the following modifications of the usual varicocele operation: The patient is permitted to assume a semi-recumbent position. The scrotum is grasped with the left hand, the index finger and thumb separating the vas deferens and spermatic artery, that is, placing them on the anterior border of the testicle, while the pampiniform plexus is brought well up against the anterior and upper walls of the scrotum and held there firmly. With a surgeon's ordinary curved needle, three inches in length, armed with a double strand of No. 2 fiddle string, the pouch is pierced at the seat of election and the mass transfixed. The needle penetrates the opposite inner wall of the scrotum, but does not perforate it. With the point of the left index finger the needle is guided so as to slip along the inner wall of the bag, making a half-circuit of the interior lining and over and above the transfixed veins, and is brought out at the original puncture and securely tied to the dangling ends of the external ligature. Caution must be observed in drawing the mass of veins well up against the inside anterior wall of the scrotum. This procedure may, at the same sitting, be repeated from one to three times, at whatever points the surgeon's judgment may dictate. Thus only one opening is made in the scrotum, and when secondary inflammation sets in the mass will be securely welded to the interior wall of the scrotum, bringing about a shortening, which is always to be desired, as 95 per cent. of these cases are accompanied with elongated scrotal tissue. Furthermore, the veins are securely anchored and the patient can continue his business without a day's interruption. Recovery follows in from 25 to 30 days. Complete atrophy generally follows in about six months. Lofton reports only excellent results in 17 cases operated on according to this method.

Medical Record, New York.

November 19.

- 28 *The Bacteria of the Stomach. E. Paller.
 29 *Are There Other Causes of Malaria Than Mosquitoes? Junius L. Powell.
 30 *The Rational Reduction and Fixation of Maxillary Fractures. William J. Lederer.
 31 *The Study of Sprain and Its Treatment by Massage. Gustaf Norstrom.
 32 *Experiments to Determine the Value of Oxygen in Combination with the Different General Anesthetics. James T. Gwathmey.
 33 Congenital Absence of Vagina; Operation. A. E. Isaacs.

28. **Bacteria of the Stomach.**—Paller examined the gastric juice of 13 cases, 3 of cancer, 5 of hypochlorhydria and 5 of hyperchlorhydria. He found that carcinoma ventricula is characterized bacteriologically by (1) the presence of a bacillus which he calls the "*Vibrio geniculatus ventriculi*;" (2) numerous staphylococci, and (3) the absence of fungi. In simple hypochlorhydria the "*Vibrio geniculatus ventriculi*" may be found, but any other micro-organism may also be met with, either alone or in combination with it. In hyperchlorhydria, yeasts and fungi are met with and also occasionally sarcine and a small bacillus which is Gram negative, and in cultures discharges an ammoniacal odor. In subacidity of the stomach, with alimentary stasis, he found yeasts, mycelie, and the *Vibrio geniculatus*. He urges that the bacteriologic examination of the stomach contents should become as much a routine work in clinical medicine as is that of the sputum. The gastric juice is obtained by means of the stomach tube, which should previously be sterilized in boiling water. It is preferable to get the sample for examination after some of the stomach contents have already escaped, as one is thus not so liable to get the first part, which may come from the esophagus. The receptacle containing the sample should be immediately closed, and the examination should be conducted under sterile precautions.

29. **Carriers of Malaria.**—Powell reports ten cases of tertian, intermittent fever, among the enlisted men at Ft. Hamilton, N. Y. All but three of these cases occurred in the same company, the barracks of which are located on the highest elevation in the post, overlooking a more or less salt marsh and situated but a short distance from the post dumping grounds. They are also near the battery stables. With the exception of a single anopheles, killed by Powell in his own quarters, careful examination of the stagnant water in the vicinity, as well as search throughout the entire post, failed to reveal any mosquitoes that differed from the *Culex sollicitans* or *Culex pungens*. Powell concludes, therefore, that some other unknown factor must be concerned in the transmission of malaria, and that the etiology of the disease is as yet far from being definitely and conclusively settled.

30. **Treatment of Maxillary Fractures.**—Lederer favors the double interdental splint for the fixation of fractures of the lower jaw. The results obtained by him from the use of this device have been uniformly good. He describes the technic for applying the splint and cites one case of compound multiple maxillary fracture of unusual difficulty to illustrate his method.

31. **Massage Treatment of Sprains.**—Norstrom sums up his treatment as follows: At the initial stage, in the presence of classical phenomena, including a great deal of pain—effleurage. When the pain has decreased a great deal—friction and passive movements; later, active movements. Walking at the beginning ought not to be permitted. In all sprains of the lower extremities, after every seance, applications of a gauze bandage, a precaution all the more indicated when the patients are allowed to use their legs and to walk. In order to prevent real relapses, as well as to prevent the inflammation becoming chronic, the treatment ought to be continued until complete restitution has taken place.

32. **Oxygen in Anesthesia.**—Gwathmey has carried out a series of experiments on cats with the different anesthetics in order to determine their relative value when used with air and oxygen, respectively. He found that chloroform and oxygen is more than twice as safe as chloroform and air and is also safer than any of the other general anesthetics with

air. In fact, oxygen increases the value of all anesthetics as regards life, without decreasing their anesthetic effect.

St. Louis Medical Review.

November 19.

- 34 Evidence. Phylogenetic and Ontogenetic. Bearing on the Functions of the Accessory Sinuses in Man and the Higher Vertebrates. William T. Eckley.
- 35 *Strictures of the Male Urethra. (Concluded.) A. Ravogli.
- 35.—See abstract in THE JOURNAL of November 5, page 1409.

Cincinnati Lancet-Clinic.

November 19.

- 36 Hydrotherapy in Diseases of the Nervous System. Charles W. Hitchcock.
- 37 *Clinical Experience in the Treatment of Tuberculous of the Pleura and of Other Serous Cavities, with Report of Cases. James A. Burroughs.
- 37.—Ibid., November 12, page 1491.

American Journal of Obstetrics, New York.

November.

- 38 *Retrodeviations of the Uterus; a Résumé of Their Surgery. Walter Blackburn Dorsett.
- 39 *Antistreptococcus Serum in Puerperal Septicemia and Scarlet Fever. Albert G. Hamilton.
- 40 *Operative Treatment for Painful Menstruation in Young Virgins. William A. B. Sellman.
- 41 *Pseudomucinous Monocystic Tubercular Peritonitis. H. W. Longyear.
- 42 *Chronic Adhesive Peritoneal Sclerosis. N. Stone Scott.
- 43 *Vaginal Cesarean Section in Grave Cases of Puerperal Eclampsia. T. H. Carstens.
- 44 *Purulent Cystitis with Symptomatology Resembling Appendicitis. Magnus A. Tate.
- 45 *Gunshot Wound of the Abdomen—Report of a Case; Eighteen Perforations—Intestinal Resection (5 ft. 7 in.); with Murphy Button—Recovery. John D. S. Davis.
- 46 *The Relative Value of the Measus and Methods Employed in Accouchement Forcé. E. Gustav Zinke.
- 47 *Some Clinical Reasons for Advising Early Operations for Fibroid Tumors of the Uterus. Rufus B. Hall.
- 48 *Shall We Remove All Fibromata of the Uterus on Diagnosis? Thomas B. Eastman.
- 49 *Removal by Vaginal Cystotomy of Skeleton of Ectopic Fetus Migrating into Bladder. William D. Haggard.
- 50 *Report of a Case of Strangulated Umbilical Hernia in Which Cecum, Appendix, Ascending and Transverse Colon were Found Gangrenous in Sac—Artificial Anus Made at Primary Operation, Followed Ten Weeks Later by Double Resection to Restore Intestinal Continuity. John Young Brown.
- 51 *Sterility Depending on Retrodisplaced Uteri, and Relief by the Alexander Operation, with Report of Twelve Subsequent Pregnancies. Herman E. Hay.
- 52 *Unique Case of Circumscribed Infection of the Placenta and Excessive Vomiting; with Remarks About Hyperemesis Gravidarum. A. Goldspohn.
- 53 Advantage of Limiting Artificial Interference in Obstetric Practice. Augustus P. Clarke.

38.—Ibid., October 8, page 1080.

39. Antistreptococcus Serum in Puerperal Septicemia and Scarletina.—Hamilton reports a few selected cases which serve to illustrate the unmistakably beneficent action of antistreptococcus serum in conditions produced solely, or in large part, by the streptococcus. To obtain good results from the serum, Hamilton urges that the following points must be observed: The disease must be due to the streptococcus alone or this micro-organism must be decidedly predominant, depending solely on the microscope as evidence. The serum must be administered early, or as soon as the origin of the disease is known. The quantity administered must be sufficient to produce a perceptible change in 12 hours and must be repeated as often as indications demand. About 30 c.c. should be given for the first dose, and repeated in 12 hours at the furthest, and kept up until benefit is derived, the dose being gradually diminished. Hamilton says that this interferes in no way with other treatment, such as stimulation, and the treatment of any particular symptom. The serum used should be known to be of standard strength. No bad effects were noted from the use of the serum in the treatment of puerperal septicemia and scarlet fever. In mixed infections it may be used as an adjunct to other methods, but its success is not so striking.

40 to 46.—See abstract in THE JOURNAL of October 1, pages 996 to 1,000.

47 to 52.—Ibid., October 8, pages 1079 to 1081.

Bulletin of the Johns Hopkins Hospital, Baltimore.

November.

- 54 *An Early Cause of Ulcer of the Stomach. Joseph C. Bloodgood.
- 55 The Use of the Cystoscope in Cases of Prostatic Hypertrophy. Hugh H. Young.

- 56 *Clinical Effects of Surgical Anesthesia and of Operations on Anemic Patients. Henry T. Hutchins.
- 57 Contribution to the Study of Cystinuria. Charles E. Simon and D. G. J. Campbell.

54. Ulcer of the Stomach.—A case of single ulcer located in the lesser curvature, 4 cm. from the pylorus, was reported by Bloodgood because of the short duration of the symptoms, three weeks, and the difficulty in making a positive diagnosis at the exploratory operation. Although the gross appearance and the findings on palpation were in favor of ulcer, Bloodgood considered that there was sufficient doubt to justify a complete operation. A resection was done in the ordinary manner. In closing the stomach and in performing the end-to-end anastomosis between the stomach and duodenum, two rows of sutures were employed, continuous catgut passing through all the walls, reinforced by interrupted mattress sutures of fine black silk. The patient made an uneventful and rapid recovery. Bloodgood says that if the indurated tumor is either freely movable or only slightly adherent, complete resection should be performed. This operation gives the only hope for cancer, and as these patients are usually in good condition the mortality for gastrectomy, if it is an ulcer, should be but little, if any, greater than for gastroenterostomy. If the indurated tumor is adherent to surrounding structures and it is a carcinoma, it is past the hope of complete removal. For this reason gastroenterostomy should be performed. If the lesion is an ulcer there will be permanent relief. He urges that physicians should secure a more positive differential diagnosis between ulcer and cancer in its earlier stages by the chemical study of gastric secretion. The problem of the surgeon is the differential diagnosis between the ulcer and cancer at the exploratory operation.

56. Clinical Effects of Anesthesia on Anemia.—Hutchins studied this question in the case of 60 women, each showing a hemoglobin percentage of 50 or less, who received a general anesthetic for operative purposes, the duration of the anesthesia varying from twenty minutes to three and a half hours. Fifty-six of the 60 cases had uneventful recoveries. There were 4 fatalities. Severe heart lesions complicated two of these: in the third the patient had already bled until her hemoglobin registered 15 per cent., and in the fourth case the anesthetic had been given for two and a half hours before the patient showed any signs of immediate collapse. Only 2 cases died on the table under the anesthetic. The worst shocked patient was one with a hemoglobin percentage of 50, on whom an ordinary suspension of the uterus and repair of relaxed vaginal outlet were performed, the operation consuming an hour and seven minutes. The patients, as a rule, took the anesthetic well. No respiratory distress was noted, and in neither of the cases dying on the table was respiratory failure primarily the cause of death. In no case, says Hutchins, was it thought that the persistence of the anemia after operation was in any way prolonged by the giving of the anesthetic. Preliminary tonic treatment proved of value in raising the hemoglobin percentage in the 6 cases in which it was tried.

Brooklyn Medical Journal.

November.

- 58 Symptoms of Nephritis. L. L. Nichols.
- 59 Should the Normal Appendix Be Removed When the Abdomen Is Opened for Other Reasons? O. A. Gordon.
- 60 *A Brief Report of Eight Cases of Cerebrospinal Fever, with Special Reference to Their Treatment with Ergot. Carroll Chase.
- 61 Treatment of Malignant Growths by X-ray. C. E. Wells.
- 62 The Sphygmomanometer and Its Relation to Chronic Diseases of Heart, Arteries and Kidneys. Charles L. Fincke.
- 63 Some Points in the Diagnosis and Treatment of Pneumonia. John R. Stivers.
- 64 Two Unusual Cases of Head Injury. Calvin F. Harbour.

60. Ergot in Cerebrospinal Fever.—Chase reports several cases of epidemic cerebrospinal meningitis in which he made use of ergot in the form of ergotin (Bonjean). He gave it internally in all cases except where hypodermic medication was necessary because of vomiting. In these cases Squibb's solid extract, dissolved in water, was used. In an adult the dose was on the average 3 gr. of ergotin (equivalent to about 30 grains of ergot) every hour, although double that amount was given on occasions. The extract was given in about similar

doses hypodermically, although not so often. Children received proportionate doses. Although carefully watched for, no evidence of poisoning was noticed. The drug was never given for long periods without intermission. The effect was usually seen in from twenty-four to forty-eight hours, and consisted in a gradual remission of all the symptoms, especially those directly due to intracranial and spinal congestion. The intense pain became more bearable. The retraction of the head less marked, hyperesthesia not so noticeable, the fever, still irregular, did not average as high, and in general, the patient became more comfortable. Two markedly noticeable features of Chase's cases were absence of the usual complications (pneumonia in particular), and absence of troublesome sequelae. The recovery in each case was complete—no deafness, no impairment of vision, and none of the persistent severe headache that is so apt to make the lives of those who recover unbearable.

Chicago Medical Recorder.

November.

- 65 *Tubes in Trauma.* Charles Louis Mix.
 66 *Elastic Tension in Plaster-of-Paris Casts.* A. E. Wiener.
 67 *The Early Diagnosis and Treatment of Pneumonia in Infants.* W. P. Northrup.
 68 *Examination of the Rectum.* Charles J. Drueck.
 69 *Duty of the General Practitioner to the Public as a Physician.* J. Allen Patton.
 70 *The General Practitioner a Politician.* George De Tarnowsky.
 71 *Some Practical Phases of the Tuberculosis Question.* J. W. Pettit.
 72 *Secondary Uterine Hemorrhage.* Albert R. Martin.
 73 *The Local Treatment of Gonorrhoea.* W. A. Hackett.
 74 *A Case of Tubo-ovarian Abscess on the Left Side, Psoas-pinh and Ovarian Cyst on the Right Side, with Perforation of the Left Tubo-ovarian Abscess Into the Ovarian Cyst.* Heilodor Schiller.

67. *Pneumonia in Infants.*—As important symptoms to aid in making a diagnosis of pneumonia in infants, Northrup mentions: 1, Sudden onset, with fever and torpor; 2, disturbed respiration—pulse ratio; 3, rales. Speaking of the treatment, he advises careful regulation of the functions of the gastrointestinal tract in order to avoid flatulence, fermentation and to correct indigestion; plenty of water, in small quantities, cool and fresh, both inside and outside; quiet and rest. One of the most refreshing and helpful external applications is cold to the head. The application of cold cloths, wrung dry and frequently replaced on the forehead, with sponging of the face and lips with cold water, soothe and comfort the patient, thus promoting sleep. It is more effective than an ice cap, as this may not reach the scalp at all if the hair is thick. However, says Northrup, cold is applicable only to sthenic cases. Finally, he continues, the patient should have plenty of fresh, cool, flowing, outdoor air, as nothing stimulates the heart better than a current of fresh cool air on the face. For a limping respiration, a narrowed lung capacity, a sore breathing apparatus, nothing is so efficient as air. It also quiets restlessness, favors sleep, improves secretions and digestion, in short, meets most of the indications for the treatment of pneumonia in infants. No matter how cold the air may be no fear need be entertained that the patient will "catch cold," especially from air striking on the oval of the face alone.

68. —This article has appeared elsewhere. See THE JOURNAL, xli, title 142, page 618.

Indiana Medical Journal, Indianapolis.

November.

- 75 *Certain Associated Disorders of the Hepatic and Pancreatic Ducts and Upper Small Intestine and Their Treatment by Drainage of the Gall Bladder.* Thomas B. Eastman.

75. *Treatment of Diseases of Hepatic and Pancreatic Ducts.*—Eastman emphasizes the importance of the intimate relation between the ducts of the liver, of the pancreas, and of the second portion of the duodenum, and to consider their etiologic influence on certain digestive disorders commonly referred to as dyspepsia, intestinal indigestion and the like. Eastman says that the pancreas is more frequently involved in disease than is generally credited; it is rarely the seat of primary diseases and it is nearly always infected through its anatomic relations with the gall ducts, and the treatment, without question, consists in drainage of the gall bladder and the removal of gallstones, if they be found.

University of Pennsylvania Medical Bulletin, Philadelphia.

October.

- 76 *Motives in Medicine.* John H. Musser.
 77 *The Functions of the Tonsils.* George Bacon Wood.
 78 *Ostitis Deformans.* DeForest Willard and W. H. Andrus.
 79 *Disease of the Nails Accompanied by Arthritis of the Distal Joints of the Fingers and Toes.* M. R. Hartzell.
 80 *A Cystic Papillomatous Ependymoma of the Choroid Plexus of the Lateral Cerebral Ventricle.* A Contribution to the Classification of Gliomata. D. J. McCarthy.
 81 *Cholesteatoma Vasculosa of the Choroid Plexus of the Lateral Cerebral Ventricle.* D. J. McCarthy.

77. *Functions of the Tonsils.*—Wood presents the results of his research into the functions of the tonsil, and they may be summarized as follows: 1. That the epithelium of the crypts by a myotic division of its cells exhibits a marked tendency toward constant growth. This is shown by the penetration of the epithelial cells into the parenchyma of the tonsil and the formation of teratoid masses in the lumen of the crypt. 2. That the theory of the migration of lymphoid cells from the secondary follicles into the crypts does not satisfactorily explain the presence and character of the cells in the interepithelial spaces. 3. That there exist transitional cells by which all stages may be traced between the epithelial cell and the lymphocyte. 4. That the variation in types of the lymphocyte is most marked in the region of the cryptal epithelium. 5. That the degree of infiltration of the epithelium holds no relation to the cryptal contents. On the other hand, the ingrowing sprouts of epithelium possessing no lumen show as much, if not more, infiltration than the true crypts. 6. That the complete destruction of the cryptal epithelium is a very rare occurrence, almost always a sufficient number of epithelial cells being left to provide an intact barrier along the surface toward the cryptal lumen. The thought that the epithelial lining of the tonsillar crypts may be converted into cells that are generally supposed to be of connective tissue origin is not one to be accepted lightly. It suggests the possibility of the interchange of cell types; that no distinct line can be drawn between the epithelial cells, connective tissue cells and endothelial cells. Wood believes himself justified in saying that the tonsil is a primogenetic source of leucocytes, and that it is possible that all adenoid tissue which has developed in intimate relation with epithelium is playing a rôle very similar to that which he accords the tonsils.

Journal of Infectious Diseases, Chicago.

November.

- 82 *The Life-History of Trypanosoma Lewisii and Trypanosoma Brucei.* Ward J. MacNeal.
 83 *Pathologic Anatomy of Experimental Nagana.* Frederick A. Baldwin.
 84 *The Blood in Measles.* Wilder Tillston.
 85 *The Reduction of Methylene Blue by Nervous Tissue.* H. T. Ricketts.
 86 *The Antagonism Exhibited by Certain Saprophytic Bacteria Against the Bacillus Typhosis Gaffky.* Wm. D. Frost.
 87 *The Longevity of the Typhoid Bacillus in Water.* E. O. Jordan, H. L. Russell and F. R. Zeit.
 88 *The Question of Virulence Among the So-called Pseudo-Diphtheria Bacilli.* Alice Hamilton.
 89 *Experimental Streptococcal Arthritis in Relation to the Etiology of Acute Articular Rheumatism.* Rufus I. Cole.

84. *Blood in Measles.*—Tillston made repeated examinations of the blood in 23 cases of measles and found that during the incubation period of the disease a leucocytosis is present, which begins soon after infection, reaches its maximum six days before the appearance of the eruption, and lasts into the first part of the stage of invasion. During the latter part of the stage of invasion and during the stage of eruption the white count is normal, or more usually diminished, reaching its lowest point at the height of the rash. The presence of leucocytosis points to the existence of a complication; its absence during the eruptive stage does not exclude one. The onset of leucocytosis with a complication may be preceded by a rise in the percentage of neutrophils or a failure on their part to decrease at the proper time. The differential count in measles Tillston found to take the following definite course: The polymuclearneutrophils are increased during the stage of incubation, invasion and eruption, fall below normal at convalescence and reach normal in convalescence. Myelocytes are often present in small numbers during the period of eruption, especially in young children. The lymphocytes follow the opposite course—at first decreased, and increased after the crisis. The large mononuclear and transitional cells (including large

lymphocytes) are normal at first and increase later. The eosinophiles are decreased or absent during the eruption, and later increased. The mast cells show no changes; the blood plates are usually decreased during the eruption. The blood becomes normal in all respects at about the twelfth day. In doubtful cases the absence of leucocytosis with decreased eosinophiles is in favor of the diagnosis of measles as against scarlatina and vice versa. The blood of measles in children shows the same changes as in adults, if the differences between the normal blood of children and that of adults be taken into consideration.

87. Longevity of Typhoid Bacillus.—The writers of this paper state that they were requested by the sanitary district of Chicago in the fall of 1903 to conduct some experiments on the life of the typhoid bacillus from the waters of Lake Michigan, the Chicago Drainage Canal and the Illinois River. From the experiments recorded in the paper it appears that under conditions that probably closely simulate those in nature, the vast majority of typhoid bacilli introduced into the several waters studied perish within three to four days. The authors state that it is theoretically possible that specially resistant cells may occur which are able to withstand for a longer period the hostile influences evidently present in water. Their experiments, however, show that if such resistant individuals exist they must be very few in number and constitute only a small fraction of the bacilli originally entering the water. But they do not claim that the behavior of typhoid bacilli under the conditions described by them is representative of all conditions obtaining in all natural bodies of water.

89. Experimental Streptococcus Arthritis.—While making a series of cultures of cases of acute rheumatic fever and endocarditis Cole succeeded in cultivating a streptococcus from the blood of a patient, the autopsy on whom disclosed an acute and subacute vegetative mitral and aortic endocarditis, cardiac hypertrophy and dilatation, chronic passive congestion of the internal viscera, multiple infarction of spleen and kidneys, thrombosis of left middle cerebral artery, with extensive softening of the internal capsule. The results obtained by inoculation of this streptococcus agreed quite closely with those obtained by other observers with inoculation of the so-called "*Micrococcus rheumaticus*." Cole then undertook experiments with six races of streptococci aside from those obtained from the case mentioned. The sources of these various races were: Peritonitis following carcinoma of the stomach; puerperal fever autopsy; blood during life in terminal septicemia following myocarditis; empyema; blood during life in septicemia following appendicitis; scarlet fever adenitis. There was no essential difference in the results obtained between the several races studied, except in the virulence. With all seven races studied, intravenous inoculation of amounts insufficient to cause death of the animals within six or seven days lead to the production of mild grades of arthritis. In many cases the joint affection is so mild that unless one is especially interested in looking for it, it might be overlooked. It seems that when streptococci from whatever source are inoculated intravenously into a rabbit, they tend early to localize in the joints even before any definite lesions can be detected. Cole concludes that arthritis and endocarditis may be produced by the intravenous inoculation of rabbits with streptococci from various sources, and the results obtained are quite similar to those described as resulting from the inoculation of the so-called "micrococcus" or "*Diplococcus rheumaticus*." Therefore, the description of a distinct variety or species of streptococci based on this property of causing endocarditis and arthritis is unwarranted. Whether the evidence is sufficient to show that acute rheumatic fever is simply a form of streptococcus septicemia, Cole does not say.

Archives of Pediatrics, New York.

November.

- 90 Should Bicarbonate of Soda Be Added to an Infant's Food as a Routine Measure? Godfrey R. Pisk.

Virginia Medical Semi-Monthly, Richmond.

November 11.

- 92 *Loss of Consciousness and Automatism in Inebriety. T. D. Crothers.

- 93 Theories of Serum Therapy. Charles R. Grandy.

- 94 Antitoxic Serum-therapy. John S. Davis.

- 95 Infantile Convulsions. B. W. Rawles.

- 92.—See abstract in THE JOURNAL of October 22, page 1251.

New York State Journal of Medicine, New York.

November.

- 96 *President's Address, New York State Medical Association. William H. Thornton.

- 97 *Conservatism Versus Intervention in Simple Dystocia. William J. Meyer.

- 96.—Ibid., October 29, page 1329.

- 97.—Ibid., November 5, page 1409.

Woman's Medical Journal, Toledo, Ohio.

October.

- 98 A Case of Headache. Mary E. Beates.

- 99 Niphepagus, Report of Case. Clara Gray.

Medical Fortnightly, St. Louis.

November 10.

- 100 *A Plea for Wider Knowledge Concerning Diseases Which Affect the Joints. C. Travis Drennen.

- 101 *A Study of the Mental Disorders of Adolescence. Frank P. Norbury.

- 100.—Ibid., October 29, page 1326.

- 101.—Ibid., November 12, page 1491.

Kentucky Medical Journal, Louisville.

November.

- 102 Surgical Aspect of Bright's Disease. J. Garland Sherrell.

- 103 Ectopic Gestation with Report of a Case. J. M. Salmon.

- 104 Two Cases of Typhoid Fever with Suppurating Parotid Glands. Walter Hyrnie.

- 105 Keratitis. A. L. Buft.

- 106 Cysts of the Pancreas. P. C. Layne.

- 107 Some Interesting Cases. Basil M. Taylor.

- 108 Empyema in Country Practice. D. G. Simmons.

Pennsylvania Medical Journal, Athens.

October.

- 109 Address of the President, Medical Society of the State of Pennsylvania. Wm. B. Ulrich.

- 110 *The Physician and the State. Benjamin Lee.

- 111 Personal Recollections of Doctors John L. and Washington L. Atlee. Benjamin H. Detwiler.

- 113 *Indicauria Complicating Typhoid Fever. Judson Daland.

- 110-113.—Ibid., October 15, page 1162.

The Post-Graduate, New York.

November.

- 114 The Urine as an Index to Metabolism and Its Disturbances. William Henry Porter.

- 115 The Mastoid Operation. James F. McKernon.

- 116 Adhesive Plaster Dressings to Support the Abdominal Viscera. Walter Nic. Clemm.

- 117 Circumscribing Gastrodiaphane. Robert Coleman Kemp.

Cleveland Medical Journal.

November.

- 118 A Report of Six Cases of Calculi in the Pelvic Portion of the Ureter. George Emerson Brewer.

- 119 The Opening of the Tuberculosis Dispensary in Cleveland. John H. Lowman.

- 120 The Rheumatoid Diseases. Henry O. Feiss.

- 121 Report of a Case of Cesarean Section for Placenta Previa. R. E. Skeel.

- 122 Hydrocele of the Canal of Nuck. Elliot Alden.

Maryland Medical Journal, Baltimore.

November.

- 123 Treatment of Acute and Chronic Nephritis, with Some Remarks Concerning the Edebohls Operation. A. Duval Atkinson.

- 124 The Etiology of Prostatic Hypertrophy. John W. Churchman.

Alabama Medical Journal, Birmingham.

October.

- 125 Thoughts on Typhoid Fever. R. C. Bankston.

- 126 Enemas in the Treatment of Fevers. Hugh Boyd.

Medical Age, Detroit.

November 10.

- 127 Hydrotherapy in Diseases of the Nervous System. Charles W. Hiltchcock.

- 128 Suggestive Therapeutics as Practiced by a Surgeon. Bayard Holmes.

Denver Medical Times.

November.

- 129 Ectopic Pregnancy with Report of a Case of Repeated Tubal Gestation. A. W. Kerr.

- 130 Vomiting in Tuberculosis. Daniel S. Neuman.

- 131 Normal Obstetrics. Duration of Pregnancy and the Prediction of the Date of Labor, and the Period of Pregnancy. T. Mitchell Burns.

- 132 Shock, General, Nervous and Surgical. George C. Stemen

American Medical Compend, Toledo.

November.

- 133 What Should Be the Attitude of the State and the Medical Profession Toward the Individual Suffering from Tuberculosis? Wm. A. Dickey.

- 134 A Résumé of 100 Abdominal Operations. J. H. Jacobson.

- 135 Granular Lids—Some General Facts. Mark D. Stevenson.

- 136 Respiratory Tract. Arthur B. Smith.

Illinois Medical Journal, Springfield.

November.

- 137 Practical Points in Abdominal Surgery—Peritonitis. Bayard Holmes.
- 138 Treatment of Pneumonia. Charles J. Whalen.
- 139 Prescriptions vs. Single Remedies. William F. Wangh.
- 140 Report of the Associated Charities of Peoria on "The Prevalence of Tuberculosis in Peoria." S. M. Miller.
- 141 Atonic Distention of the Stomach, with Report of Cases; Also Methods of Treatment. Milton H. Mack.
- 142 Acute Infantile Middle-ear Inflammation. Willis O. Nance.
- 143 The Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. Homer M. Thomas.
- 144 Empyema. J. Herbert Franklin.
- 145 Comparative Effects of Small-caliber High-velocity Bullets with Bullets of Large Caliber and Low Velocity. Howard Crutcher.

Medical Herald, St. Joseph, Mo.

November.

- 146 Chronic Bright's Disease. T. B. Bogart.
- 147 Gastroptosis. J. M. Bell.
- 148 President's Address, Medical Society of the Missouri Valley. A. D. Wilkinson.
- 149 Recurrent Dislocation of Shoulder Joint. A. I. MacKinnon.
- 150 Temperature; Its Significance and Treatment. A. E. King.
- 151 Treatment of Prolapsus of Rectum. A. C. Stockes.
- 152 Hallux Valgus. A. L. Wright.
- 153 Office Treatment of Hemorrhoids. W. J. McGill.

American Practitioner and News, Louisville, Ky.

October 15.

- 154 Gonorrhoea of the Prostate. Victor N. Meddis.
- 155 Spontaneous Fracture of the Ilium, with Report of Case. Hugh D. Rodman.
- 156 Prophylaxis. Charles Moir.

Ophthalmic Record, Chicago.

October.

- 157 Retinal Hemorrhage as the First Manifestation in a Case of Diabetes. C. S. G. Nagel.
- 158 A Case of Foreign Body Within the Orbit with Penetration of the Cranial Cavity. Edward P. Morrow.
- 159 Glaucoma or Primary Optic Atrophy? J. A. White.
- 160 A New Lachrymal Syringe. John S. Kirkendall.
- 161 Ectropion Relieved by Excision of the Tarsus. Report of a Case. Thomas Fraith.
- 162 A Few Words Regarding the "Tucking" Operation on the Recti Muscles. Francis Valk.
- 163 An Investigation of the Blind Department of the Chicago Public School System. L. F. Campbell.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

November 12.

- 1 *The Artificial Maturation of Immature Senile Cataract by Trituration. After the Method of Förster, as Practiced During Twenty Years. Malcolm M. McHardy.
- 2 Discussion on Intracranial Hemorrhage and Systemic Disease. A. Hill Griffith.
- 3 Remarks on the Diagnosis and Treatment of Glaucoma. G. A. Berry.
- 4 Operative Treatment of High Myopia. W. Adams Frost.
- 5 A Case of Congenital Word Blindness. James Hinshelwood.
- 6 Case of Word Blindness, with Right Homonymous Hemianopsia. James Hinshelwood and Alexander MacPhail.
- 7 The Lymph Follicles in (Apparently) Healthy Conjunctivæ. N. Bishop Harman.
- 8 Notes on a Case of Thrombosis of the Cavernous Sinus Due to Empyema of the Sphenoidal Sinus. Adolph Bronner.
- 9 Case in Which Ovarian Tumor Was Simulated by Lymph-angiomata of Omentum and Peritoneum. John B. Heller.
- 10 Carcinoma of the Cervix Complicating Pregnancy and Labor. John M. Munro Kerr.
- 11 Notes on Some Cases of Ectopic Gestation. Ewen J. MacLean.

I. Artificial Maturation of Immature Cataract.—McHardy states that complete ripening of immature senile cataracts may be safely and almost certainly secured in from three days to eight weeks by preliminary iridectomy, with trituration of the lens through the cornea and pupil, if it is done with judgment, experience and care. The ultimate results, surgical and visual, of extraction operations in such cases are quite equal to the results of similar operations for senile cataracts which have been allowed to fully mature spontaneously. Further, the removal of such artificially matured cataracts is entirely free from those risks, drawbacks, and often impaired ultimate results which follow from the removal of immature senile cataracts. The procedure was originated by Förster. McHardy has practiced it for about twenty years with the most satisfactory results. The method is as follows: The pupil is widely dilated with a four grains to the ounce solution of sulphate of atropin, applied twice in the preceding twelve hours. Cocain is used for anesthesia. McHardy usually does a preliminary iridectomy on both eyes, tritürating only one. Having done a preliminary iridectomy, he lets the

aqueous humor escape from the wound by depressing its posterior lip with the edge of a spoon, and then, wetting the back of the shell or silver spoon with the patient's tears, applies its convex surface to the center of the cornea, stroking the cornea in a radiating direction, at first very carefully, observing that the iris always slips away in front of each stroke of the spoon. That is to say, as the cornea goes down against the lens, the iris recedes from the center towards the periphery, before the pressure of the spoon. A nipping of the iris between the lens and the cornea often is followed by iritis. It is to be remembered that one may do an enormous amount of rubbing on the front of the cornea, but without ripening the cataract—if there be a fair quantity of aqueous humor in the chamber. The amount of trituration to be done depends (1) on the amount of cortex that requires to be rendered opaque; (2) on the character of the cornea. If the cornea is one of those nice-looking, stand-up cornea a good deal of trituration is required; if not, exceedingly little trituration is sufficient. After the trituration atropin is to be used, within thirty-six hours, to keep the pupil widely dilated. This method renders it important that the patient should be very accessible. McHardy makes use of it in all cases of immature senile cataract with greatly hampered vision and with uniformly successful results.

The Lancet, London.

November 12.

- 12 English Medicine in the Anglo-Norman Period. Joseph Frank Payne.
- 13 Social Evolution and Public Health. Arthur Newsholme.
- 14 Paralysis as it Occurs in Children. James Taylor.
- 15 *Case of Carcinoma of the Appendix. Charles J. Cullingworth and Edred M. Corner.
- 16 Inflammation of the Muscles, with Special Reference to Two Cases of Infective Myositis. John Hill Abram.
- 17 Treatment of Obstructed Labor When Caused by the Impaction of a Tumor in the Pelvis, Illustrated by Four Cases. Thomas H. Morse.
- 18 *Case of Exophthalmos in the Newly Born. Hugh Howle Borland.

15. Carcinoma of the Appendix.—Cullingworth's patient, a woman, aged 31, suffered for some time from uterine trouble, for which she was cured. Six months before her admission to the hospital she was operated on for hemorrhoids. Two months later she had a second attack of pain in the right side which lasted two hours and caused her to faint. After a fortnight's interval she had a similar but less severe attack. The pain was over the right iliac fossa, low down. On deep palpation in the right iliac region the patient complained of a little tenderness at a point midway between the umbilicus and the anterior superior spine of the ilium. The right kidney was found to be movable. Per vaginam there was a hard mass to the right of the uterus depressing the vaginal fornix. This mass was about the size of a pigeon's egg, and was thought to be either a solid tumor of the ovary or a subperitoneal fibroid burrowing into the broad ligament. On opening the abdomen the tumor was found to be a small fibromyoma of the right broad ligament, close to but not directly connected with the uterus. After its enucleation the appendix was examined. It was found to have only a few omental adhesions and to be apparently healthy, except that at the extreme tip it was thickened and bulbous. It was on this account removed. On opening it the mucous membrane was seen to be somewhat thickened at its end, and the lumen of the tube was obliterated at the tip by a little nodule which had the appearance of caseous material, though somewhat harder. Sections showed that this little nodule was a spheroidal-celled carcinoma. Three years after the operation the patient was still free from a recurrence.

18. Exophthalmos in Newborn.—Borland reports a case of bilateral exophthalmos in a child, the vault of whose cranium showed evidence of protracted pressure and presented a perfectly flattened-out, squashed appearance; the frontal and parietal bones, while not overlapping, were practically at right angles. The child's face was pallid, and both eyes protruded to such a degree that the sclera was seen above and below the cornea and the eyelids were unable to meet. There was no ptosis. The pupils were equal and fully dilated. The child is still alive, strong and healthy in every way and is now 3 years of age.

Dublin Medical Journal of Medical Science.

October 1.

- 19 *The Use of the X-rays as an Aid to the Early Diagnosis of Pulmonary Tuberculosis. A. Stanley Green.
- 20 The Attitude of Our Profession Toward the Educational Questions in These Countries. R. B. McVittie.
19. X-Rays in the Diagnosis of Pulmonary Tuberculosis.—Green points out that if physicians will remember that a diagnosis of any condition can not be made by one single method of examination, but that advantage must be taken of all other aids, particularly history, symptoms, and physical signs, the x-rays will be found as valuable in the diagnosis of early tubercular deposit in the lungs as the ophthalmoscope is in the diagnosis of many diseases. Apart from ethical reasons, he says that it is very important that this work should remain in the hands of medical men, and not be given over to chemists and photographers. The screen examination, to which he attaches considerable importance, is carried out with the patient lying on a table with a vellum top and with a tube placed in a box beneath, which is movable in both directions, or else standing up about eighteen inches from the tube, with the surface of the anode parallel to the greatest transverse diameter of the chest. It is absolutely necessary for the patient to be stripped to the waist and the room kept at a suitable temperature. The light in the tube must be under perfect control, so that the penetration of the tissues may be buried at will. The first point to notice is the position and movements of the diaphragm on the two sides. The patient should then be asked to take a deep inspiration followed by a full expiratory movement. The excursion of the diaphragm is again measured. The patient must then be examined with the screen on the chest and the tube at the back, to ascertain the height and movements of the diaphragm as seen from the front. Other conditions which can be noted in the screen examination are the slope of the ribs and the width of the intercostal spaces; the position and shape of the heart, shadows and opacities in the lung, and the effect of deep inspiratory movements on these—a very important point. In a few cases small opacities can be seen in the mediastinum suggestive of enlarged and perhaps calcareous glands. Unilateral limitation of movement of the diaphragm is the earliest sign of pulmonary tuberculosis, and in no case which Green examined where this sign was noted (in the absence of a history of pleurisy), has he failed to find deposits in the lungs, either then or later. Furthermore, if the history and symptoms are taken into consideration the movements of the diaphragm may be taken as a measure of the activity of the disease. Fluid in the pleural cavities can also be detected easily by a screen examination. The shadow cast by a purulent effusion is much more dense than that of a serous effusion, obscuring the shadow of the ribs, which can be seen through a serous effusion. It is also possible to say whether air is present in addition to fluid or not. In the former case the upper level of the shadow in the erect position is horizontal, while in the latter, under the same conditions, the shadow has the form of a concavity, the sides of which are prolonged upward for a considerable distance. Green uses a 10-inch coil so arranged that when necessary to go to the patient's house it can be worked by one 6-volt accumulator and the Charpentier-Gaiffe interrupter, which will admit a variation of current of from 2 to 10 amperes, and at the same time permit of the use of a 230-volt current through a Wodal jet interrupter in the consulting room. In the former case the exposure necessary to give a good skiagram of an adult thorax varies from two to three minutes, whereas in the latter thirty to sixty seconds is ample to give a good definition, the tube being placed from twenty to twenty-four inches from the plate, the anode being on the level with the third or fourth rib. In some cases he uses a separate plate for each lung; in others, only one plate for both lungs. The back to plate method is used in every case. Sometimes he exposes the plate while the patient holds his breath after a deep inspiration, cutting off the light as soon as the second inspiration is necessary. This means three or four periods of exposure to bring up the requisite time. Rapid plates, which will stand long development without fogging, are essential. Where cavities are suspected it is important to take one skiagram

and then, after the patient has coughed and expectorated, to expose another plate. In this way the cavities, being emptied, will be seen as light areas in an opacity; in the first skiagram the opacity would be more homogeneous.

Presse Médicale, Paris.

Last indexed page 1575.

- 21 (No. 82.) Arthropathies des hémophiles. A. Proca.
- 22 *Le traitement antiseptique des brûlures. Mme. Nageotte-Wilbouchevitch.
- 23 (No. 83.) Hématuries des néphrites. J. Albarran.
- 24 *L'anesthésie chirurgicale par injection sous-arachnoïdienne de stovaine. L. Kendirdjy and K. Berthaux.
- 25 (No. 85.) Règles opératoires pour la guérison de la méningite purulente aigue généralisée. M. Lermoyez and L. Bellin.

22. Rational Treatment of Burns.—Nageotte is so impressed with the necessity for surgical cleansing of the burned surface that she is credited with scrubbing it. She restricts the scrubbing to the sound skin around, but cleanses the burned surface with soap, applying it on a non-absorbent compress, under chloroform. Anesthesia is necessary, especially for children and burns of the face. The subjects rouse from the chloroform free from all pain and thus continue to complete healing, whatever the dressing applied. Families should learn to treat a burn like a wound of any kind, cover immediately with a clean cloth or first-aid dressing. The gauze can be saturated then with a 1 per cent. solution of picric acid. This emergency dressing should not be disturbed until the physician is ready to cleanse the burned area, preferably in a hospital or operating room. She describes a case of a severe vitriol burn over the entire face, neck and part of the arms. The burned surface was covered at once with compresses dipped in ammoniated water. The entire burned surface was cleansed by a surgeon an hour later, with soap, rinsed with bichlorid and dressed with dry iodoform gauze. The dressing was not disturbed until the ninth day, when the eschars were found as dry scabs adherent to the gauze and only the magnifying glass revealed that the apparently normal skin was less smooth than before. There was no suppuration except at a few points where the skin had been scratched in the struggle.

23. Hematuria in Nephritis.—Albarran accepts the idea that the inflammation in the kidney in Bright's disease is merely one manifestation of a primal, a more general, affection. This affection involves other organs and other systems, but the kidney is invariably affected and secondarily causes other disturbances. These phenomena secondary to the kidney disturbances superposed on the general affection, explain why an apparently insignificant alteration in the kidney may give rise to copious and persisting hematuria. The same is observed at times in cases of tuberculosis and cancer of the kidney. Some trifling lesion in the kidney may cause a disturbance in the blood vessels and thus secondarily induce hematuria with or without an angioneurotic reflex action. This mechanism explains why any surgical intervention on the kidney is liable to arrest the hemorrhage by breaking the angioneurotic chain. Simple exploration of the kidney, nephrotomy, decapsulation, any of these is liable to cure the hematuria, but not the underlying general and kidney affection. The operation produces a series of vascular and nervous modifications in the parts which puts an end to the hematuria.

24. Spinal Stovainization.—THE JOURNAL has mentioned recently the advantages of a new anesthetic put forward in France, stovain. Kendirdjy reports a series of 64 operations undertaken with spinal anesthesia induced by injection of a 1 per cent. solution of stovain in physiologic salt solution. In the entire series there was not a trace of any by-effects. There was no nausea or vomiting, no mishaps of any kind, and microscopic examination of the cerebrospinal fluid afterward showed it anatomically the same as before the stovainization. The anesthesia was as perfect as with cocaineization, to say the least, and it lasted forty minutes on an average. The injections were made in the second lumbar space, and the operations included a number of radical cures of hernia, resection of the scrotum, excision of hemorrhoids with dilatation of the sphincter, epididymectomies and amputation of the penis. There was slight headache in one case, but the headache had been observed before the operation. In the only other

case in which headache was noted afterward the patient was a syphilitic with roseolae. The intermittent character of the headache and the absence of any other symptoms that could be ascribed to the anesthetic render its syphilitic nature almost certain.

Revue de Gynecologie, Paris.

List indexed page 83.

- 26 (VIII, No. 3.) Uterus didelphes dont le gauche ne communique ni avec le vagin ni avec l'utérus droit. Le Bec.
 27 *Traitement du cancer utérin. Résultats op. immédiats et éloignés des interventions totales. Duret et A. Besson.
 28 Etude des kystes papillaires et des tumeurs papillaires des ovaires. S. Pozzi.
 29 Torsion du pédicule des tumeurs solides de l'ovaire. F. Jayle and X. Bender.
 30 Epilpsoie hémérale avec torsion intrasacculaire du pédicule. P. Maulaire.
 31 Report of French Congress of Gynecology, April, 1904.
 32 (No. 4.) *De l'emploi du sérum de cheval chauffé contre les infections en chirurgie abdominale (hot horse serum). R. Petit.
 33 *Hystérectomie et infection puerpérale algue. C. Cristeanu.

27. **Uterine Cancer and Remote Results.**—Duret and Besson remark that 104 out of 173 cases of cancer at the Lille hospitals, 1891 to 1903, proved to be inoperable. About 38 per cent. of the 69 operated on survived more than two years. The mortality after laparotomy was 88 per cent. during the first year, while it was only 38 per cent. after vaginal removal of the cancer. In advanced cases, with much general debility, any radical operation is contraindicated, as the general health never recuperates and the subject does not survive the year. Palliative measures are best in such circumstances.

32. **Hot Horse Serum and Surgical Infections.**—Petit relates the details of 15 laparotomies in which he used hot horse serum to combat infection. There was only a single death due to the infection for which the operation was undertaken. The cases were all extremely grave, and the benefit from the serum was marked. The patients all felt better, the pulse was good, respiration normal, expression tranquil and tongue moist. No ill effects were observed, and he is convinced that the measure may prove very useful in the clinic to enhance the natural resistance to infection and reduce the number of deaths from peritonitis. After the toilet of the peritoneum he drains the vaginal and abdominal wounds and pours about 30 gm. of hot horse serum into the pelvis. He gives the details of all his cases thus treated. The thermometer sometimes shows a slight rise in temperature, but it is transient.

33. **Hysterectomy for Acute Puerperal Infection.**—The balance sheet of this intervention is made out by Cristeanu in a comprehensive monograph. The mortality is much higher than that of other modes of treatment. Only a single instance is known of a favorable termination to uncomplicated, acute, puerperal infection without localization treated by hysterectomy. In the 80 cases on record the cures reported were all of some more or less manifest complication.

Semaine Médicale, Paris.

- 34-38 (XXIV, No. 44.) *Report of Fourteenth Italian Congress of Internal Medicine, Oct. 24-27, 1904.
 39-46 *Report of Seventh French Congress of Internal Medicine, Oct. 24-27, 1904. (Commenced in No. 43.)
 47 *Dizze-Reaction in Pulmonary Tuberculosis. M. I. Holmgren. Abstract.
 48 *Applications of Adrenalin Against Eczema. G. A. Weill. Abstract.
 49 *Iodin in Epidural and Intravenous Injections Against Tuberculous Cerebrospinal Meningitis. A. Rossini. Abstract.

34. **Fevers of Unknown Origin.**—Bozzolo classifies in nine groups the various types of a prolonged febrile state for which none of the ordinary causes can be discovered. One group includes ulcerative endocarditis, another the affections whose localizations do not appear until late and then in the glands. Group 4 includes the febrile state that precedes the discovery of a cancer. In a case recently observed a tumor in the kidney was first revealed by fever; hematuria did not appear for three months later. Group 5 includes the febrile state noted in old syphilitics. It is rebellions to quinin but yields to iodid. Group 6, the nervous and hysterical febrile states, very rare in men. Group 7 is the large class of bacteriemias and septiciemias without localization or only at a tardy stage. The fever has no invariable specific type, but the streptococcus usually induces a fever with exacerbations, while the pneumococ-

cus and the typhoid and tubercle bacilli cause a more continuous, remittent febrile condition. Intravenous injections of quinin or other drugs are of only transient benefit. The prospects are promising for treatment of these septiciemias by vaccination with attenuated cultures or intravenous administration of specific serums. The other groups are those of "tuberculous typhoid" and Malta fever. The tuberculous septiciemia may be absolutely primary, the entire lesion being restricted to the vascular system. Maragliano advises intravenous injections of sublimate in dubious cases of prolonged fever. De Renzi has derived great benefit in Malta fever from change of air and 4 to 8 capsules of i-thyol a day. The latter acts so effectually that he tries it as a diagnostic measure in many cases. Lucibelli of Naples described the case of a woman of 39 who for eleven years has suffered from weakness, constipation, swelling of the left knee and fever. No treatment has had any effect on the condition. No parasites can be found in the blood; the proportion of leucocytes is as 1 to 60; lymphocytes, 15 per cent.; mononuclears, 5 per cent.; polymuclears, 50 per cent., and no mast cells. The source of the fever is still a mystery.

35. **Physico-Chemistry in Relation to Clinical Medicine.**—Ceconi terminated his address with the remark that the latest researches and discoveries, far from detracting from the value of the "vitalist theory," supply more solid foundations for it, as they show that physics and chemistry are totally unable to explain the vital processes. When the freezing point of the blood is normal, it is a sign that the kidney is functionally capable, but only on condition that the composition of the blood is normal. He regards cryoscopy as of little if any value for the diagnosis of unilateral kidney affections. It varies for the cerebrospinal fluid to such an extent that a low freezing point can not be regarded as necessarily pathologic.

36. **Nephrototoxic and Hemolytic Action of the Kidney.**—De Renzi ligated the pedicle of one kidney in 15 dogs. The results observed indicate that kidney tissue is able to cause hemoglobinuria.

37. **Radiotherapy of Leukemia.**—Colombo treated 3 cases of leukemia with the Röntgen rays. At first the symptoms were aggravated, but then marked improvement followed. The course comprised 120 to 150 exposures of forty minutes each, ten given to the sternum, ten for the spleen, ten for the elbows and ten for the knees.

38. **Serum Diagnosis of Tuberculosis.**—Marzagalli announces that 2 drops of blood serum added to 8 drops of a filtered emulsion of tubercle bacilli will give the precipitation reaction in case of tuberculosis. He prepares the emulsion by triturating in the presence of distilled water the tubercle bacilli previously rinsed with cold water.

39. **Mercurial Injections.**—In the discussion that followed the address on this subject, Fournier observed that the method of mercurial injections has established its usefulness, but should not be stretched to apply to tabes and general paralysis. He has never witnessed a cure of the latter, although he has injected calomel to an amount of .1 gm. once or twice a week. Injection of large doses of calomel once a week has sometimes displayed almost miraenous efficacy in his experience, but only in cases of phagedena, tuberculous syphilitis, gummatous laryngitis, inveterate plantar or palmar psoriasis and syphilitic affections of the tongue.

40. **Obesity.**—Murel's address emphasized the fact that most of the symptoms attributed to the obesity are in reality due to the same primal cause. Treatment should aim to reduce the weight to the standard proportion for the height. The number of calories required by the organism varies according to the season, the age and the sex, and this point must be borne in mind in reducing the intake of food. The nitrogenous ingredients should be taken according to the normal dietary and the reduction should be exclusively in the fat-producing foods, the "ternary nutrients." The patient must be supervised to watch that the urine is never less than 15 gm. per kilogram of weight, that is, about a quarter of an ounce to the

found. The treatment should be kept up for six months at least, with frequent intermissions, the latter to favor the recession of the skin. Leven of Paris believes that dyspepsia is the rule in excessive corpulence, and that the latter will right itself when the dyspepsia is conquered by appropriate treatment.

41. **Psychic Localizations.**—Grasset, in his address, suggested the classification of the psychic functions into three groups, the sensory-motor psychic functions, the inferior—involuntary and automatic—and the superior—voluntary and conscient. He thinks that this classification will promote the study of psychic localizations much better than grouping by faculties.

42. **Senile Gangrene.**—Verhooen of Brussels treats incipient gangrene with the iodids to widen the arteries, giving about .2 gm. of the active substance a day for months without interruption. Hypodermic injections of the alkaline nitrites, in the dose of .05 gm., are also efficient. They can be kept up for several months without ill effects. As a tonic for the heart he gives the preference to theobromin, 1 or 2 gm. a day, also continued for several months. It can be associated with .5 to 1 gm. of caffeine a day. When gangrene is once established he disinfects with a 1 per 1,000 solution of potassium permanganate, followed by the permanent application of fresh hydrogen dioxide. Brissaud stated that when the arterial lesion is located high up, as for instance at the bifurcation of the aorta or in the iliac, surgical intervention is the only resource and should be prompt and thorough. The cause is not inevitably atheroma. In one case he found at the necropsy a clot entirely obstructing the lumen, due solely to intense angioplasm. Neurasthenia are extremely subject to the latter. The state of the liver and kidney is an important factor in the pathogenesis of gangrene. When these organs are intact atheroma is not followed by gangrene.

43. **Buttermilk in Gastroenteritis.**—Decherf of Tourcoing reported that infants with severe gastrointestinal troubles improved to a remarkable extent when put on buttermilk. In 22 cases of acute gastroenteritis, including 8 very severe ones, all the children recovered rapidly, as also 3 adults with mucoc-membranous enterocolitis and a large number of children with chronic gastrointestinal troubles. The toxic-infectious symptoms vanished in the acute cases in less than twenty-four hours.

44. **Orthostatic Albuminuria.**—Teissier distinguishes between the residual post-infectious albuminuria, the associated forms and the true variety. Linossier believes that standing has a great influence on the functioning of the kidney at nearly all times.

45. **Treatment of Writer's Cramp.**—Ballet emphasized the fact that this condition is of cortical origin and requires psychic re-education.

46. **Fatal Anasarca After Saline Infusion.**—Sorel reported the case of an infant suffering from severe enterocolitis. The intestinal symptoms were improved by irrigation of the intestines, with saline solution, but, simultaneously, diffuse edema developed, rapidly fatal.

47. **Diazoreaction in Prognosis of Tuberculosis.**—Holmgren's experience has been that when the reaction was intense the subject succumbed within two months. When it was less marked or dubious, the subject lived six to eighteen months, and a negative reaction was always followed by long survival.

48. **Adrenalin in Eczema.**—Weill of Paris was able to cure a rebellious, recurring patch of eczema on his hand with adrenalin. He applied 5 or 6 drops of the 1 per 1,000 solution, and after it had dried a little starch glycerolate was applied and dusted with equal parts of starch and zinc oxid. This was repeated six to eight times a day at first and then only morning and evening. By the end of the second week the patch had healed and recurrences have been promptly aborted by the same.

49. **Epidural Iodized Injections in Meningitis.**—Mauclair has treated Pott's disease successfully with epidural injections of iodoforned oil, and Rossini now reports excellent results in

a case of tuberculous cerebrospinal meningitis. The patient was a lad of 16 and the disease was subacute and not influenced by any of the usual measures. He then withdrew 1 to 5 c.c. of cerebrospinal fluid and injected into the subarachnoid space the same quantity of 1 per cent. iodoforned oil. He repeated the procedure every six hours, inserting the needle at different points. As an adjuvant he injected into a vein every second day 1 c.c. of a solution of 1 gm. iodine and 4 gm. potassium iodide in 100 gm. water. The temperature declined the day after this treatment was instituted; diuresis was re-established and improvement progressively continued. After the fifth day the cerebrospinal fluid was always sterile as demonstrated by inoculations which had been positive before.

Mitteilungen a. d. Grenzgebieten, Jena.

Last indexed page 181.

- 50 (XIII, Nos. 4-5.) *Diagnostische und therapeutische Bedeutung der Lumbal-Punktion. D. Gerhardt.
- 51 *Primäre Tuberkulose der Milz (of spleen). J. Bayer.
- 52 *New Standpoints for Judgment of Ether Narcosis.—Neue Gesichtspunkte in der Beurteilung der Aetherarkose. G. Engelhardt.
- 53 *Ueber idiopathischen, protrahierten Priapismus. C. Goebel.
- 54 *Lymphadenitis und hämatogene Eiterungen bei Pneumonie (suppurations). A. Bloch.
- 55 Erfahrungen über Serum-Behandlung der Diphtherie. M. Cohn.
- 56 *Totale Ausschaltung des Dickdarmes bei Colitis ulcerosa (exclusion of large intestine). E. L. Moszkowicz.
- 57 *Ueber "Tuberkulide" und disseminierte Haut-Tuberkulosen. F. Juliusberg.
- 58 *Experimentelle Studien zur Steigerung der Widerstandskraft der Gewebe gegen Infektion (to enhance resisting power to infection). H. Miyake.
- 59 Zur Kenntnis des Dant'schen Symptom-Komplexes. J. Lossen.
- 60 *Serious Hemorrhage from Kidneys.—Massenblutungen aus Glandula und Kranken Nieren. R. Stich.
- 61 *Die Hirn-Punktion (puncture of brain and meninges through intact skull). E. Neisser and K. Pollack.
- 62 *Ueber optische Geschwüre des Jejunums nach Gastroenterostomie. M. Tiegel.

50. **Lumbar Puncture.**—Gerhardt regards lumbar puncture as a valuable diagnostic aid in meningitis. Bacteriologic and cytologic examination and determination of the albumin content of the cerebrospinal fluid not only reveal the meningitis but disclose its nature in most cases. In acute febrile diseases, especially typhoid, grippe and pneumonia, it differentiates the cerebral symptoms from suppurative meningitis, and also excludes suppuration in serous meningitis. Normal behavior of the cerebrospinal fluid in otogenic brain processes testifies to the integrity of the meninges. The most important information derived from lumbar puncture is when headache or vague cerebral symptoms are the only clinical indications of trouble, but anatomic changes in the cerebrospinal fluid confirm the probability of a syphilitic origin. Cytology and determination of the albumin will aid in the differentiation of paralysis from other forms of dementia and the liquor psychoses. Lumbar puncture has contributed to explain the bacterial etiology of acute myelitis, and possibly also of spinal paralysis. Another point learned from it is that the fluid is not always under excessive pressure in uremia. From the therapeutic point of view, lumbar puncture has proved useful in serous meningitis, in the headaches of chiorosis, in acute and chronic hydrocephalus and in meningeal apoplexy. In tuberculous meningitis and with brain tumors, very little relief has been obtained, although in exceptional cases some of the symptoms subsided. Some physicians have reported great improvement in epidemic and in otitic meningitis after lumbar puncture; Mya in 3 cases of suppurative meningitis with influenza bacilli, and Bertelsmann an otogenic suppurative meningitis cured by lumbar puncture. Little benefit is derived in chronic affections, with the exception of the severe headaches in secondary and tertiary lues. These have yielded to lumbar puncture in many instances after having long been refractory to all other measures. Brain tumors contraindicate lumbar puncture except with the greatest precautions. With this exception, lumbar puncture is not followed by evil results in any case. The article is based on both personal experience and study of the literature.

51. **Primary Tuberculosis of Spleen.**—Bayer adds another to the 6 cases on record in which primary tuberculosis of the spleen was diagnosed and completely cured by removal of the spleen. In 2 others on record the operation proved infef-

factual to arrest the tuberculous process. In 19 other cases the tuberculosis was not found until after death. The tuberculin test or exploratory laparotomy is indicated when primary tuberculosis of the spleen is suspected in the presence of tumefaction, hyperglobulia and cyanosis. Prompt removal of the affected organ is the only treatment.

52. **New Views of Ether Narcosis.**—Engelhardt relates the results of considerable experimental research and clinical experience in regard to the influence of ether on the blood. The melting point of the red corpuscles and the point at which the albumin in the red corpuscles coagulates afford reliable data for determining injurious action of a narcotic on the blood. Further study of this subject is needed.

53. **Idiopathic Persistent Priapism.**—The condition in the case described lasted for eight weeks, when relief was obtained by an operation. The trouble was evidently due to thrombosis in the corpora cavernosa, and complete *restitutio ad integrum* followed an incision and evacuation of the clots. Goebel reviews 2 cases of leukemic priapism. In one, white thrombosis of the corpora cavernosa of penis and urethra was discovered at the necropsy. In the other case there were repeated attacks of priapism, and an operation revealed a deposit of putrefied blood containing the colon bacillus. In certain other cases on record the trouble was due to pyemic thrombosis of the corpora cavernosa, but in 9 others no cause could be discovered for the priapism. It is probable that in every protracted case there is some distension of the corpora cavernosa by an accumulation of blood, with consecutive thrombosis. The blood can easily be evacuated by a small, absolutely harmless incision, although there is a possibility that the clots may be absorbed in time.

54. **Suppuration in Pneumonia.**—Bloch describes a case of multiple suppurative metastasis, by the way of the lymphatics, in pneumonia. He also reviews 29 articles that have been published on the subject. His conclusions are to the effect that metastasis by way of the lymphatics has a favorable prognosis if prompt radical operative treatment is practicable, and if no vital organs are involved and there is no true pneumococcus pyemia. Metastasis by the blood route requires a general predisposition, such as is afforded by debility from some recent infectious disease, the rapid growth of the young or a congenital tendency. A local predisposition, induced by trauma, articular rheumatism or gout, is also necessary. The prognosis is doubtful on account of the danger of secondary pyemia.

56. **Total Exclusion of Large Intestine in Colitis Ulcerosa.**—Implantation of the ileum in the anus offers the best prospects for operative treatment of the severer cases of ulcerative colitis. Moszkowicz describes the technic he has worked out on animals with successful results in regard to tolerance, continence, etc. The operation is as simple as ordinary colostomy.

57. **Tuberculides.**—The chief importance of the benign exanthemata, known as tuberculides, lies in their affording a clue to a tuberculous internal process. They are always secondary, and can be classified in 2 groups, those belonging to the category of lichen or acne scrofulosorum, and those with necrosis, including the folliclic, nodular tuberculides and erythema indurativa with flat infiltrates. They are probably due to the action of the tuberculous toxin alone. Five pages of bibliographic references accompany the article which is based on this literature and the material at Neisser's clinic at Breslau.

58. **To Enhance Resisting Power to Infection.**—Miyake's experiments to increase resistance to infectious processes were numerous and varied. His final conclusion has already been announced in these columns, page 1267. It is to the effect that subcutaneous injection of nucleic acid has a remarkable effect in summoning the leucocytes to the spot, and reducing the danger from operative intervention. The dose for an adult is 50 c.c. of a 2 per cent. neutralized solution of yeast nucleic acid. The .5 per cent. solution is preferable, but as this requires 200 c.c. of fluid, the more concentrated solution is

generally used. No by-effects were ever noticed in the 38 cases in which Mikulicz had used it at date of writing.

60. **Hemorrhage from the Kidneys.**—Stich relates 4 cases of severe and prolonged hemorrhage from the kidneys, in one of which the necropsy revealed diffuse chronic parenchymatous and interstitial nephritis in one kidney while the other was normal. In another case the kidney was incised for assumed nephrolithiasis. No stone was found, but the hemorrhages were arrested. They recurred again four years later, but were conquered by repeated subcutaneous injections of gelatin. Suggestion and hydrotherapy have arrested the hemorrhage in some cases on record. An ice bag may be useful to supplement gelatin injections. If the symptoms persist a week or so, uninfluenced by these measures, an exploratory incision is indicated.

61. **Puncture of the Brain.**—In Neisser and Pollack's experience with 138 punctures through the intact skull there was no arterial hemorrhage in a single instance. They ascribe their success to their technic which they minutely describe. They also review the anatomy of the parts and summarize their clinical results. They found the measure extremely valuable from a diagnostic point of view, and also for evacuation of pathologic fluids.

62. **Peptic Ulcers in Jejunum.**—Tiegel reports 6 cases observed at Mikulicz' clinic, and summarizes 16 already published. The peptic ulcer in the jejunum may run a latent course to perforation or it may cause severe trouble from the start. It has a great tendency to recur. It has been noted hitherto only after gastroenterostomy on account of some non-malignant gastric affection. The subjects are almost invariably males. Prolonged internal treatment, as for gastric ulcer, offers better prospects for a cure than surgery, except in case of perforation. It seems better to prefer posterior to anterior gastroenterostomy, with transverse fixation of the loop, or better still, to substitute a pyloroplasty operation or gastroduodenostomy. In prophylaxis, alkalies and careful dieting should be the rule after a gastroenterostomy for a benign stomach affection. The ulcer is generally referable to the peptic action of the gastric juice superadded to disturbances in the circulation (arteriosclerosis), lesions of the mucosa or an individual predisposition.

Münchener medicinische Wochenschrift.

- 63 (LI, No. 42.) Morphologische Veränderungen der roten Blutkörperchen durch inaktiviertes, spezifisch lytisches Blut-Serum (hemolysis). R. Rössle.
 64 *Ueber Simulation von Geistesstörung (insanity). A. Schott.
 65 *Zur Pathogenese der Narkosen-Lähmung (paralysis). R. Giltseh.
 66 *Ueber Lungen-Sequester. K. Büdinger.
 67 Indirekte Fraktur an den Köpfchen der Metatarsal Knochen. M. Schwarzschild.
 68 Zur Entstehung der Dekubital-Geschwüre Im Pharynx. C. Müller.
 69 *Holder for Nursing Bottle.—Ein Milchflaschenhalter. A. Mayer (Freiburg).
 70 Wire Netting Plaster Dressing.—Ueber Drahtgipsbindenverbände. Gebele.
 71 (No. 43.) Ueber einen Befund von protozoen-artigen Gebilden in den Organen eines hereditär-luetischen Foetus. Jastonek and Klotzenbogen.
 72 Zur Bakteriologie der Noma. A. Hofmann and E. Küster.
 73 *Cause, Prevention and Serum Diagnosis of Cancer In Digestive Tract.—Die Ursache, die Verhütung und die Blüternungs-Diagnose der Magen- und Darmkrebse. G. Kelling.
 74 Fall von Torsion des Samenstranges (of spermatic cord). E. Grunert.
 75 Ueber unvollständige Torsionen des Samenstrangs mit spongiösem Rückgang (incomplete torsion of spermatic cord). H. Mohr.
 76 *Ueber graphische Fixierung physikalischer Befunde. H. v. Krannhals.
 77 Eltrige Peritonitis im Anschlusse an akute Tonsillitis. H. Kinnel.
 78 *New Mode of Local Application of Heat: Jute Dressings.—Ueber Jute-Floss-Verbände. O. Langemak.
 79 Asthma-Kuren mit Geheim-Mitteln und Patent-Medizinen. G. Arellis.

64. **Simulation of Insanity.**—Schott emphasizes the necessity for caution in certifying to feigned insanity as the simulation may co-exist with true mental disturbance. It is frequently one manifestation of the latter. All subjects suspected of simulation should be placed for observation in some psychiatric clinic or asylum. The assumption of pure simulation is justified only when evidence of the mental soundness of the individual is forthcoming.

65. **Narcosis Paralysis.**—Commenting on a serious case in his own experience, Glitsch remarks that it is advisable to change the position of the arms from time to time during protracted operations, to avoid post-operative paralysis. If the victim should appeal to the courts, the judge might easily assume some carelessness on the part of the operator in case of severe paralysis of this kind. Glitsch thinks that probably more cases occur than are published.

66. **Lung Sequester.**—Bildinger relates that a man of 40 exhibited symptoms suggesting typhoid fever, but the temperature persisted high, and by the fifth week he began to cough and suddenly indications of a large abscess in the lung developed. An operation disclosed a foreign-body suppurative in the lung which had resulted in the casting off of a sequester of the lung as large as a man's fist. It floated on water, and presented histologic evidence of pneumonic infiltration. The most striking features of the case were the sudden development of physical findings suggesting a large cavity in the lungs and the small amount of expectoration under the circumstances.

69. **Nursing Bottle Holder.**—A small standard is screwed to the edge of the bed or baby wagon. It terminates above in a spiral spring on which is mounted a broad half ring in which the bottle fits tight. The bottle is thus held horizontally at the proper height, and the flexible spring allows it to follow every movement of the child's head. The child can also drop the nipple, taking it again at will, the same as the natural nipple. The bottle is kept from contact with the bedding, etc. The contrivance is shown in an illustration.

73. **Foreign Embryonal Cells as a Cause of Cancer.**—Kelling's previous announcements in regard to the cause of cancer in the digestive tract were summarized in an editorial on page 269. He here relates further experiences which have apparently corroborated his former assertions and suggest both an effectual mode of diagnosis and prophylaxis of malignant growths. He has found that it is possible to induce cancer in dogs at will by inoculating them with embryonal cells from pigs' uteri or from hen's eggs. Old dogs are the best adapted for the purpose, and the liver and the testicles are the organs most predisposed to malignant growth. The inoculation is best made between the sheets of the mesentery, which enables the substance to find its way better into the glands and retroperitoneal tissue. The cancerous nodules which developed in the liver or testicles after such inoculation of hen or pig embryos in dogs showed the microscopic findings characteristic of cancerous growths, and the most careful search failed to reveal any other malignant growth in the dogs when killed fifty to a hundred days afterward. The biologic precipitin test was always positive for the specific albumin used, and was negative for albumin from other sources. This biologic test was also positive for hen's albumin in 9 cases of cancer from the human digestive tract. He accepts this as evidence that these cancers resulted from ingestion of raw eggs. In 13 others the results were negative for hen or pig embryonal elements but, of course, the possible sources for embryonal inoculation in the digestive tract are legion. It is also possible that the specific reaction might have been obtained at some previous stage of the cancer. He was able to group certain kinds of cancers by the serum biologic test, finding that certain groups gave certain specific reactions. In one group, for instance, a sarcoma of the human ovary, a teratoma of the testicle, a mammary cancer and one on a dog, all induced intense precipitation of the albumin in a prepared serum obtained by injecting rabbits with human mammary cancer substance. They also all induced intense precipitation in a prepared serum obtained by injecting rabbits with embryonal albumin from the pig. In 2 other cases of inoperable gastric and rectal carcinoma, the serum of the patients gave a positive response to the biologic test with embryonal pig cells, with which also the history of the cases harmonized. In 15 further cases of cancer of the digestive tract precipitins for hen albumin were found in 8 and for pig albumin in 2. This specific reaction was so intense and unmis-

takable that in a dubious case of apparent gastric catarrh he advised an operation for cancer merely on the basis of this reaction, and advised against it for the same reason in other cases. The operation or the course of the affection confirmed his diagnosis in every instance. The reaction is more intense the younger the subject, and it is most instructive in cases of beginning scirrhus. In some cancer subjects there is no formation of precipitins, and he has sought to influence inoperable growths by inducing the precipitin formation by injection of the prepared animal serum. In the prophylaxis of cancer, the ingestion of live embryonal cells should be avoided, especially by subjects with catarrhal or other changes in the mucous lining of the digestive tract. The uteri of animals slaughtered for food should be destroyed, and no raw meat or raw eggs should be eaten. Kelling has sought to destroy the germinal area in eggs by some means which would not injure the looks or taste of the egg. If a fresh egg is laid horizontal the germinal vesicle usually rises to the top and a current of electricity sent perpendicularly through the egg will destroy all life in the germinal area. Such prophylactic measures offer prospects for successful extermination of cancer. Many of our younger physicians may live to see the day when cancer has become a pathologic rarity among civilized peoples.

76. **Graphic Fixation of Physical Findings.**—Kranhals writes to express his satisfaction with the Curschmann method of graphic notation of the physical findings in examining patients. The findings are marked on the skin of the patient and certain of the landmarks are also marked. A sheet of transparent paper is then laid over the skin and the marks below are traced on the paper.

78. **Jute Dressings for Local Application of Heat.**—Application of superheated air is necessarily a more or less transient process. The results are better when the heat is applied more permanently, and especially when the parts are exercised at the same time. Langemak says that a thick dressing of jute under oiled silk fulfills all these conditions. He has been applying it in his practice with the greatest satisfaction. The jute can be obtained for a trifle at any saddlery or upholsterer's shop, and holds the heat better than anything else. He has found it particularly useful to apply after removal of the hot air oven. The only drawback is the size of the dressing, as the layer of jute must be several inches thick. He sometimes applies it at night only; in severe cases he leaves the dressing undisturbed for several days. The indications are the same as for superheated air. The thermometer shows that the parts under the jute are kept at a constant temperature of about 104 F.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

MENTAL DEFECTIVES: THEIR HISTORY, TREATMENT AND TRAINING. By Martin W. Barr, M.D., Chief Physician Pennsylvania Training School for Feeble-minded Children, Elwyn, Pa. Illustrated by 53 Full-page Plates. Cloth. Pp. 368. Price, \$4.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

OUTLINES OF PHYSIOLOGICAL CHEMISTRY. By S. P. Beebe, Ph.D., Physiological Chemist to the Huntington Fund for Cancer Research, and B. H. Pixton, M.D., Professor of Experimental Pathology, Cornell Medical College, Ithaca. Cloth. Pp. 153. Price, \$1.50. New York: The Macmillan Co. 1904.

MANUAL OF SERUM DIAGNOSIS. By Dr. O. Rostokai, University of Wurzburg. Authorized Translation by Charles Bolduan. First Edition. First Thousand. Cloth. Pp. 86. New York: John Wiley & Sons. London: Chapman and Hall, Ltd. 1904.

MEDICAL LABORATORY METHODS AND TESTS. By Herbert French, M.A., M.D. (Oxon.), M.R.C.P. (Lond.). Medical Registrar Guy's Hospital. Cloth. Pp. 152. Price, \$1.50 net. Chicago: W. T. Keener & Co. 1904.

TRANSACTIONS OF THE INDIANA STATE MEDICAL ASSOCIATION, 1904. Fifty-fifth Annual Session Held in Indianapolis, May 19-20, 1904. Cloth. Pp. 436. Indianapolis, Wm. R. Burford. 1904.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION, 1904. Volume XX. Cloth. Pp. 292. Philadelphia: Printed for the Association. 1904.

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Addresses.

THE CHOICE AND USE OF MEDICAL LITERATURE.*

HUGH T. PATRICK, M.D.
CHICAGO.

The choice and the use of medical literature depend first on what the physician tries to be; not on what he would like to be, not on what his ideal may be, but on what he thoughtfully, consistently, persistently strives to be.

KINDS OF PHYSICIANS.

Our day-dreams of attainment are much the same, but the daily walk of physicians varies greatly. Most of us have met a physician who may be called the family factotum. He hobnobs with fussy mothers and puttering fathers. He is greatly interested in grandma's cough, knows just how to wash the baby, has his special poultice, and can take off warts. Dropping in to ask about Aunt Em's backache, he stays an hour visiting with the folks. He is a gentle and kindly soul, but his mind is occupied with the trivialities of medicine and domestic chit-chat.

Then, there is our old friend who in winter airs his surgical deeds and medical acumen about the drug-store stove and in summer holds a like symposium on the shady side of the street. He knows a good cigar, is a pleasant gentleman and harmless in all things save only the practice of his profession.

We have heard of the affable society physician who dresses well, talks well, knows the best families, attends receptions and makes social calls. We know and respect the God-fearing church physician who teaches the Bible class, sings in the choir, gets together the pastor's salary and finances the church debt. The lodge physician, the sporting physician and the physician deep in politics are familiar figures. We know them all. They are of us, members of our honorable guild. With loyalty and affection we take them by the hand. They are good friends and good citizens; but really fine physicians—not one of them. And not one of them has any real use for good medical literature.

But there is another man—the man we would like to be; the capable man who knows his work and does it; the man up with the van, who can talk face to face with the great in our noble profession. He has enthusiastically striven or doggedly persisted until he is the wise, skillful physician who practices with no uncertain hand, but knows when he is right and knows where he is ignorant. To be what he is and do what he does means familiarity with what others have done and are

doing. To this there is no exception. He reads. He selects his literature well and uses it wisely.

WISE SELECTION OF BOOKS.

The selection of our books is a task as delicate, a duty as significant as is the choice of remedies for our patients. Every book is a prescription for our mental self. And yet, who can deny that the clever book-agent puts thousands of volumes on our shelves? In this day and generation it is the physician's obligation not only to be able to recognize the good in medical literature, but to know the great and the safe among medical writers. A conscientious physician calls in consultation no unknown man, but, strange to relate, he will blindly follow an author of whom he knows nothing except that he has produced a book.

THE RÔLE OF THE TEXT-BOOK.

Another somewhat frequent professional indiscretion, to call it by no harsher name, is the good old student plan of sticking to a text-book. Progress means expansion. The more a man progresses the less prominent is the rôle of the text-book. It is necessary for babes, but not meat for strong men. No text-book physician is an A No. 1 man. The latter needs the treatise, the "system," the cyclopedia, and particularly the monograph.

THE MONOGRAPH.

Of all medical books the monograph is the best—and the worst. As a rule, it is the product of special interest and the wise employment of opportunity. In it we often find the rich harvest of many years of loving labor by a great mind. In all probability, the author has not only consulted the writings of others, but has acquired a sure judgment in weighing their merits. Unfortunately, sometimes he is an enthusiast without balance, a faddist, a man with a theory, a prejudiced observer, a dealer in sophistry. Then, if in addition he be a positive and clever writer he may do untold harm. I have now in mind an interesting, attractive book which in the last twelve years has led astray thousands of physicians, and I am sure that the next quarter of a century will not see rooted out the fallacies planted by its brilliant author. Why is this? Because thousands of well-meaning physicians bought the book without knowledge, read it without care, absorbed its tenets without proving, and promulgated its dicta without prudence.

DISCRIMINATION IN READING.

If he is to really profit by the precious time spent in reading, the physician must be able to read with discrimination. In medicine there is no such thing as an authority. The critical sense must be keen and ever alert. The reader must learn to be a judge, for the plea of every paragraph is to be adjudicated. And if he feels himself at fault, assistance is on every side.

* President's address, delivered before the thirtieth annual meeting of the Mississippi Valley Medical Association, at Cincinnati, Oct. 11, 1904.

I think there is no case in which those who know are more happy to lend a hand than in the selection and interpretation of medical writings.

MEDICAL JOURNALS.

And next, what of the journals? This is a big question and a hard one; one I approach with considerable feeling, but with no confidence. Nevertheless, I shall not attempt to dodge it; and since to advise is more human than to confess, to find fault more spontaneous than to praise, to say "don't" easier than to say "do," I venture first to advance a few of the "don'ts" in my mind. Be it understood, however, that these are suggestions purely tentative, as the expression of only one of a vast company, and that no remark is meant as criticism of editor, censure of publisher or condemnation of publication *per se*. All is addressed to the reader. I am not talking of foods, but of diet.

Don't admit to your presence a journal that is not perfectly straight and clean. As the first requisites of the good physician are conscientiousness and strictest integrity, so no journal is safe if it be not honest on every page. Humiliating as is the admission, we must confess that there are mercenary medical men writing subsidized articles for the benefit of tradesmen. We may not be able to stop the practice, but for the love of decency, let us drop the articles into the waste basket as soon as received and bar the journals from our table.

Just to illustrate how vigilant we must be, I may state that one medical screech has appeared in different journals as a straight advertisement, an editorial, an "original," a therapeutic hint, a news item and a clinical note. Again, of seven so-called original papers in one journal, four were obviously for ulterior purposes.

A thinly veiled deception is that of putting amidst scientific matter blatant advertising quoted from *Der Deutsche Medizinische Schurkenstreich* or *La Nation Médicale Trompeuse*. It is simply knavery with German or French sugar coating.

Another sort of debasing journal is the one that pretends, perhaps honestly, to help the physician to success by means other than pure professional excellence. A type of this kind of thing I recently found in an address to the graduating class of a medical school. I have no doubt the orator thought he was advising fact and inculcating practical methods for the management of patrons, the confusion of competitors and the increase of income. As a matter of fact, he was teaching those young men deception, subterfuge and meretricious connivance, to take the place of scientific knowledge and manly worth. Concerning the editor who spreads such pestilence, I have nothing to say. The physician who admits it to his library and his mind not only injures himself, but is recreant to his trust.

Don't indulge in yellow journals—for such there are—of deeper or fainter dye. The more harmless kinds merely present a sort of pseudoscientific vaudeville of striking oddities, rare curiosities, marvelous happenings and other side-show monstrosities of the medical world. All of this serves only to excite a passing interest, and makes no reader one whit better as scholar or practitioner. The worse kinds, under the cloak of medicine, pander to our appetite for the startling, the scandalous, even the salacious, and appeal to passion and prejudice. They lean strongly to sexual perversion and suggestive gossip. Behind the mask of independent thought they delight in strictures on those high in the profession and even indulge in dirty innuendo. They start hot discussions on ethics and

foment controversies over personal rights, privileges and immunities. And this, God save the mark, is circulated as medical literature, because it is read by medical men.

Don't take a journal which is run as an advertising medium, and do not look at it if it is sent to you. Such publications are of two sorts. One kind is issued by some commercial gentleman to assist in selling his wares. In the guise of a scientific periodical, it is to all intents and purposes a sort of medical almanac, about as wholesome and edifying as the pamphlet for Bone-setter's bitters or the bulletin of Mother Udder's uterine uplifter. The other kind is conducted by a medical man with the dollar mark stamped on his aspirations. The good of the reader is no concern of his. He is after the money of advertisers, all of them. Original communications, editorials, excerpts, correspondence, everything, is arranged purely as a bait to induce the gullible to swallow the ads.

Don't read a journal that accepts abortive papers by undertone doctors. There are journals which systematically encourage that sort of thing. Unquestionably, to report cases and write down his opinions is good for any physician. But how about the reader? When the cases are incompletely studied, the writer ignorant or narrow, his conclusions lacking foundation and his judgment immature, the contribution is not only valueless—it is injurious. Smooth is the descent that leads to Avernus, and easy the downward road of this damning third-rate literature. It is light and easy reading, but begets self-satisfaction, blunts the critical sense, lulls ambition, dulls observation, stunts mental growth, and before he knows it the reader is found on a low plane of thought and practice—no higher than the twaddle he reads.

Don't waste time on journals abounding in short cuts. They are an abomination unto the mind, a snare for the unwary, and their name is legion. A hint or two will indicate the sort I mean.

Purporting to be practical and immediately helpful, some journals make a specialty of what may be called recipes for disease. And they are very alluring. Instead of learning all about pneumonia, its nature, course, variations and complications, what methods of treatment have been tried and abandoned and what has been the experience of those seeing hundreds of cases, it is so much easier to take some fellow's or some journal's statement that a peculiar poultice or ambitious alkaloid cures the disease. Stamped deep on my feelings is a paper on dyspepsia in a journal of great vogue. With no statement as to what dyspepsia may be, with no word as to diagnosis, with no allusion to pathology, no mention of gastroptosis, dilatation, hyperacidity or motor power, and no hint of test meal or examination of stomach contents, the author proceeded to advise the administration of seven different drugs. In spite of the multifarious remedies, such advice simplifies practice to a degree. It is no task simply to remember to give this tonic for appetite, that capsule for digestion, this granule for pain, those drops for nausea, one pill for constipation, the other for diarrhea, and the powder for flatulence. It is a short cut, but it leads to disaster.

In this same category belong the medical magazines that make a leader of questions and answers; a department modeled on the *Ladies' Fireside Guide*, where anxious inquirers go off at half-cock and the answers pop back as prompt and empty as echoes. A very little reflection will show not only the utter futility of

this kind of reading, but how it prevents development by curtailing wholesome mental effort.

Then there is the petty journal corresponding to the family factotum above mentioned. Its short cut is simply the avoidance of the great and profound in medicine. Ignoring such fundamental things as anatomy, physiology and pathology, oblivious alike to basic principles and the best of accumulated experience, it propagates a sort of family confab on the various specialities of practice. How to bring out the eruption of measles; what is good for hiccough; the best liniment for sprains; these are cheerfully aired in numerous columns. What do you say to the parturient woman when she grows impatient? What is your favorite catarrh snuff? In the treatment of "threatened" appendicitis should acetone be given the first day and veratrum the second, or vice versa? On questions such as these, the editor and his writing readers expend great energy, priceless time and endless ink. With great zest the contributors, as Charles Lamb says, encourage each other in mediocrity. I carefully went through 115 pages of such a penny-wise, pound-foolish publication, and found just six pages of good stuff. And yet that journal has an enormous circulation—to the great renown of the publishers and the great discredit of the medical profession.

Don't pay much attention to columns of formulæ, notes on treatment, therapeutic hints, brief paragraphs on recent discoveries and items on new drugs. Pass over abstracts in which the process of condensation has squeezed the life out of the matter, and skip society reports so meager as to amount to mere personal mention. Most of such matter is garbled at the best, has no educational value, and even when a bit of it has virtue, is pretty sure to just slip through the otic tunnel—in one ear and out the other.

From the foregoing negatives a few positives may readily be inferred. As we are to buy only the best books, so let us take only high-class medical periodicals. And then let us read them well. If there are many poor journals, there is much poor reading done; reading that is casual, unsystematic, careless, superficial, cursory, profitless. We have three sources of information and inspiration: personal experience, personal contact with colleagues, and reading. The first may be limited, the second unsatisfactory, but the last offers to all the highest inspiration, and knowledge without end. Then let us read up and not down.

There is a certain comfortable ease in reading what we already understand. We may gratify our natural craving for approval by reveling in nice little papers which repeat what we have been saying for years. To tickle our vanity by reading papers so poor that they show the author to be more ignorant than ourselves is a pleasing process. Sometimes we feel luxuriously virtuous when reading a medical journal purely for entertainment and mental relaxation. None of these things should be. One and all they create a slovenly habit of mind. They are destructive of good method, and in the end incapacitate us for good work.

Here I must notice an objection or complaint that we have all heard and most of us have made: "I have no time to read." It is not true. The apportionment of time is not a matter of necessity, but of choice. What do I consider of the greater importance? What do I like and dislike? What do I choose to do? These are the determining questions. And in the modern physician's life there is precious little paramount to study.

It pays to read. Beside the pleasure of knowledge and the power that knowledge gives, beside the gratifying sense of achievement and the satisfaction of progress toward a goal, it pays in dollars. In conversation with the busiest, the greatest and the most successful of our colleagues, I have often been astonished at the amount of reading they do and how they rely on it. Very, very often good reading makes the difference between \$5 and \$25 for an examination, between \$50 and \$500 for an operation.

And now, if I may be allowed four little hints as to the manner of reading, I shall have finished.

One excellent way to use medical literature is systematically to get up one subject well; to investigate it thoroughly; to trace its history and follow its development; to scrutinize diverse observations, review conflicting opinions and weigh different conclusions. Having once mastered the thing, it will be surprisingly easy to follow it through the succeeding years, for the annual increment to any given subject in medicine is astonishingly small. After one topic is exhausted another may be attacked, and so onward.

This method easily falls in with a second good one, namely, to read up fully on cases in hand. Note that I say "fully." Hastily to look up an ointment for eczema or to consult a text-book or two on the diagnosis of iritis may be one of the exigencies of practice; it is not reading. Likewise hunting up a remedy for an obscure case may possibly be a necessary makeshift, but generally it does the patient little good and the physician less. We should read for a perfect understanding of the case, which means a complete comprehension of the subject. No case can properly be considered alone. It is always in relation to variant cases under diverse circumstances. For no patient can there be a paragraph explanation and no recipe treatment.

Now, these two plans of reading naturally lead up to a third—reading to write. Of course, this plan is good only when the writer compels himself to produce really good stuff. This proviso fulfilled, I know of nothing more wholesome than the writing of papers and the reading of them where others may pass judgment. If the first two plans have been well carried out, it is reasonably certain that this one will not miscarry. The man who has excellently well worked up any subject or any case of any abnormal condition, is not only well prepared for the next one of the kind, but he is in a position to tell others something they do not know.

Pursuance of these three plans of reading will almost inevitably produce a most desirable habit, viz., the keeping of case records. The virtues of this practice are many. Two of them are that it stimulates reading and enhances its value. Accurate comparison of our experience with that of others not only serves to impress the facts, but ripens knowledge into wisdom.

The fourth and last suggestion for medical reading is really but a summary of the other three. It is that we acquire the mental attitude, or aptitude or habit of reading for reproduction. To be a student is not enough. We must be effective students; student soldiers, if you please, preparing for action. There is a vast difference between the acquisition of knowledge as a mere accomplishment and as a means of accomplishment. It is well for us to regard our store of knowledge not as simply an interesting museum of Nature's wonders marvelous to contemplate, but rather as an armamentarium; an orderly array of goodly weapons ready for instant use.

THOUGHTS SUGGESTED BY A STUDY OF THE EYE INJURIES OF INDEPENDENCE DAY.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON OPHTHALMOLOGY, AT THE FIFTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT ATLANTIC CITY, JUNE 7-10, 1904.

ROBERT L. RANDOLPH, M.D.,

Associate Professor of Ophthalmology and Otolaryngology, Johns Hopkins University, BALTIMORE.

In these days of progressive municipal hygiene, when laws are being constantly enacted to protect us from the results of ignorance which is so often criminal, I have thought it a suitable moment to call the attention of ophthalmologists to a condition which savors strongly of defective legislation, a condition which is peculiar to our country.¹

It is not the first time by any means that the subject has been brought to public notice, for the medical journals throughout the land, and especially THE JOURNAL of this Association, to say nothing of the newspapers generally, have long since presented facts and figures which should convince us that the Fourth of July is a day of mourning to a large number of those who participate in its celebration and an unmitigated nuisance to thousands of others who come more or less indirectly within the zone of its activities.

Generally speaking, those who are faithful in observing this occasion will sooner or later be made to appreciate with some degree of force the truth of this statement, for while the unfortunates are drawn in large measure from the ranks of childhood, some of the most destructive injuries which I have seen were in individuals who had passed unscathed through the turmoil and heat of more than twenty Fourth of July celebrations. For example, there are to be seen in these records 15 cases where the ages ranged from 30 to 45 years, and each of these individuals was left to finish life with one eye. There were 52 others who had gone quite a distance into mature life, two of them being men of 60 years old, and eight women, two of whom were nearly 60, the other six being over 40, and each of this last group was badly injured.

This thing of getting wisdom is usually attended with some tribulation, and before we get it most of us have lost "the wild freshness of morning." Such an

experience as that of the eight foolish virgins just mentioned certainly worketh wisdom.

The frequency of railroad accidents in this country has given rise to the opinion expressed in some quarters that we Americans are a violent people and that we have a disregard for human life, although it should be said in this connection that the statistics of Mr. Thompson² show that for the year ending June, 1902, railway travel in America, mile for mile at least, is safer than that of Great Britain, France and Germany. Be that as it may, our attitude toward the absolutely unnecessary mortality from fireworks on Independence Day is open to the severest criticism. Railroadng or even traveling on railroads is essentially a somewhat hazardous business, but equally essential is it for the good of society, while the use of fireworks is at best only a so-called amusement, and one toward which all legislation has been hostile and for obvious reasons. The remarkable thing is why there should be a day on which this form of lawlessness is condoned.

How singular, not to say preposterous, is the spectacle of this country celebrating the anniversary of its independence at the expense of 466 lives, 10 persons totally blind, 95 eyes lost, and 500 other individuals maimed and disfigured. This is the record of July 4, 1903,³ a record which eclipses in its death list the losses in killed on the American side in the battle of Bunker Hill.⁴

In comparing these numbers with the mortality from tuberculosis, it is interesting and suggestive to note that nearly five times as many persons were killed last Fourth of July by fireworks as have died from tuberculosis in Baltimore for any month during the past ten years, and more than twenty times as many as the average daily mortality from the same disease in the city of Greater New York with its population of over 3,000,000.

It should be remembered, too, that there must have been hundreds of other and minor casualties which were never reported, so that the complete record of last Independence Day will hold its own with that of any of the tragedies of this or other lands for 1903, with the additional sting of the folly and ingloriousness of it and of the fact that it is a story which we have heard with some complacency and regularity for many years. Such a thing is a reproach to any people.

I need hardly say that if the celebration of Independence Day had been attended in one community with a loss of 466 lives, that community would have risen up and wiped the holiday from its calendar. We see this power of public opinion illustrated in Norfolk, Va. Two years ago that community, exasperated beyond endurance by the mortality from the toy-cartridge pistol during the Christmas holidays, took active measures at once, and the toy-cartridge pistol was voted an intolerable nuisance and a severe penalty imposed for its sale. Fortunately, no such wholesale destruction has befallen any one section, for this record represents the tax levied on the nation for the license to use fireworks for one day of the year, and it is doubtful in the highest degree whether the significance of that day was understood by half of those whose names are to be found on the list of dead and injured. This sort of patriotism sounds like barbarism.

Thanks to the press, the wedge of reform has been

1. A large portion of my original address appeared in the *Baltimore Sun*, June 27, in connection with a crusade started at that time against the "Fourth of July Nuisance." That part has been abbreviated in this version. It is interesting to note the success of the movement in Baltimore as compared with reports from other cities:

NEW YORK CITY.	
New York Eye and Ear Infirmary.....	20 cases.
Manhattan Eye and Ear Hospital (N. Y.).....	42 cases.
New York Ophthalmic and Aural Institute.....	5 cases.
Total	69 cases.
BOSTON.	
Massachusetts Charitable Eye and Ear Infirmary.....	16 cases.
PHILADELPHIA.	
Wills Eye Hospital.....	15 cases.
BALTIMORE.	
Johns Hopkins Hospital.....	1 case.
Presbyterian Eye and Ear Hospital.....	0 cases.
Baltimore Eye and Ear Hospital.....	1 case.

The Presbyterian Eye and Ear Hospital, which has the largest clinic south of Philadelphia, shows a clean sheet for the first time in twenty years.

I thank the following gentlemen for help in getting together these statistics: Drs. John E. Weeks, Edgar S. Thomson and Arnold Knapp, of New York City; Drs. S. D. Risley and C. A. Oliver, of Philadelphia; Drs. Myles Standish and F. H. Verhoef, of Boston, and finally, Drs. Davis and B. B. Browne, Jr., of Baltimore.

2. *Railway World*, Feb. 12, 1904.
 3. *THE JOURNAL A. M. A.*, Aug. 29, 1903.
 4. The Americans lost 449 killed, *The American Revolution*, by John Fliske, vol. 1, p. 139.

driven in a short way, and things now are in better shape in some respects than they were a few years ago. For example, on July 5 and 6, 1888, there were 16 cases of eye injury treated at the Presbyterian Eye and Ear Hospital, Baltimore. On the same days of 1897 there were 14 cases treated, and in the intervening years there was an average of 6 cases for each Independence Day. Now and again there has been an outbreak of what might almost be called an epidemic of this class of injuries. For instance, on July 4, 1898, we had a record at the Johns Hopkins Hospital of 14 cases. In 1899 there were 16 cases treated at the Presbyterian Hospital and in 1901 13 cases. It should be remembered, too, that every year a certain number of eyes are treated in other hospitals than in the ones mentioned, and, again, a certain number are treated by the various physicians throughout the city, in their private offices. The number, no doubt, would be multiplied many times if the record of every case could be reached.

I note that 84 cases of eye injury were treated at the New York Eye and Ear Infirmary on July 4, 5 and 6, 1902, and on the same days of last year 42 were treated. Comparisons are unnecessary to show the condition of affairs prior to 1902, for the records of this one year are sufficient to prove that this kind of lawlessness is still deeply rooted in the metropolis, and that it blossoms out with surprising freshness and vigor with each returning Independence Day.

I have collected 493 cases of eye injury caused by the explosion of fireworks July 4; 249 of these occurred in Baltimore, while the others have been obtained from the records of the New York Eye and Ear Infirmary, the Manhattan Eye and Ear Hospital, New York City, and the Massachusetts Charitable Eye and Ear Infirmary. Practically all of these accidents occurred within the last few years, that is to say, only recent records were consulted. The numbers would mount up into the thousands had earlier records been utilized.

I have already called attention to the fact that the majority of such injuries are to be found among the young, a fact which these records help to establish. Of the 493 cases, 357 were children, and 136 were 21 years and over. There were 3 cases where the child was 3 years old; 5 cases where the age was 4; 7 cases where the age was 5; 1 case where the child was 2½ years old, and an infant of 3 months. It is to be regretted that the records of these hospitals gave so little information as to the variety of fireworks which proved to be the most dangerous, but so far as this point was considered, I gathered enough to feel satisfied that one of the varieties of firecracker was generally responsible for the injury, particularly for the very serious ones. Sky-rockets and Roman candles, however, were not found to be blameless by any means. In 110 cases the injury was to the right eye, and in 55 cases both eyes were injured. In the lists furnished by two of the hospitals, there was no mention made as to which eye was injured. The chief injury was one in which at the same time the lids, conjunctiva and cornea were peppered with grains of powder which was usually imbedded in these parts, and which injury we all know entails considerable suffering and frequently leaves permanent scars. Of these there were 269. Presumably most of these cases were discharged cured after being treated for a certain length of time, but it would have been interesting had it been possible to have followed up these

cases months later to see if the eyes had regained their integrity. In 40 cases, however, the injury was so serious as to make it necessary to take out the eye in seven instances for fear of sympathetic trouble, while in the remaining 33 the vision was permanently impaired, either by traumatic cataract or by inflammatory changes in the deeper structures.

A study of these statistics shows that we have pretty much the same train of events as is seen in other matters which pertain to public safety. A long period of freedom from sickness and sudden death makes the memory hazy and begets the carelessness which sooner or later brings disaster. The apathy which had settled over Baltimore in the few years previous to 1899 and 1901 could only be shaken off by some such violent provocation as the outbreak in these two years, since which time we have had some falling off in the number of injuries, so far as the eye is concerned. Not only in Baltimore, but in all of our cities the law is distinctly hostile to the "harmful and pernicious practice of setting off fireworks in the streets." The law, though, to be a real boon must become aggressive and the axe must be laid to the root of the evil.

An amusement which is essentially associated with such danger to life and property becomes too serious a matter to be regarded as legitimate amusement, and should be classed at once with crime and disease; in other words, with the things with which every civilized community is waging a war of extermination.

Take this incident as illustrating what I mean by defective legislation: A number of young men were celebrating the day in the usual manner. A small boy espied a fuse sticking out of the pocket of one of the men. The temptation was irresistible, and unseen he lit the end of the fuse. The man's side was blown open and he died in two hours. This is not an exaggerated nor an isolated case, for 465 others were killed in practically the same way and on the same day throughout our land. A man of 34 was having a good time with his children on the night of the "Fourth." A large firecracker had failed to explode and he went up to investigate. The next morning he came to me with a rupture of the eyeball extending clear across the cornea at its upper part and with the iris protruding. The eyeball subsequently underwent atrophy. This, too, is not an exceptional case, for ten individuals were made blind in both eyes and ninety-five lost one eye each in practically the same way and on the same day in the United States. One can never say what a cannon cracker is going to do, and it stands high as a vain thing for safety.

The root of the evil lies principally in the sale of fireworks, and on the basis of these statistics an ordinance was recently introduced which makes the penalty for selling fireworks \$50 instead of \$2 (as the old law stands), and for setting them off in the streets not less than \$10 nor more than \$25. I am convinced from the opposition which has sprung up from those who sell that the law will be a substantial blow to their business. It would seem that these people are willing to run the risk of being caught and fined when the penalty is only \$2, but fear to take the risk with a more severe penalty.

I have brought this matter before the Section because ophthalmologists probably see more of this class of injuries than other physicians; not that injuries to the eyes from exploding fireworks, although very frequent, are more frequent than burns and wounds of other parts of the body, but that this latter class of in-

juries are treated by or divided up among the great body of medical men, while eye injuries are usually seen by a limited few in the cities and towns. We are better able, then, to give effective testimony in a matter of this kind.

Usually when an ordinance is introduced, it is a simple matter to get permission to appear before the committee of the council and present one's arguments. This I shall do, and I will also have a representative from each of the eye hospitals to strengthen my hands. I think it advisable to have two or three surgeons who are well known in the community to present the question in its general surgical aspect. Most of our surgeons have been confronted with serious wounds resulting from the explosion of fireworks. The support or testimony of several general practitioners and hospital superintendents who can relate the very injurious effect of the noise on their patients, especially on those who have just undergone severe surgical operations, will be found most valuable.

I would suggest, too, that you incorporate in your statistics some of the facts in connection with fires. For the year ending December, 1903, we had about two fires a day; that is to say, we had a few over 750 alarms. Normally, then, this is about what might be expected annually in a city of the size of Baltimore. According to a statement of Fire Chief Horton,⁵ there are usually between twenty and thirty fires on July 4. All of our cities pass through this kind of experience on Independence Day.

There is such a thing as the legitimate use of fireworks, but, to my mind, that means setting them off in a big park under the supervision of men who are trained for the purpose and are experienced in handling fireworks, the entire exhibition being given under a special permit from the city authorities, and I think it would pay our cities to make an annual appropriation for this purpose. I feel sure that there is a large element in all of our cities which would be glad to contribute every year to a fund of this character.

Evidence arrayed in this manner will be convincing to the public, and may probably bring forth fruit. I say probably, for no matter how urgent the need may be for new legislation in this matter, the banding together of the dealers in fireworks and the use of money may be expected to have considerable weight with the ordinary run of city councils, which are largely composed of men who set private gain above the public good and party above principle. But no matter what the outcome before the council, in any event present your evidence in the same manner before the police commissioners, for without the co-operation of the police the whole thing will prove a failure. The heads of the police department, if their sympathy be secured, can and will issue such orders as will give us a reasonable and peaceful Independence Day.

I offer these suggestions, hoping that they will at least serve to stimulate in the Section an interest in this question. There is scarcely a large city in this land which has not one or more representatives in this Section, and I am convinced that as ophthalmologists we can accomplish much toward lessening the fatalities of Independence Day.

Our communities look to us as physicians for knowledge in the things which pertain to public hygiene, and nearly every year witnesses some victory over ignorance at the hands of our great profession, our high calling

which, I see, from these annual sessions (to paraphrase a quotation), "renews its strength, is mounting up with wings as an eagle runs and is not weary, walks and faints not."

Original Articles.

SOME FURTHER OBSERVATION ON THE USE OF THE STEM PESSARY FOR SCANTY MENSTRUATION DYSMENORRHEA, INFANTILE UTERUS AND STERILITY.*

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DETROIT.

In a paper on the above subject last year, I called attention to the great value of the stem pessary for some of these intractable cases. While a general practitioner I think I had more trouble with cases of scanty and painful menstruation than any other cases of pelvic troubles. The inefficiency of medication and general hygienic rules we have all observed. These patients go from one physician to another. We have gradually been enabled to unravel the different questions involved, and are now able to relieve many cases by understanding the pathology and the causative factors. The complex symptoms produced by the many various pathologic conditions naturally require that a correct diagnosis must first be made. After eliminating all those cases caused by diseases of the tubes and ovaries, adhesions and displacements, there still remains a goodly number of cases of painful menstruation which are not relieved by ordinary local or constitutional treatment.

With advancing civilization and the work thrown on the brain at puberty by the intellectual requirements of to-day, we have found that many young girls at the age of puberty, on account of the studies they have, remain physically defective. It is too much work for nature. The body may even develop, but the nutrition is all used up in supplying the brain with the necessary nourishment and the pelvic organs are neglected, and the result is an infantile uterus, while menstruation is painful and often scanty. All the emmenagogue remedies usually recommended are absolutely of no avail. By stopping all studies, putting the young girl in the fresh air, and letting her live a normal life, with plenty of exercise, development of the uterus may still take place, if this is done in time. If this is neglected, however, until she is through with her school and college life, that is, until she is 18 or 20, the poorly developed uterus will generally remain.

Now, what are we to do in such a case? If we have a poorly developed muscle of the arm or the leg or the back, do we use aloes, myrrh, tansy, or pennyroyal, or, in fact, any other remedy? You would all laugh if anyone suggested such a line of treatment. No, you develop the muscle by exercise. A thorough system of gymnastics will restore and strengthen almost any muscle of the body. I started out with this idea. You must exercise the uterine muscles if you want to develop the uterus. It is well known that the uterus containing a foreign body will try to expel it. A constant contraction goes on, the muscles contract and

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relax, they exercise, so I have used the stem pessary, leaving it there for months and years, with wonderful results.

Now, we have another class of cases: The young girl with a bright mind, quick perception; learns easily and goes through school without the least trouble. Nature has no particular work at puberty. There are no long hours of study burning the midnight oil, but the girl learns her lessons, gets out in the fresh air, takes plenty of exercise, and Nature has no trouble at all in developing the pelvic organs. They become normal. The girl menstruates regularly and painlessly. She goes on that way for years. She becomes an intelligent worker, teacher, or something of that kind. Gradually, in the course of time, dysmenorrhea is noticed, perhaps only for an hour or two, but it gradually increases in severity. She is laid up for a day or two every month, and has trouble in following her vocation. If you will examine a girl like that you will find that the uterus is small. It is undergoing atrophy; the uterus not so much as the cervix. The cervix has become very much smaller, the canal is contracted, there is painful obstruction and pain from the lack of muscle, which has been superseded by connective tissue. The uterus will simply become small from the lack of exercise, just as any muscle of the body will from lack of exercise. That woman ought to be married, she ought to have children; then she would not have dysmenorrhea, but she has it now. What are you going to do here? Give her various remedies from gauliac to aloes? They will do no good. The uterus needs exercise. If she is examined by the ordinary physician, he finds the small cervix, and says it is stenosis and needs dilatation. He proceeds to do it. The next menstrual period she will feel better. The second time she begins to have trouble again, and in a little while she is as bad as she was before. Perhaps she has this repeated, but with the same result. What she needs is constant exercise of the uterine muscles. The stem pessary will fill the indication, and she must wear it for a long time—a year or two.

For this kind of cases the ovaries were removed formerly, and are to-day by inexperienced surgeons. The slightest little pain during menstruation is an excuse to remove the ovaries.

This method of treatment, I hope, will save many. In ordinary stenosis, where there is a tendency to re-contrast, the use of the stem pessary for a few months will bring about a permanent cure. In cases of single flexion and version, the stem pessary or any other kind of pessary will generally relieve the condition. Cases of sterility will be relieved if there are no tubal or ovarian diseases.

Some of the most intractable cases are those of scanty menstruation in fleshy women. It seems to have a peculiar mental effect. They seem to worry a great deal about it. The stem in such cases generally brings on the normal flow. The stem increases the flow in some cases rather profusely, but, as a rule, that is desirable. The various nervous symptoms and disturbances we often find seem to quickly vanish after they have worn the pessary for a short time. There certainly are many reflex conditions, which we do not quite understand, that are caused by flexion, stenosis and dysmenorrhea, which will all disappear as soon as the uterine or pelvic trouble is relieved.

Just a few cases that may make clearer the point I am trying to make. I will not give you an elaborate history, but just a few salient points:

CASE 1.—Infantile uterus—Mrs. B., aged 27; dysmenorrhea

since the beginning of menstruation; married six years; sterile. Stem pessary introduced Aug. 17, 1903. Menstruation regular and painless; working hard, and the stem still in place.

CASE 2.—Mrs. B., aged 31; amenorrhea and retroversion; had not menstruated for seven months; sterile. Stem pessary was introduced Sept. 10, 1903; menstruation regular since; still in place.

CASE 3.—Mrs. M., age 33; amenorrhea and sterile. Very fleshy; had not menstruated for nine months. Stem pessary introduced Oct. 31, 1903; still in place; menses regular since.

CASE 4.—Miss G., aged 20; menstruation painful; uterus small. Stem pessary introduced Oct. 27, 1903. Removed May 7, 1904. Menstruation became regular and painless as soon as stem was introduced.

CASE 5.—Mrs. H., aged 24; sterile five years. Stem pessary introduced Oct. 15, 1903. Removed Dec. 17, 1903. Menstruated last, Jan. 14, 1904; pregnant at present time.

CASE 6.—Mrs. O., aged 30; scanty, painful menstruation; uterus small; hysterical. In bed for two weeks; taken to the hospital and stem pessary introduced Feb. 6, 1903. In one week she left the hospital, able to do her work, and has been an entirely different person since. All the nervous symptoms disappeared; menstruation became regular. Pessary was removed May 22, 1904.

CONCLUSIONS.

In conclusion, I would say that:

Dysmenorrhea in young girls is often produced by infantile uteri, when it occurs after 30 in virgins, by premature atrophy of the uterus.

The uterus can only be developed by exercise. This is accomplished by the stem pessary, as the uterus contracts and tries to expel it.

Recurring stenosis or flexions are often cured by the stem pessary if kept in for six months or a year.

Scanty menstruation in fleshy women is wonderfully improved by the use of the stem pessary.

Amenorrhea caused by any of the above conditions, or sometimes without our ability to recognize the cause, is promptly relieved in the same manner.

As all the above conditions cause sterility, the latter is often cured by the introduction of a properly fitting stem. Any kind of stem pessary will do, but the hard rubber Chapman is the one used.

All pelvic diseases, ovarian or tubal, must be absolutely excluded. The stem is only used in disturbances caused by the uterus alone.

MEMBRANOUS ENDOMETRITIS.*

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The unsatisfactory results of all forms of treatment for membranous endometritis directed to the uterus, have been so commonly noted that it seems strange its pathology is still in doubt. So far as I know the idea that this condition may be a secondary trophic one has not been suggested. Within the past few months a number of cases coming under my care in close succession in which membranous casts, either partial or nearly complete, were among the symptoms noted, caused me to look carefully over my records for several years back. The first surprising thing I found was that in 42 cases on which I had operated for the removal of tubal and ovarian diseases, membranous casts

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accompanying painful menstruation were noted as a prominent symptom. The second thing found was that in 19 of the 42 cases the tubal or ovarian disease was unilateral. The third thing found was that in 37 of the 42 cases pelvic adhesions were noted.

I have, since that time, either seen or communicated with 17 of the 19 patients who were the subjects of unilateral trouble. Two of the patients I have not been able to find, although one of these in a letter a little over a year ago made the statement that she was entirely well (five years after operation). Of the 17 but one still has the membranous casts, and an examination a few weeks ago disclosed a hard and immovable mass at the side of the uterus; probably a pus tube, inasmuch as the operation performed was for the removal of a left-sided pus tube; the right tube, seemingly normal, was not removed.

The conditions found in these 42 cases were as follows: In 19 cases unilateral diseases of tubes and ovaries; in 23 cases bilateral; in 37 there were pelvic adhesions.

Of the 19 unilateral cases, 14 followed or appeared to have started with some one of the exanthemata.

Of the 23 bilateral, 19 appeared from the history to have started with scarlatina, measles, mumps, rheumatism or smallpox.

Of 5 unilateral cases, no definite history of childhood could be elicited, and in 4 of these pain and membranous casts were noted at first, and all subsequent menstruations; 3 had chorea at puberty.

Of 4 bilateral cases, no definite history could be elicited, but one had smallpox at 14, and one had chorea at pubescence.

Of the bilateral cases, 8 were tubercular, 3 having tubercular deposits in peritoneum. Of these 8 cases noted as tubercular, only 2 developed general tuberculosis subsequently.

Inasmuch as the bilateral cases can not be considered in a positive way, we have, then, but 19 cases which would seem to furnish positive clinical data, although the other 23 support the theory.

Of these 19 cases the conditions noted were prolapsed and adherent tube and ovary with sclerosis of ovary, 7; prolapsed tube and cystic ovary, with adhesions and obliterated tube with hydrosalpinx, 3; hydrosalpinx and dermoid ovary, 2; hydrosalpinx hematoma, 1; retroverted adherent uterus with adherent chronic salpingitis and chronic ovaritis, 4; ovarian cystoma and salpingitis, 2.

Miss M. L., aged 22. Menstruated first at 13.

History.—Menstruation free, not painful and regular. Health remained good until the age of 19, when she had smallpox. Did not menstruate again for four months, when menstruation was accompanied by severe pain and the passage of almost a complete cast of the uterus. From that time to the present menstruation has been irregular, painful and always accompanied by the passage of more or less complete casts of the uterus.

Examination.—Examination revealed a tender slightly movable mass on the left side, pressure on which caused pain, which she said is like that she suffers during menstruation.

Operation.—April 27, 1894. The hydrosalpinx and cystic ovary on the left side removed. The right tube and ovary were normal with the exception of a small sclerotic area at the outer portion of the ovary which was excised and the wound stitched over with fine silk.

Results.—Her recovery was perfect; menstruation became regular, free from pain and without any membrane. She has since married and now has two children. She tells me she has

never suffered any menstrual pain or discomfort since her operation.

Mrs. H. B., aged 34. Menstruated first at 14. Regular, free from pain; health good.

History.—Married at 25. One child fifteen months later. Puerperium normal; health good again until three years ago, although no further pregnancy. Had severe attack of measles, followed by muscular rheumatism. Was sick ten weeks, during which time she did not menstruate. When menses reappeared suffered severely and flowed profusely. A few shreds of membrane were noticed. Since that menstruation has grown more painful, irregular and always accompanied by passage of membrane.

Examination.—Examination revealed a hard, sensitive, adherent mass to the right of the uterus.

Operation.—April 28, 1894. A thickened adherent fallopian tube and sclerotic ovary were removed from the right side, the tube being nearly an inch in diameter and very hard. The left tube and ovary were not adherent and apparently not sufficiently involved to justify their removal.

Results.—She recovered, but did not menstruate regularly for nearly seven months, although menstruation was accompanied by less pain than formerly and each time with less membrane. After this her menstruation became more regular, she became pregnant and was delivered of a child at term. When I last saw her she was well. About a year ago I had a letter from her in which she states she has no pain and considers herself well. Since that time I have lost trace of her.

Miss M. P. A., aged 28. First seen April 22, 1895. Menstruated first at 15.

History.—Had chorea for about three months previous to this and continued ten months after. First menstruation free from pain, lasting about four days and normal in quantity. (Statement by her mother). Second menstruation did not occur for seven months, when there was some premenstrual pain, which passed away in a few hours after flow started. Menstruation then became regular every twenty-eight days, flow lasting four days, no clots or shreds. When about 16½ years old had a severe attack of scarlatina. Had some kidney trouble with it, menstruated while desquamating, suffered very severely and passed a few small shreds of membrane. Since that time has always suffered severely. Premenstrual pain chiefly on left side. The past year menstruation has been irregular, the pain more severe and the shreds of membrane larger, the last time almost a complete cast of the uterus was discharged.

Examination.—Examination revealed an adherent cystic mass behind uterus and low down.

Operation.—May 5, 1895. An adherent cystic ovary and small hydrosalpinx with the fimbriated end of the tube adherent to the ovary were removed from the left side low down in the cul-de-sac. The right tube and ovary were apparently normal.

Results.—During the first menstruation following the operation there were a few small shreds and clots, but comparatively little pain. The next and all subsequent menstrual periods have been free from pain and shreds. (This patient married in August, 1899, and is the mother now of two children, both girls.)

M. L., aged 23. Menstruated first at 13, free from pain and normal.

History.—Flow four and a half days, perfectly normal and free from pain for about a year, then had severe attack of parotiditis and what the doctor said was inflammation of the right ovary; was very sick for four weeks; did not menstruate while sick, nor for three weeks after. She then suffered very severely and had to go to bed and have hot applications: flow lasted eight or nine days. The next menstruation came on five weeks later after two days of very severe suffering. This time she passed several large pieces of membrane the first day and some smaller ones the second day of the flow. From that time until the present suffering has become more severe and flow is always accompanied by pieces of membrane.

Examination.—Examination showed a prolapsed, enlarged and tender right ovary in the cul-de-sac.

Operation.—Jan. 11, 1896. The right ovary and tube were prolapsed and adhered. The ovary was about as large as a hen's egg and of unusually firm consistence. The tube was much thickened and very hard. The left tube and ovary were apparently normal.

Results.—There was comparatively little relief from pain during the first menstruation, but each subsequent menstruation became less painful and with fewer shreds, until the fifth month following the operation, when there was no pain and no shreds. Since that time until her marriage, eighteen months ago, she has been absolutely free from all her old trouble. She became pregnant a short time after marriage and gave birth at term to a boy baby.

Mrs. E. G., aged 26. First seen Aug. 2, 1895. Childhood healthy.

History.—No sickness until 12 years old; had measles, and three months later scarlatina; very sick for six weeks; had peritonitis (?) mostly on left side, following scarlatina. Had three attacks, one in October, one in November and one in December. Menstruated first in December, 1881. "Was very sick, suffered severely for two days, when doctor injected something into my arm which eased the pain and caused the flow to start. The flow was very profuse and there were pieces of something which looked like pieces of thin skin." She has always suffered severely before flow starts and always had these pieces of membrane. "Last month there was a large piece almost as big as two fingers and several small pieces." Married at 23; never pregnant.

Examination.—Examination showed a hard, sensitive mass, firmly fixed on left side.

Operation.—Aug. 25, 1895. The left tube and ovary were firmly adherent. The uterus latero-flexed and the ovary cystic. Adhesions separated and left tube and ovary removed. The right tube and ovary were not much involved, a few adhesions were separated, a fine probe was passed into the tube to insure its patency. The ovary was fastened to broad ligament by fine silk suture and the wound closed.

Result.—Her recovery was without incident. The pain at menstruation was relieved. The membrane disappeared, but she still remained sterile.

Miss L. E., aged 24. First seen Sept. 6, 1896.

History.—Always perfectly healthy until at 17 had scarlatina followed by rheumatism; sick three months; had menstruation regularly from the thirteenth year until this sickness; did not menstruate while sick nor for a month after, then suffered with severe pain on right side and passed some shreds. Has always suffered since and always passed pieces of membrane.

Examination.—Examination showed a tender, movable cystic mass on right of uterus, very low down.

Operation.—Sept. 1, 1896. Right hydrosalpinx and sclerotic ovary removed.

Recovery.—Complete.

Miss A. L., aged 19. First seen March 9, 1897. Childhood healthy.

History.—Menstruated first at 17; suffered severely for two days prior to flow; flowed seven days; did not menstruate again for four months; suffered very severely again and passed large pieces of membrane, after which pain was relieved; has never menstruated more than six or seven times and has always had the same experience.

Examination.—Examination showed a mass on left side of irregular consistence, movable and not particularly sensitive. The diagnosis of ovarian dermoid was made.

Operation.—April 12, 1897. A non-adherent dermoid of left ovary about two and a half inches in diameter was removed.

Result.—Patient made an uninterrupted recovery and has since menstruated regularly, is free from pain and passes no shreds or casts.

Miss E. B., aged 19. First seen May 2, 1898. Childhood healthy.

History.—Menstruated first at 13. No pain; flowed four days; for five months menstruated regularly every twenty-eight days and flowed four days without pain. In December,

1891, went skating and fell through broken ice; had pneumonia; sick four weeks; did not menstruate during this time nor for three weeks after; then suffered only slight pain and flowed five days. In January, 1892, had scarlatina and peritonitis; did not menstruate until the first week in March, when suffering was severe, particularly on left side. First two days' flow scant, then large pieces of membrane were passed and flow became very free for five days. Has since that time been irregular, suffered severely and always passes pieces of membrane. For past four months has had tenderness in left groin; leucorrhoea.

Examination.—Examination shows left ovary very hard and small; left tube can be felt as a hard ridge.

Operation.—May 17, 1898. Left ovary sclerotic and about the size of a lima bean; left tube hard, enlarged and constricted by three bands. The tube firmly adherent to broad ligament. Right ovary and tube healthy.

Result.—Three months after operation, no pain, no shreds and menstruation regular. Is now well.

Mrs. A. J., aged 31. First seen Sept. 11, 1898.

History.—Childhood history negative; when 15 years old she had scarlatina, measles and mumps in rapid succession. Did not menstruate until nearly 16; then suffered severely, passed pieces of membrane and flowed only one and a half days. Has never been regular, always suffered and always passed membrane. Has had peritonitis three times. Never pregnant, although married nine years, and never used any means to prevent conception.

Examination.—Cervix small; an ill-defined, hard and immovable mass to the left of the uterus, ovary and tube can not be made out; right side of pelvis apparently free from disease.

Operation.—Nov. 3, 1898. The left tube and ovary were densely adherent, several inches of small intestine adherent to left side of pelvis. Uterus retroverted and adherent. All adhesions separated, the left tube and ovary removed, pelvis flushed with salt solution, drainage inserted and wound closed.

Results.—For six months patient did not menstruate regularly, but had no pain, and passed no shreds after second month. Is now well and mother of one child.

Mrs. E. B., aged 28. First seen Dec. 2, 1898. Childhood healthy until 13; then she had scarlatina, followed by chorea.

History.—Menstruated first at 15; suffered very severely. Physician said she had inflammation of the left ovary; did not become regular; always suffered severely; flowed three days and always "passed pieces which looked like red skin." Was told marriage would cure her. Married at 19; never pregnant; has never yet been regular and suffered very severely; last two periods had to go to bed and physician gave her hypodermic.

Examination.—Cervix and uterus normal; a small cystic and very sensitive mass to left of uterus.

Operation.—Dec. 9, 1898. A small dermoid of left ovary with hydrosalpinx, moderately adherent, removed.

Result.—Patient recovered and has since been free from pain, shreds or casts.

Mrs. J. E. W., aged 24. First seen June 14, 1899. Childhood sickly. Had all children's diseases except scarlet fever before puberty.

History.—Menstruated first at 14, regular and normal. At 17 had scarlet fever; was very sick for seven weeks; had abscess on left side of neck. Menstruated while sick and suffered terribly. Has always suffered since. For a few months after, passed a few small pieces of membrane, then pieces became larger until lately they have been almost complete casts. Was married at 22. Pain worse and flow lasts ten days.

Examination.—Uterus retroverted and adherent; a hard, firmly adherent mass to left of uterus and low down behind the retroverted uterus which occupied Douglas' pouch.

Operation.—July 9, 1899. Uterus firmly adherent and retroverted. Left tube and ovary firmly adherent low down in pelvis behind the uterus. Adhesions separated, left tube and ovary removed.

Result.—Patient very poor and surroundings not conducive

to rapid recovery; for some months she continued to suffer some pain and pass a few shreds of membrane. In January, 1900, she became pregnant and gave birth to a child at term. Since that time menstruation is regular and normal in every particular. No pain; no membrane.

Miss A. K., aged 18. First seen Aug. 25, 1899. Was healthy until 13, when she had typhoid fever.

History.—Menstruated first at 14; regular, free from pain; flowed four days; had scarlet fever, followed by rheumatism, at 15; was sick over three months. Did not menstruate for five months, then was very sick and flowed a great deal for nearly two weeks. Did not menstruate again for six weeks. Suffered severely and passed pieces of something which physician told her mother was part of a growth which was interfering with menstruation. She was curetted and treated by electricity, but still passes those pieces. Pain mostly on right side.

Examination.—A hard, immovable mass was felt behind and to the right of the uterus.

Operation.—Sept. 2, 1899. Right ovary and tube with an adherent appendix bound down firmly low in the pelvis. Uterus retroverted and held down by adhesions. Tube and ovary removed. Left tube normal; left ovary partly cystic. The cysts split open and a portion of the ovary resected, a probe passed into the tube to insure patency and the wound closed.

Results.—She recovered without complications and has been free from pain and membrane ever since. She married two and a half years ago, but is apparently sterile.

Miss B. L., aged 21. Did not menstruate until 17.

History.—Had mumps at 12 and scarlet fever at 14. Was quite sick at 14 for over a year, then health improved. Probably, from her description, chlorosis. First menstruation very painful, but she had been injured in a runaway just a few days before and physician said that she had torn something inside. Was bloated very badly; passed large clots and pieces of something. Has never been regular, always suffered and has been curetted twice with no benefit.

Examination.—Uterus retroverted and adherent; a mass which is indistinctly cystic on left of uterus.

Operation was not performed until Oct. 15, 1900. A hematoma of ovary and adherent left hydrosalpinx were removed; adherent uterus freed. Abdomen and pelvis flushed and salt solution left in cavity.

Result.—Recovery complete. Pain relieved and membrane disappeared from menstrual discharge.

Mrs. H. W., aged 30. First seen June 29, 1901. Childhood healthy until 15, when she had chorea; was sick several months.

History.—Had scarlatina at 17, just after first menstruation; was quite sick for two months; had inflammation of the left ovary; did not menstruate for nearly a year then suffered severely and passed pieces of skin. Has always suffered and yet has been regular for past seven or eight years. Was married at 23. Took local treatment for over a year without relief; has been curetted three times; the last time was a little better at first menstruation but since that worse than before; never pregnant.

Examination.—A hard adherent mass to left of uterus; very sensitive.

Operation.—Feb. 5, 1901. An adherent sclerotic left ovary and thickened tube removed. Right ovary had a cyst in upper outer part, which was resected.

Result.—She recovered completely, has no pain and no membrane, but is still sterile.

Miss N. A., aged 23. Childhood healthy until 14.

History.—Menstruated first at 13. At 14 had typhoid fever. Health good until 19, when she had measles, and two months later had scarlet fever. Did not menstruate for two months, then suffered severely. Passed a few pieces of membrane. Has always been irregular and passed membrane. Past year growing worse every time.

Examination.—Right ovary and tube prolapsed and adherent.

Operation.—April 13, 1901. Right ovary cystic, tube adherent to side of uterus and coiled on itself. Enlarged and indurated.

Result.—Recovery was prompt and for two years she was free from pain and membrane. Since that she has married and moved to another state, but two years' freedom from the condition is sufficient to warrant the supposition that the cure is complete.

Miss G. H., aged 22. First seen Sept. 1, 1901. German; can not get good history. Says she has pain in right side all the time and passes "pieces of fleisch" every time she menstruates.

Examination.—Hard mass to right of uterus; very sensitive; uterus retroverted.

Operation.—Sept. 16, 1901. An adherent tube and sclerotic ovary on right side, with the appendix adherent to the ovary, were removed.

Result.—She has since married and has a baby three or four months old.

Miss O. B., aged 29. First seen May 4, 1902.

History.—Suffering severely (was menstruating at this time). A complete cast of uterus was discharged. Said she had suffered and passed membrane ever since she had smallpox, four years ago. Had never suffered before and had never been sick until she had smallpox. In this case I advised curetting and curetted the uterus on May 12. In June she did not suffer, but in July was worse than before. The left ovary was small.

Operation.—She consented to oöphorectomy and was operated on August 9. A small indurated hard tube and sclerotic ovary were removed from left side. The right tube and ovary seemed to be normal and were left.

Result.—I was agreeably surprised in this case to get almost immediate and perfect relief both from the suffering and the membrane.

V. A., aged 26. Never strong; had all the diseases of childhood except mumps before puberty.

History.—Menstruated first at 12; normal. Regular until at 20 she had mumps. Suffered severely with pain low down on left side for several weeks and menstruated profusely two or three times. Suffering became worse each time and she always passed pieces of thin membrane, sometimes very large pieces.

Examination.—Left tube and ovary prolapsed slightly, adherent and very sensitive.

Operation.—July 14, 1902. Left ovary and tube adherent to side of uterus and to broad ligament; tube hard and enlarged. Ovary sclerotic. Adhesions all separated and tube and ovary removed.

Result.—Complete relief from pain and absence of membrane characterize her menses since.

Mrs. S. H., aged 31.

History.—Always healthy until two years ago; then had measles; since that has suffered severely. Has profuse leucorhea. Menstruated two and a half days every three weeks. Suffers severely and passes pieces of membrane every time.

Examination.—A doughy mass on left of uterus, very sensitive; uterus retroverted.

Operation.—Sept. 20, 1902. A left pus tube and sclerotic ovary removed. Adhesions firm and vascular. Right ovary and tube apparently perfectly normal.

Result.—She was relieved of menstrual pain and also from the membrane for a few months, but both are now as severe as before operation. Examination a short time since shows what is in all probability a right pus tube. This is another instance in which an effort at conservatism has not proved to be conservative.

Mrs. W., aged 27.

History.—Had splendid health until after she had scarlet fever at age of 21. Had always been perfectly regular and free from pain since first menstruation at 12. Was married at 19 and had a child fourteen months later. No trouble. In November, 1898, had scarlet fever. Menstruated while desquamating, suffered severely and casts were passed. Physician said the scarlet fever had been in the womb and that it was

sealing just like the skin. Has suffered ever since. Always has some membrane, but lately passes large pieces.

Examination.—A hard, sensitive tube on left side with ovary very small and hard, low down in cul-de-sac.

Operation.—Jan. 17, 1903. A sclerotic ovary and indurated tube; firm adhesions were removed from left side.

Result.—Complete relief from all symptoms has resulted.

Since July, 1903, I have had 5 more cases in which membranous endometritis has been a prominent symptom, on which I have operated for the removal of unilateral disease, but sufficient time has not yet elapsed to make them of value in the present discussion.

In presenting these cases I have selected only those in which the symptoms of membranous casts was noted as a prominent feature, and which may, therefore, be taken as typical of the class of cases.

The number of cases of bilateral disease is larger than of unilateral, and in all of them the pain has been more aggravated and the membrane cast off in larger quantities. This, it seems to me, would, in a measure, support the theory of trophic change.

The argument may be offered that in these cases there was a primary infection of the uterine mucosa, and by extension the tubes and ovaries became involved.

This is not a sound argument for two reasons, viz.: First, several of these cases presented pathologic conditions of the tubes and ovaries in no way the result of infection, as in dermoids, hematoma and sclerosis of the ovary, and yet they were cured by extirpation of the diseased structures without any uterine treatment.

Second, in those cases which might be considered as an extension of infection from uterine mucosa to the tubes and ovaries, no form of treatment directed to the uterus is or has ever been of any benefit, probably because it can not relieve the tubal or ovarian condition, at the same time the fact that these cases were nearly all sequelæ of the exanthemata, would indicate that the primary trouble was probably glandular, hence the ovary was probably the first, the tube second, and the uterus last involved. There is a further corroborating fact to be added to this theory, viz.: In the cases in which the membranous casts were noted for the shortest time the tubes were less involved in proportion to ovarian involvement than in those of long standing, and the pelvic adhesions were less dense and fewer. This would seem to indicate that the disturbance of circulation and innervation by intrapelvic adhesions and diseases of tubes and ovaries play a very important part in the pathology of this condition.

I can not arbitrarily state that the pathology of this condition is proved to be a trophic change wrought in the uterine mucosa by tubal and ovarian disease and by inflammatory products in the pelvis, but that it is always an indication of disease beyond the uterus as a primary factor, I believe. It may be asked if pelvic adhesions, tubal disease or ovarian disease are the cause of membranous endometritis, why we do not always find it in these conditions? Again, I wish to emphasize that in practically all of these cases the pelvic trouble seems in some way to be connected with the exanthemata, although not in all can the indications to this effect be said to be positive, notably, the dermoid cases. And yet each of these had scarlatina with some abdominal symptoms at adolescence or soon after. This renders the part played by the dermoids doubtful, and suggests a possible scarlatinal infection of the ovary and tube as the real primary factor.

Nineteen cases are not enough, I know, to determine positively the pathology of any condition, but 19 cases

of unilateral diseases, supported by 23 cases of bilateral diseases, in which this symptom has been a prominent feature, would seem to me to warrant bringing this subject before you for discussion.

CONCLUSIONS.

When in the cases of unilateral disease of the tubes and ovaries, ablation of the diseased structures has been followed by complete relief in all cases from a symptom which curetting, local treatment, electricity and constitutional treatment have failed to relieve, it would seemingly warrant the following deductions:

1. Membranous endometritis is probably a condition due to trophic changes in the endometrium secondary to some intrapelvic disease.

2. This intrapelvic disease often is unilateral.

3. It is probably always unilateral in the beginning, although this remains to be proved.

4. The fact that all local methods of treatment of the uterus have failed to relieve the condition, together with the foregoing facts, would seem to warrant removal of the tubes and ovaries on one or both sides when shreds or casts are a part of painful menstruation.

5. The fact that nearly half of these cases were unilateral, although all of them had suffered for years, would warrant the hope of saving the possibility of maternity in all cases given early operation.

6. That many, if not all, the cases of membranous endometritis are due to ovarian and tubal disease developing as a complication or a sequela to the exanthemata.

7. This being true, the strictest attention should be given those structures during the exanthemata, and the slightest indication of trouble should be promptly dealt with.

8. Early attention may often save one tube and ovary where neglect will sacrifice both.

9. That in all cases, no matter what age, in which membrane is cast off during menstruation, a thorough pelvic examination should be made.

10. The importance of a thorough case history in all cases of menstrual pain should be emphasized.

11. That conditions of tubes and ovaries not inflammatory and not due to any form of infection may possibly cause this symptom.

DISCUSSION.

DR. L. H. DUNNING, Indianapolis, has had membrane brought to him which dissolved in an alkaline solution, showing that it was blood and not membrane. He considers Dr. Lawrence's idea of the etiology of this condition entirely new.

DR. F. F. LAWRENCE, in reply to questions, stated that he had seen the membranes in all these cases and that most specimens were examined microscopically.

DR. CHARLES L. BONFIELD, Cincinnati, Ohio, said that he has seen not more than three cases in eighteen years of practice. Dr. Ramey some years ago reported two cases; they were mother and daughter. The mother developed membranous dysmenorrhea after she had given birth to her children. Dr. Ramey succeeded in curing her by one or two curettages, followed by the application of acetic acid to the endometrium. Her daughter developed the disease soon after she began to menstruate and was cured by the same treatment. There are cases in which no disease of the appendages will account for the trouble.

DR. JOHN M. FISHER, Philadelphia, has seen only two cases of membranous dysmenorrhea. He said that Dr. Lawrence's experience has been an extraordinary one, so far as the number of cases is concerned. We may be lax in our examinations, however. In the two cases Dr. Fisher saw the symptoms were so pronounced that on investigation a complete cast of the

uterus was found at each menstruation. The mere discharge of shreds from the uterus during menstruation with pain in a given case can not be looked on as membranous dysmenorrhea.

Dr. L. H. DUNNING said that one of the most severe cases he ever saw occurred in a woman from whom he had removed bilateral pus tubes and both ovaries. She menstruated for two years afterward and had membranous dysmenorrhea.

Dr. F. F. LAWRENCE said that in the last few years he has made it a rule in every case where shreds or casts were passed, whether partial or complete, to turn them over to the pathologist for examination. So far nothing has been shown by these examinations on which we can hang anything of practical value in the therapeutics of the condition. In nearly all the cases there was a low form of degeneration of the epithelial cells, with an increase in the connective tissue stroma, dipping down into the deeper layers of the mucous membrane, as in chronic atrophic endometritis. The term membranous dysmenorrhea means nothing. It should be called membranous endometritis. As soon as a woman begins to cast off shreds of membrane and suffers painful menstruation he believes it is a case of membranous endometritis. It has occurred to him that this condition has an intrapelvic origin. It is possible that by following out this matter in detail we may find a satisfactory pathologic basis and possibly we may be able to tell our patients positively that we can cure them.

ADHERENT UTERUS AS A COMPLICATION OF LABOR, CITING TWO CASES.*

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PHILADELPHIA.

The causes of adherent uterus are multiple, and as a complication of pregnancy and labor give rise to various results, which can not be detailed in a paper of this character with a subject of such wide application.

We do not presume, therefore, to do more than to present a few facts as they appear to the obstetrician, reporting the two cases typical of adherent uteri complicating pregnancy and labor under entirely different circumstances.

Viewing the situation from an obstetric standpoint, the advancement in the science of surgery, while marvelous, has not yet reached that degree of perfection whereby the discomforts of woman, by reason of her sex, are satisfactorily alleviated to the best advantage during her period of propagation.

While correction of the abnormal deviations of the uterus belongs especially to the gynecologist, the results of reposition and fixation by the various methods of operative procedure, as well as by inflammatory adhesions when pregnancy follows, are met face to face by the obstetrician.

It is in the conduct of pregnancy and labor, thus complicated, that the relative results of the various methods of correcting uterine displacements during the child-bearing period can be proven, and one can only arrive at definite conclusions as to the best and most appropriate course to pursue in correcting such displacements by a knowledge of the test of pregnancy and labor with fixed or adherent uterus, remembering that of those requiring operative interference, the child-bearing women are largely in the majority.

The various operations for retrodisplacements and proclivata have their good points and their strong

advocates, but to operate for the purpose of restoring comfort and health, without due regard for her future ability to propagate safely, is one thing, while to satisfactorily and permanently fix the uterus, with the positive assurance that a future pregnancy will not jeopardize the life of the individual, is quite another thing. In other words, the most positive methods of restoring and permanently supporting the uterus are often the most dangerous in the event of a future pregnancy.

From my own personal observation and from information obtained from other clinicians, I have become convinced:

First.—That the round ligament operations have little, if any, effect on future pregnancies or labor, but that subsequent pregnancies very frequently defeat the object of the previous operation by reason of the relaxation and elongation of the ligaments. The Alexander method, for instance, while safe under all circumstances, and most admirable for selective cases, as unmarried women with no prospects of matrimony, but failing or yielding under the test of pregnancy, the subject in a large percentage of cases must be subjected to a second operation or continue in life with a recurrence of the original malady. The results of the Montgomery subperitoneal operation, whereby he attacks the strongest portion of the round ligament, buttonholing the peritoneum, are awaited with a great deal of interest. This, we believe, can have but little or no effect on future pregnancies, nor will pregnancy be so liable to defeat the object of the operation.

Second.—That the results of the simple peritoneal suspension of the uterus are often futile and dangerous because the peritoneum is too thin, weak and yielding to support a gravid uterus, and is liable to rupture during retching and vomiting following etherization. Post-operative accidents of this character are on record, and I doubt not that there are many not recorded. I have purposely refrained from depending on statistics from medical literature, since the profession is deprived of full and accurate knowledge on this line, failures, accidents and deaths not being reported in proportion to the successes. Further, I question whether the inexperienced, or operator of medium experience, is not oftentimes lured into the methods of operating by unfair reports that appear in literature uncondemned, which are almost or quite irrational.

Third.—That the ventral fixation, after the usual technic, while one of the best, so far as supporting the uterus is concerned, is unjustifiable before the menopause, except under certain very rare circumstances. I can not conceive of a more embarrassing position for the obstetrician, nor a more critical condition for the pregnant woman who has proceeded to term with the fundus of her uterus firmly adherent to the anterior abdominal wall, the cervix drawn high in the pelvis posteriorly, perhaps near the brim, the posterior wall as thin as paper, in danger of rupturing at any moment under uterine contractions or artificial manipulation; or a firmly adherent uterus that has not been permitted to rise out of the pelvis, giving rise to a variety of symptoms jeopardizing the life of the individual.

If the operator could have the positive assurance that abdominal suppuration would not follow his fixation operation and that the bands of adhesions would form on the suture lines, allowing freedom and mobility of the uterus, ability to rise and expand symmetrically during the enlargement of pregnancy, under which circumstances labor would not be seriously complicated,

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

ventrofixation might be regarded as one of the most satisfactory operations for retrodisplacements of the uterus at any period of life. On the other hand, if the bands of adhesions do form, and are sufficiently long to allow the necessary freedom and mobility in pregnancy, they are too long to be of any value in supporting the uterus after it has been emptied at term. Since we have not this assurance, I do not regard the operation justifiable during the child-bearing age, except under certain favorable circumstances.

The justo-minor pelvis, with a short conjugate diameter of the inlet, is certainly a contraindication for fixation or suspension after the usual method. Again, the retrodisplaced uterus or the simple procidentia are invariably accompanied by hypertrophied and elongated cervixes, especially of the anterior lip, which do not retract nor become utilized in the enlargement of pregnancy; if the uterus is markedly anteфлекed and adherent; so that I regard as an essential counterpart of the ventral fixation or ventral suspension, the amputation of the hypertrophied cervix, and a goodly portion of the anterior lip, thereby overcoming reasonably well the greatest resistance in a labor of this character.

The following clinical history of a case recently admitted to the Samaritan Hospital illustrates the favorable circumstances under which we think the ventrofixation may be the selective operation.

This patient had, it will be noted, a justo-major pelvis and a previously amputated cervix:

Age 34 years. Married twelve years. Her first child still-born ten years ago. Her second eight years ago after a normal labor. A year later her left ovary was removed; pathologic condition not known. About a year later still, she miscarried at six months, for which her uterus was curetted. Three years ago her third child was born after a normal labor. Thirteen months before the labor here referred to, the following operations were performed on her: curettement, perineorrhaphy, amputation of the cervix and ventral suspension. The abdominal wound suppurated, so that the fundus became firmly bound to the anterior abdominal wall, resulting in ventral fixation. For two weeks before being admitted to the hospital she suffered great pain in the lower part of her chest and somewhat in the abdomen. She was under the impression that she had pleurisy and was treated for it. Just prior to admittance she had a moderately severe convulsion with loss of consciousness. Examination showed the uterus to be firmly adherent to the anterior abdominal wall, and instead of a regular cervix a narrow ring, very high in the pelvis, brought within reach of the examining finger with the greatest difficulty; a vagina a little smaller than normal, compared with the size of her pelvis and a firm pelvic floor. External pelvic measurements: interspinous, 26 cm.; intercrestal, 30 cm.; bitrochanteric, 34 cm.; external conjugate, 26 cm. Urinalysis showed a large amount of albumin, many pus cells and a few granular casts. Position L. O. A. Fetal heart sounds heard.

She continued to have great pains referred mainly to her chest, constant in character but not in any respect resembling labor pains. Thirty-six hours later, after a second examination, at which time slight dilatation was produced, her pains became regular in character but still referred to her chest. In three hours the membranes ruptured and the child was born in half an hour by the natural forces. The child was well formed, weighing nine and one-half pounds, and apparently healthy. The patient made a rapid and uncomplicated recovery.

This patient came to us with the statement that her physician could not find her womb, and it was with the greatest difficulty that her miniature os could be brought within reach and slightly dilated. The rapid spontaneous dilatation thereafter, the speedy expulsion and absence of the characteristic pains could only be accounted for by the large pelvis and

previous amputation of the cervix. The rigid close perineum only prevented a precipitate labor.

Calculations taken from the external conjugate (26 cm.) gave her a true conjugate of at least 16 cm. and in every respect the pelvis was roomy.

Equal contraction of the uterus in labor on all sides is absolutely essential to produce equal relaxation and dilatation of the cervix. This we do not ordinarily get in labor with an adherent uterus. The anterior wall does not contract regularly, because it has not been permitted to properly expand and become regularly utilized in the enlargement of pregnancy, has not the opposing force, and is held by the adhesions, while the posterior wall is thin, weak, overdistended and can not contract.

This inequality can be reasonably well compensated for, by the previous amputation of the cervix, particularly the anterior lip, which does not seem to increase the tendency to laceration. If the subject quoted had not had a large pelvis and the cervix amputated previously, I doubt if anything short of cesarean section would have given her a living child weighing 9½ pounds.

Fourth.—That in vaginofixation, which I believe is never intentionally done until after the menopause, our resources are limited, and it is hazardous and a waste of time not to terminate pregnancy by the induction of premature labor, or even immature labor if necessary, sacrificing the life of the child, as soon as it is clearly demonstrated that the uterus is incarcerated within the pelvis, or at the first evidence of pernicious vomiting, as the following brief clinical history will illustrate:

Mrs. C., white, aged 26 years; married three years; no children; miscarried two years previously, followed by pelvic inflammation, presumably parametritis, which was undoubtedly the cause of the fixation. Patient came to us after having been ill ten days. Weak, emaciated, unable to retain nourishment, vomiting incessantly and with intestinal obstruction, pulse small and rapid, vomit consisted of greenish fluid, including mucus, bile and finally some blood and fecal matter. Pains in lower abdomen were constant. The intestinal obstruction was relieved with high rectal enema, but had no effect on the vomiting or pains.

Examination found the uterus firmly fixed in the pelvis, adherent along the median line anterior to the bladder and above the bladder. The fixation was such that the mechanical intestinal obstruction and pernicious vomiting could readily be accounted for. The bladder protruded in the shape of a cystocele; the urine contained pus. Head in utero was pressing firmly on the perineal floor in the L. O. A. position. Membranes could be palpated within the os with one finger, but notwithstanding the constant pains the cervix did not further dilate. When admitted positive evidence of a living child existed at about the seventh month of gestation.

Having tried for three days to improve her condition with high nutrient enemas and rectal medication, at the expiration of which time the fetal heart sounds and quickening ceased. I dilated manually and delivered instrumentally under partial anesthesia, receiving no assistance from uterine contractions, terminating labor in one hour.

The external measurements were below normal: Interspinous, 23.75 cm.; intercrestal, 24.74 cm.; bitrochanteric, 30 cm.; external conjugate, 18.25 cm.

Following the completion of labor, postpartum hemorrhage resulted from uterine inertia, patient becoming pulseless. Strychnia and ergot were administered hypodermically, uterus firmly grasped and an intrauterine douche of normal saline solution, temperature 115 degrees F., given; uterus packed with sterile gauze wrung out of sterile acetic acid, which was removed at the expiration of four hours. Patient speedily recovered. The uterus at no time following delivery was more than a finger's breadth above the pubes.

Subsequent examination on the tenth day found the uterus in anteflexion, of normal size for that period, firmly fixed anteriorly with no cystocele nor any vesical irritation. No surgeon could have done a more perfect vaginal fixation than here existed, nor given better results so far as her comfort was concerned, barring the risk and danger of pregnancy.

In conducting a labor thus complicated, whether the uterus is adherent anteriorly or posteriorly, careful speedy manual dilatation is the most satisfactory method in our hands, since the uterus is very low and the dilatation can be readily accomplished under the eye.

The conduct of the complicated pregnancy and labor which concerns us most, however, is that with the adherent uterus following ventral fixation. We can not lose sight of the fact that the suspension after the usual technic is liable to become fixation and, although many well-known operators have abandoned this operation, there are still many women with ventral fixation yet to become pregnant. Shall she be allowed to proceed to term? This is still a mooted question, and depends wholly on the following factors: The degree of mobility, size of the pelvis, thickness and rigidity of the lower segment of the anterior wall of the uterus and cervix. Each individual should be a law unto herself. If the cervix, by repeated examinations at regular intervals, is found to be markedly rising posteriorly, the uterus immobile and the lower segment of the anterior wall, including the cervix, not becoming utilized in the enlargement, I regard it as unwise to allow her to proceed, unless when an offspring is especially desired and she prefers to accept the risk, with full knowledge of the gravity of labor under such circumstances, including cesarean section.

Of the two methods of dealing with this complication when the condition is not recognized until after the ascent of the cervix, with a thick rigid os, it is my impression that the modern cesarean section by an experienced operator is equally as safe as podalic version, or when too great traction force is necessary to cause the descent of the presenting part into the pelvis, which is liable to rupture the uterus on the posterior surface.

CONCLUSIONS.

My conclusions in reference to the whole matter, from a varied experience, are as follows (which, by the way, coincide with a report from Dr. Oui of Lille, very recently, after careful investigation), viz.: That in hysteropexy, with slightly different technic from that originally practiced, this complication may be obviated; not the suspension to the peritoneum, but to the anterior abdominal wall with two sutures in the anterior surface of the uterus opposite or a little below the insertion of the tubes, instead of in the fundus on the median line or posterior to it, as in the ordinary ventral fixation.

The advantages of a high suspension in this way are: anteflexion; support; ability of the uterus to expand more symmetrically during pregnancy and contract regularly during labor; short bands of adhesion are just as liable to form; does not seriously complicate pregnancy, and, if the bands do not form, the pendulous yielding abdomen and enlargement of the uterus to that point are fairly well proportioned, and when the uterus is emptied it symmetrically contracts and retracts. Inertia is not a factor, and the organ is still supported.

Contrasted with this the disadvantages of the ventral fixation are: Extreme anteflexion, particularly if

the bands of adhesions are short or do not form; frequently vesical irritation; in pregnancy, inability of the uterus to expand symmetrically or contract regularly in labor; torsion of the uterus; malposition of the ovum; uterine inertia and the danger of rupture in labor.

DISCUSSION.

DR. D. H. CRAIG, Boston, referred to a case on which he had operated at the Free Hospital for Women, performing a double suspension, practically at the bases of the round ligaments, making two points of suspension from the anterior abdominal wall. Eighteen months later the same patient returned to the hospital and was operated on by Dr. Baker, who found the uterus again in retroversion of the third degree and supposed that the suspensory ligaments had given way. They had, however, only stretched, one being about four and the other about five inches in length. The conclusion drawn from this case was that this method was neither better nor worse than other methods of suspension, and that a recurrence of the retroversion after any ventral suspension should always be considered an indication for immediate operation because the bands resulting from the stretching of the suspensory ligaments may cause intestinal obstruction.

DR. GEORGE ERETY SHOEMAKER, Philadelphia, stated that for several years he has been suspending the uterus in front of the tubes, and has yet to see a complication in pregnancy resulting. The hand is liable to stretch, but it will not get in the way of an expanding uterus.

DR. L. H. DUNNING, Indianapolis, has employed a method of suspending the uterus for four years with good results. Eight of his patients, so far as he knows, have been delivered at full term without any complications. The suspension is made just opposite to the insertion of the fallopian tube. He uses three sutures, the first two being of chromicized catgut. These sutures are passed into the uterus for about one-third of an inch, and are buried for from one-half to three-quarters of an inch, and are about one-third of an inch apart. Another suture of silk-worm gut is introduced between the two and is not carried deeply into the uterus and the ends are carried through all the layers of the abdomen. The catgut sutures are carried through the peritoneal and deep fascia, muscle and superficial fascia, where they are tied. Before the sutures are tied a small rectangular space is scarified. The result is that there is only one ligament, not two, and it stretches readily so that there is finally a movable uterus. Dr. Dunning operated on one of these cases three months later and found a ligament about half the size of a piece of chalk. He has employed that method in 165 cases, and at last accounts there were eight pregnancies without any complication. It would require an unusually severe case to convince him that any danger can result from that method of suspension. The Alexander method, in his experience, has failed in more than one-half of the cases, when delivery took place afterward. The internal shortening of round ligaments results in failures in more than one-half of the cases, and, furthermore, there are unpleasantnesses attending that operation that are distressing, such as very severe pulling and pain on one side. He has seen two cases in which the distress was so great as to impair the nutrition of the patient, so that, at one time, a premature delivery was contemplated. In reply to a question, Dr. Dunning said that these sutures are placed on the anterior portion of the uterus just opposite the insertion of the fallopian tubes.

DR. F. B. DORSEY, Keokuk, Iowa, said that for more than ten years he has been employing a method similar to Dr. Dunning's, except that he uses two sutures through the anterior part of the uterus, introducing a through-and-through silk-worm gut into the uterus and including only the serous coat, not allowing the needle to enter the muscular coat, and bringing it out from one-half to three-quarters of an inch away, and then out through the abdominal wall. These sutures are allowed to remain for from twelve to fourteen days. Seventeen pregnancies followed, and only two were delivered by instruments, not because of any malattachment, but because of a disproportion existing between the maternal pelvis and the

child's head. There have occurred three abortions, and, so far as he can learn, they were not due to the suspension. The anterior attachment of the uterus is not followed by the usual discomfort or annoyance that is experienced when the attachment is made to the fundus, and particularly when the attachment is on the posterior surface of the uterus. He agreed with Dr. Dunning that the Alexander operation, and any of the operations thus far devised, do not give the results obtained from anterior suspension of the uterus.

Dr. H. D. Fry, Washington, D. C., said that he has done ventral suspension in about 150 cases, and has attended labor in 15 cases after the operation had been done. In not one of these cases was there any trouble during the pregnancy nor difficulty in labor requiring any artificial means to terminate it. He operated on six of these cases afterward and found a suspensory ligament two and a half inches in length, fan-shaped, or simply holding the uterus loosely in position. He has not had a case of recurrence or displacement after suspension. He did a suspension operation in one case during pregnancy. The uterus was retroverted and incarcerated at about the third month. He broke up the adhesions, put the uterus into place and suspended it. The woman went on to full term, was delivered, and the uterus went back into its proper position. His experience with ventral suspension is very satisfactory. One of the worst cases of suffering he ever saw occurred after an Alexander operation. In some respects it was a great success. Dr. Kellogg of Battle Creek, Mich., operated on a woman, married for twenty years, sterile and a chronic invalid. Dr. Kellogg cured the displacement and in a few months the woman became pregnant, but for seven months she was confined to bed, suffering constantly from a dragging on the shortened ligament on the left side. However, the labor was normal and the position of the uterus was satisfactory at the time Dr. Fry saw her. He saw a case where the intention was to perform suspension, but the uterus became fixed to the abdominal wall and the woman had a ventral fixation. She came to the hospital, having been in labor twenty-four hours. The pains had not been very strong, and his attention was not directed to her until that time. Examination showed a dragging of the abdominal scar; the uterus was bound tightly to the abdominal wall. The anterior part of the uterus was held closely, and its neck was flexed at a right angle; the posterior part had descended, the os pointing directly forward and in right angle flexure. The case was delivered by cesarean section, which was successful.

Dr. F. F. LAWRENCE, Columbus, Ohio, said that on several occasions he had brought before this section an operation that has been uniformly successful. It is simple, effective, and supports the pelvic organs and does not interfere with pregnancy. A suture of kangaroo tendon is passed through the fundus of the uterus slightly posterior to the median line and then passed through the posterior layer of the broad ligament on one side; the suture is brought over and tied at the point of beginning, then passed through the opposite broad ligament, brought back and tied again. Two or three stitches through both these folds, passing also through the peritoneal coat of the fundus, completes the operation. It shortens and raises the broad ligament and absolutely supports the uterus without there being any possibility of interference with pregnancy.

Dr. JOHN C. APPLEGATE has not seen any bad results follow suspension, provided the sutures are placed on the anterior surface of the uterus. He has not had the experience of the physician who reports a case where elongation of the suspensory bands allowed a recurrence of the original symptoms.

Physicians' Business Methods.—The *Medical Times* says that if a patient gets the impression that his physician may be paid at any time or not at all, that bills are carelessly made out and as carelessly attended to, the patient will become equally careless. There is no loss of dignity in informing the patient that bills must be promptly paid. When a physician has allowed accounts to run for months, or perhaps years, without a murmur and then employs a collector, he generally loses both accounts and patients.

A STUDY OF EIGHTEEN CONSECUTIVE CASES OF WHOOPING COUGH TREATED BY THE ELASTIC ABDOMINAL BELT.*

THERON WENDELL KILMER, M.D.

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NEW YORK CITY.

In June, 1903, I published an article entitled "Whooping Cough: A New Method of Treatment." This method consisted in the application of a slightly constricted silk elastic abdominal belt to all children having pertussis. The results attained at that time from a very few cases were of so startling a nature, that I determined to study a number of consecutive cases in detail and the results in this series of cases are now presented.

These cases, it is to be remembered, are all consecutive. When a drug or a method of treating a disease is first brought forth, it is easy for the originator, if he select his cases, to prove that his new method is positively without flaw. Let him, however, report a chain of consecutive cases, and the weak links will be seen immediately. I therefore especially invite criticism of this new pertussal chain which it has been my pleasure to forge during the past few months.

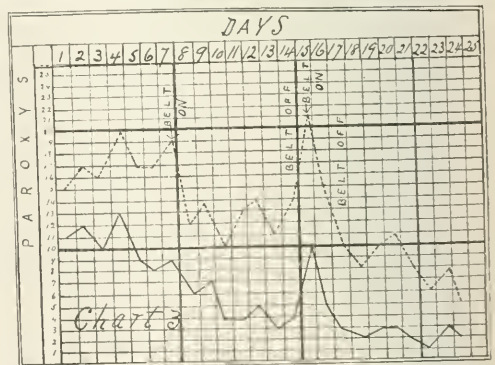
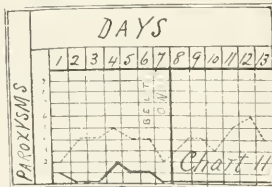
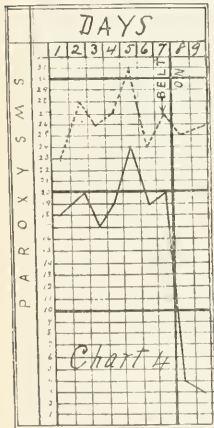
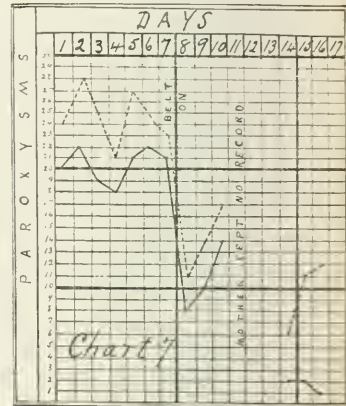
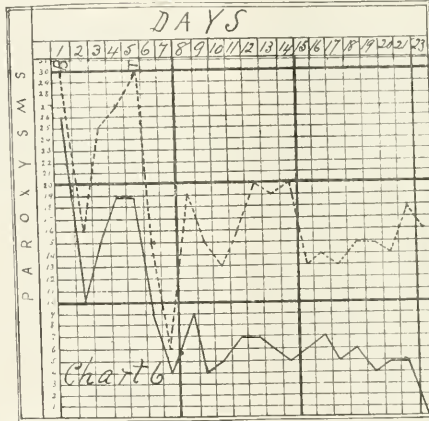
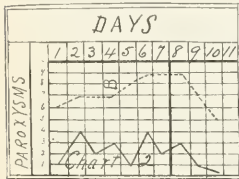
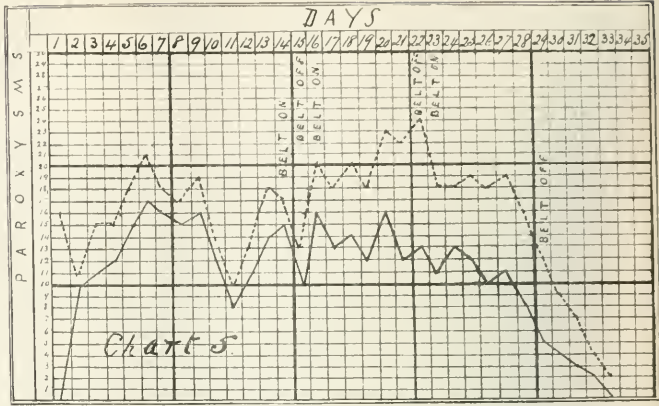
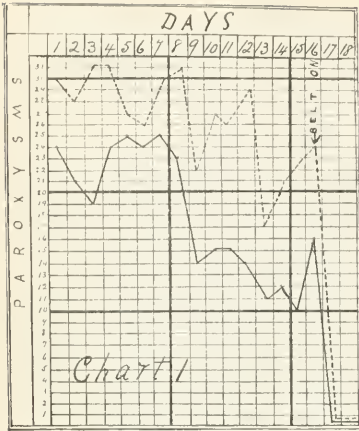
METHOD OF APPLICATION OF BELT.

The method of applying the belt is as follows: A stockinette band is placed on a baby with whooping cough, in the same manner as is done by orthopedists before applying the plaster-of-paris jacket. This band extends from the axilla to the pubes and fits the baby snugly. Two muslin shoulder straps are used to prevent the band from slipping down (Fig. 1). On this stockinette band a single width of silk elastic bandage is sewn, extending entirely around the body and covering the abdomen (Fig. 2). This silk elastic bandage is of the same quality as that used for elastic stockings. If the child is under a year old, it will be found necessary to use but one width (5 inches) of this elastic bandage; in an older child, two widths will often be found necessary to entirely cover the abdomen. This silk elastic bandage is pinned in place when very slightly on the stretch. After it is pinned in place, it should be sewn to the stockinette band underlying it, all around its entire edge; this procedure keeps the silk elastic belt flat and prevents its rolling up or becoming creased. The lower projecting portion of the stockinette band should be pinned down to the outside of the diaper or other clothing, thus keeping the elastic belt smooth over the abdomen.

I have used this belt with great success to control the obstinate vomiting of pertussis where an infant in some cases would die without its use, on account of the inanition caused by the incessant vomiting. The old sea-sickness belt is well known, but its application to a child for the vomiting of whooping cough is, I think, entirely a new feature, and one which I have failed to find mentioned in my perusal of the literature of pertussis. In some of the most aggravated cases, the vomiting has been seen to stop on the application of the elastic abdominal belt. Should the vomiting continue after the belt has been applied, tighten the belt slightly, and in most cases the vomiting will cease.

Although the graphic charts show some diminution

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.



EXPLANATION OF CHARTS.

Vomiting is indicated by the solid lines, coughing by the broken lines. B indicates the application of the belt. T indicates the tightening of the belt.

Chart 1.—Age 4 years. Paroxysms ceased immediately on application of belt.

Chart 2.—Age 2 years. Gradual diminution of cough and vomiting.

Chart 3.—Age 13 months. On application of belt both cough and vomiting decreased. On the fourteenth day the mother removed the belt, and the number of paroxysms immediately increased, the belt was consequently reapplied and the paroxysms immediately decreased. The seventeenth day the belt was permanently removed and the paroxysms still remained low.

Chart 4.—Age 2 years. After application of belt the number of coughing paroxysms remained about the same. The vomiting was diminished from 20 a day to 3 a day. This case was a dispensary case and was not seen after the ninth day.

Chart 5.—Age 6 months. On first application of belt, slight diminution in paroxysms. When the mother removed the belt the following day paroxysms slightly increased. Subsequent use of

belt proved a failure. In the entire series this is the only failure to reduce the number of vomiting spells by the belt.

Chart 6.—Age 18 months. Paroxysms immediately fell on application of belt. They gradually increased for 4 days until the belt was tightened, and then marked decrease.

Chart 7.—Age 3 years. Paroxysms immediately decreased.

Chart 8.—Age 5 years. Gradual diminution of paroxysms.

Chart 9.—Age 4 months. Although the cough was apparently not influenced by the belt, the vomiting was greatly diminished.

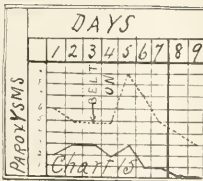
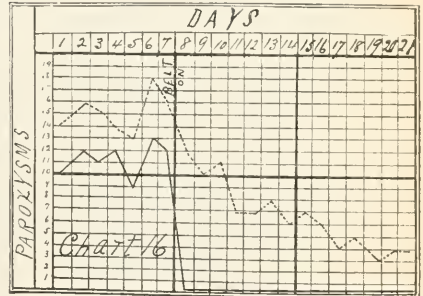
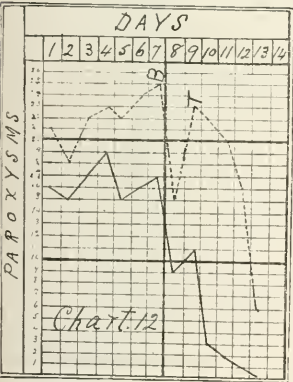
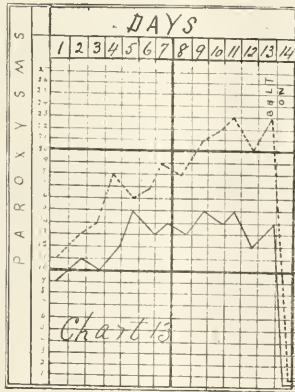
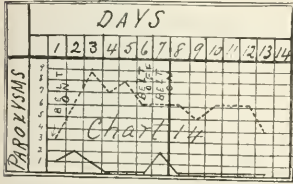
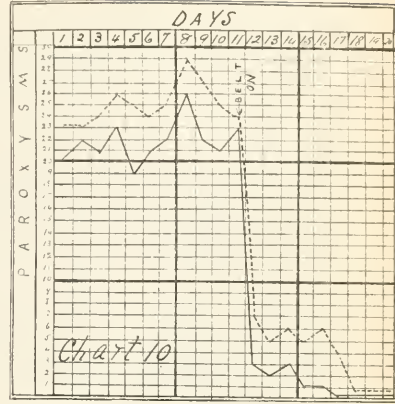
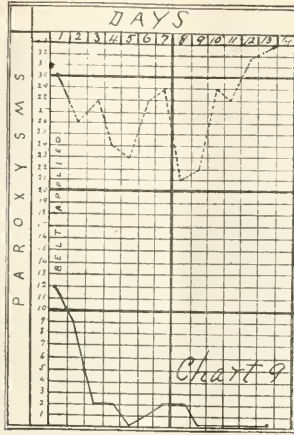
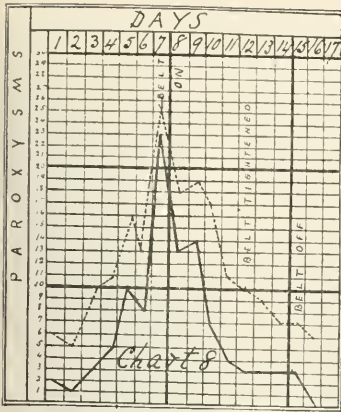


Chart 10.—Age 22 months. Immediate diminution of both cough and vomiting.

Chart 11.—Age 7 months. Vomiting entirely ceased, although the number of coughing paroxysms slightly increased.

Chart 12.—Age 6 months. Diminution of both cough and vomiting on application of belt; also diminution of paroxysms after belt was tightened.

Chart 13.—Age 4 years. Cough and vomiting entirely ceased. Three weeks afterward the paroxysms had not returned.

Chart 14.—Age 9 years. Although the paroxysms increased after belt was applied vomiting decreased to an absolute cessation of vomiting. The mother removed belt on the sixth day and vomiting began again and increased. Belt was applied again on the seventh day and the vomiting decreased to 0.

Chart 15.—Age 6 years. Gradual cessation of vomiting.

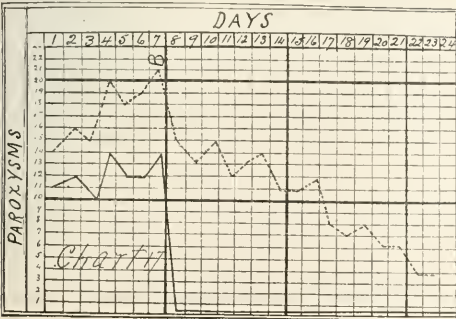
Chart 16.—Age 7 months. Immediate cessation of vomiting and gradual cessation of cough.

Chart 17.—Age 5 years. Vomiting absolutely ceased on application of belt. Cough gradually diminished.

Chart 18.—Age 4 years. Vomiting stopped immediately on application of belt. Belt was removed on the twenty-first day, and vomiting immediately recommenced. Belt was reapplied the next day and vomiting immediately stopped.

Chart 19.—Age 2 years. A case of whooping cough in which no belt was used. This chart may be compared with those of cases where the belt was used.

in the number of paroxysms of coughing, the character of these paroxysms seems to be modified to a great degree. The benefit of the belt is best seen in the cutting short of the vomiting spells. The child will cough, but he will not vomit. In many of these charts the vomiting will be seen to have immediately fallen from twenty paroxysms a day to an absolute cessation of



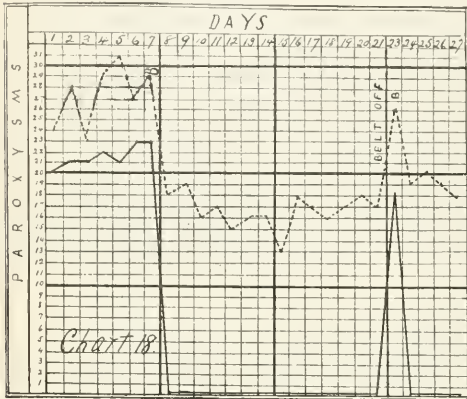
vomiting. The following series of charts was made by giving a whooping-cough chart to each mother of a child with pertussis. The name, address, age and stage of the disease were plainly written on the chart; the mother was in each case instructed how to use it; she was told that each time the baby coughed she was to place a cross (X) in the paroxysm column, noting the

graphic charts represents the careful record made by each mother, and is based on the study of the charts that she kept; the number of paroxysms of coughing and vomiting are graphically depicted in a similar manner to a temperature chart. The solid black line

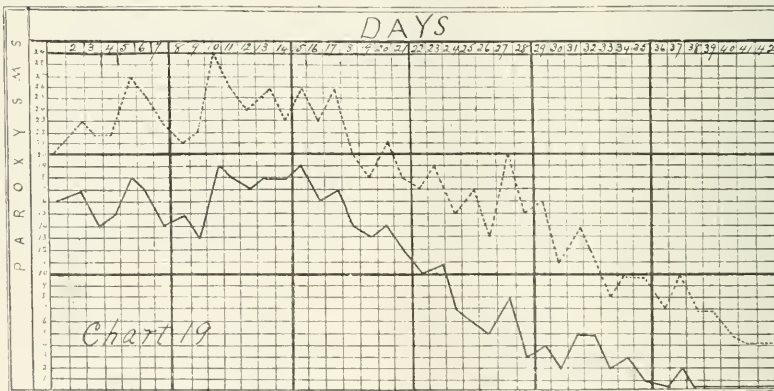
TABLE 1. SAMPLE OF CHART KEPT BY MOTHER.

Name, X Y; age, 2 years; address, —; stage of disease, spa-medic (3 days).

Date	Time	Paroxysms	Vomiting	Remarks
Jan. 4	3 p.m.	X	X	
Jan. 4	3.20	X	X	
Jan. 4	4.10	X	X	Nose bled.
Jan. 4	5	X	X	
Jan. 4	5.30	X	X	
Jan. 4	6.05	X	X	
Jan. 4	6.45	X	X	
Jan. 4	7.20	X	X	
Jan. 4	9	X	X	
Jan. 4	10.20	X	X	Could scarcely get breath.
Jan. 4	11	X	X	
Jan. 4	11.40	X	X	
Jan. 5	12.30 a.m.	X	X	
Jan. 5	1.20	X	X	
Jan. 5	2	X	X	
Jan. 5	5	X	X	Nose bled.
Jan. 5	5.30	X	X	
Jan. 5	6.10	X	X	
Jan. 5	7	X	X	



represents the vomiting, and the dotted black line represents the coughing. In several instances it will be seen that the mother for some reason removed the belt, with the result that the vomiting was immediately and markedly increased; the belt was then placed in



time of day; if the baby vomited when he had the paroxysm, the mother was told to place another cross (X) in the vomiting column. Through the kindness of our chairman, Dr. C. G. Kerley, I was enabled to make many of my observations on cases seen at his clinic at the Babies' Hospital; other cases in this series were seen at my own clinic at the West Side German Dispensary, and a few cases were observed for me by personal medical friends. In all cases observed the intelligence of the mothers keeping the charts was a prominent feature. When it was possible to do so, we had the mothers keep the charts for a week before applying a belt. We gave each case some plain placebo to keep control of the patient. After the case had been watched for one week, we then put the elastic abdominal belt on the child, kept up the same placebo, and continued to have the mothers keep the charts. The results, especially as to the vomiting, were surprising and in some cases spectacular. Each of the following

position once more, and the vomiting immediately ceased.

The charts of the eighteen consecutive cases explain themselves. The aspect of a case of whooping cough when wearing the belt is entirely different from an ordinary everyday case when the child is not wearing the belt. This difference is very strikingly shown by comparing Chart 1, in which both the vomiting and cough ceased immediately on the application of a belt, with Chart 19, which is of a case in which no belt was used.

Does the belt cut short certain cases of whooping cough? I do not know, but, from the study of several of my charts, such would seem to have been the case. If some skeptical person is asking, "Were all your cases positive cases of whooping cough?" I can answer by saying that when a child has had a short, dry cough for a week or two, becoming harder, then more paroxysmal in character, the patient becoming red in

the face, holding his breath, whooping and vomiting, and having a chest that is entirely negative, I claim that such a case is positively whooping cough. Again, nearly all of my cases were also seen by men whose reputation in the pediatric world is unassailable. The question of a faulty diagnosis, therefore, I think, can be safely ruled out.

I was first induced to try this belt method of controlling the paroxysms by a patient, a little boy five years old, who would run to his mother each time he felt a paroxysm coming on and beg his mother to "hold my stomach tight!" The belt simply puts the stomach and abdomen in a splint; it supports the abdominal walls and prevents that discomfort and relaxation which we have all observed when suffering from any disease which produces a distressing cough. By way of digression, this belt has been used of late to control the vomiting of phthisis and pregnancy; it has been of marked service in cases of pleurisy and also makes an ideal dressing for a fractured rib.

The expressions from children themselves when wearing the belt are very instructive; one of my cases, a boy nine years old, actually cried for his belt, his mother having removed it. To use his own words, he cried, "Mamma, my stomach will burst without my belt on." Another child said that she was afraid to cough unless she had on her belt.

I thought that I was the originator of this form of treatment for whooping cough, until I came to my fourteenth case; when I proposed putting on the belt in this case, the mother, an old German woman, informed me that ten years ago in Germany she had brought her eldest son through an attack of whooping cough and that she had taken a bandage and tied it "as tight as anything" around her child's abdomen with the result that he vomited very little after the application of the belt.

The study of this series of cases has evolved some interesting and I think unique information; for instance, the ratio between vomiting and coughing has been found to be as 2 to 3, that is to say, if a child vomits 8 times a day, he must have had 12 paroxysms of coughing to have produced the 8 vomiting spells. The converse of this is also true—therefore, a child empties his stomach two-thirds as many times as there are paroxysms of coughing. For example, if a child has 21 paroxysms a day and we wish to know how many times he vomited, we take two-thirds of 21, which gives 14 vomiting spells a day. Or, if a child has vomited 8 times a day, to find how many paroxysms of coughing he had to produce these 8 vomiting spells, we employ the equation: 8 is 2/3 of what? and find the answer to be: 12 paroxysms a day, to produce the 8 vomiting spells. The above information, although of practically little value medically, is nevertheless interesting.

This otherwise fairly constant relation of 2 to 3 between vomiting and coughing has been disturbed in Chart 9 and the disturbing factor is the belt. In Chart 18 the relation of vomiting to cough (2 to 3) is very well exemplified during the first week without the belt, then, as the belt is applied, this normal relation of 2 to 3 is disturbed. What has disturbed it? It is the belt. This disturbed relation goes on for two weeks, the belt is now removed, and immediately the normal relation of 2 to 3 is once more established, but again to be disturbed the next day by the re-application of the belt. What is more conclusive of the beneficial action of

the elastic abdominal belt than the study of this one chart alone?

In Table 2, which is a summary of all cases treated, I wish to simply bring out a few well-established facts. It is true that the suggestion may be made that a series of but eighteen cases is not sufficient to establish conclusive proof of the efficacy of any new method of treatment, but, as I said in the beginning of my paper, these cases are consecutive and, if certain marked factors are present in practically all of the series, truly the most skeptical mind must admit that something other than mere coincidence has been at work to cause such results. The final results are as follows:

1. Out of 18 cases there have been but 6 failures to benefit cough.

TABLE 2.

No.	Name	Age	Stage When Belt Was Applied.	PAROXYSMS a day	VOMITING			COUGH			EFFECT ON VOMITING ONLY	
					Cured	Unimp.	Unimp.	Cured	Unimp.	Unimp.	Grad.	None
1.....	E. F. F.	4 Y.	Spasmodic 2 weeks	30	X	.....	X	.....	.....	X	.....	.....
2.....	C. M. F.	2 Y.	Spasmodic 4 days	6	X	.....	.....	.....	.....	X	.....	.....
3.....	Z. H. M.	13 M.	Spasmodic 1 week	16	X	.....	.....	.....	.....	X	.....	.....
4.....	T. B. M.	2 Y.	Spasmodic 3 weeks	28	X	.....	.....	.....	.....	X	.....	.....
5.....	M. F. F.	6 M.	Spasmodic 2 days	16	X	X	.....	.....	.....	X	.....	X
6.....	W. M. M.	18 M.	Spasmodic 2 weeks	30	X	.....	.....	.....	.....	X	.....	.....
7.....	X. F. F.	3 Y.	Spasmodic 1 week	24	X	.....	.....	.....	.....	X	.....	.....
8.....	T. R. M.	5 Y.	Spasmodic 1 week	23	X	.....	.....	.....	.....	X	.....	.....
9.....	S. K. F.	4 M.	Spasmodic 1 week	30	X	.....	.....	.....	.....	X	.....	.....
10.....	C. C. F.	22 M.	Spasmodic 10 days	20	X	.....	.....	.....	.....	X	.....	.....
11.....	H. L. M.	7 M.	Spasmodic 1 week	4	X	.....	.....	.....	.....	X	.....	.....
12.....	M. C. M.	6 M.	Spasmodic 6 days	20	X	.....	.....	.....	.....	X	.....	.....
13.....	L. B. M.	4 Y.	Spasmodic 13 days	20	X	X	.....	.....	.....	X	.....	.....
14.....	A. H. M.	9 Y.	Spasmodic 4 days	7	X	.....	.....	.....	.....	X	.....	.....
15.....	J. O. F.	6 Y.	Spasmodic 1 week	5	X	.....	.....	.....	.....	X	.....	.....
16.....	T. A. M.	7 M.	Spasmodic 5 days	15	X	.....	.....	.....	.....	X	.....	.....
17.....	D. W. M.	5 Y.	Spasmodic 10 days	18	X	.....	.....	.....	.....	X	.....	.....
18.....	M. G. F.	4 Y.	Spasmodic 1 week	24	X	.....	.....	.....	.....	X	.....	.....

SUMMARY OF CASES.

Males, 9. Females, 9. Ages, from 4 months to 9 years. Vomiting ceased immediately and permanently in 9 cases; was markedly lessened in 8; was not lessened in 1. There were beneficial results in 17 cases and 1 failure, or 94 per cent. benefited. Cough ceased immediately and permanently in 3 cases; was markedly lessened in 9; was not lessened in 6. There were beneficial results in 12 cases and 6 failures, or 66 per cent. benefited.

2. Out of 18 cases there has been but one failure to benefit vomiting. Positive good effect on coughing is seen in 66 per cent. of cases in series. Positive good effect on vomiting is seen in 94 per cent. of cases in series.

CONCLUSION.

In conclusion I wish to say that a method for the treatment of whooping cough which will reduce the total number of vomiting spells (as was done in the above series of cases) from 3,951 a week to 463 a week, thus showing a reduction of 89 per cent. in the vomiting, certainly should be given a fair and impartial trial.

DISCUSSION.

DR. CHARLES G. KERLEY, New York City, reported having seen the treatment of some of these cases, and declared that relief was afforded. He thinks that it is particularly valuable in very young children under 18 months of age, in whom medication is rather difficult because of the effect on the stomach.

DR. LOUIS FISCHER, New York City, reported having tried the method in three cases, with considerable benefit. In one case particularly, where bromoform, belladonna and morphin in considerable doses did not give any relief, some benefit was obtained by the use of a stout binder fastened about the chest.

DR. R. B. GILBERT, Louisville, Ky., suggested an objection, the danger of a hernia resulting from the tight constriction of the chest and abdomen. It is well known that in young in-

fants such a constriction, if too tight, may result in hernia during the effort of crying, and perhaps in older children it might also give rise to a hernia when the child coughs.

Dr. J. P. BIGONY, Hinton, W. Va., asked Dr. Kilmer if he had ever tried a constriction about the head and underneath the jaw in the treatment of whooping cough. Dr. Bigony has seen this method relieve the paroxysms very markedly.

Dr. JOHN L. MORSE, Boston, asked if Dr. Kilmer was not mistaken in regard to the proportion between the number of paroxysms and the number of attacks of vomiting; he thought that there could not be such a definite relation between the two. All physicians have seen undoubted cases of whooping cough in which there was no vomiting whatever.

Dr. L. C. AGER, Brooklyn, N. Y., asked Dr. Kilmer at what stage of the disease the cases came under his observation. We all see cases of whooping cough where the disease has existed for some time, and in which there is very sudden and rapid improvement.

Dr. L. BERNHEIM, Butte, Mont., said that pressure on the thorax relieves the pain in pleurisy, because it limits the movements of the chest. The same explanation probably applies to this method of treating whooping cough. With a stout binder around the chest and abdomen, it is impossible to take a deep inspiration, and this may prevent the onset of a fit of coughing or vomiting.

Dr. THERON W. KILMER said that this method can be used with good effect to control the pain of pleurisy. It possesses some advantage over the use of adhesive plaster in that it can be easily removed. He agreed with Dr. Gilbert that this method is purely mechanical. Hernia does occur in whooping cough, but Dr. Kilmer said he had never seen it. About four years ago he saw a case in which hernia developed subsequent to whooping cough. No bandage had been used, and he did not know the cause. In his cases, no treatment was used outside of the belt, excepting some harmless placebo. He has never seen any benefit follow the method of constricting the movements of the jaw.

In regard to the proportion between the vomiting and coughing spells, the ratio is as two is to three in this series of cases. Some patients with whooping cough do not vomit at all, but they are exceptional. We see cases of diphtheria without any temperature, but they are also exceptional. In many cases the belt was applied very early in the disease. Dr. Kilmer said he had no scientific explanation to offer for the relief afforded by the belt. It is well known that persons suffering from seasickness get some relief from wearing a belt, but what the scientific explanation of it is, he does not know other than that it puts the stomach, as it were, in a splint.

THE NERVOUS SYMPTOMS PRODUCED IN CHILDREN BY UNCORRECTED REFRACTIVE AND MUSCULAR ERRORS.*

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To present the subject in a logical manner, permit me to review in a general way the refractive quality of the normally and abnormally constructed eye, and the adjustment of its external muscular system.

The eye may be emmetropic, hypermetropic, myopic, or astigmatic.

Emmetropia is, of course, the ideal condition, and it may be defined as that refractive condition in which distant or parallel rays of light are focused on the retina without any effort on the part of the accommodative muscle. Such an eye, in regarding distant objects, i. e., objects at or beyond 20 feet, is merely a camera obscura, in which the focus is formed on the retina. Such an

act, under such conditions should be, in the natural order of things, achieved without discomfort. (Fig. 1.)

The hypermetropic eye is an eye that is shorter in its anteroposterior diameter than the emmetropic eye, and hence, given the same refractive media as the emmetropic eye, it can not bend parallel rays to a focus on its retina by virtue of its refractive power in a state of quiescence.

If such an eye be in a state of rest, parallel rays would fall on its retina while in the act of coming to a focus, i. e., before the focus is achieved. The cone of light would thus be obtruncated, and the retina, instead of receiving a point for each pencil of rays, would receive a cone, the size of which would be greater the farther from the focus the retina cuts the cone. In other words, the shorter the eye, the more hypermetropic it is, and the larger the cone or circle of diffusion on the retina will be.

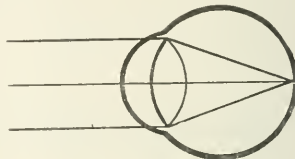


Figure 1.

Now, if the hypermetropic eye has to depend on its length alone to bend rays to a focus on its retina, it would never see distant objects well for obvious reasons, and its English synonym, far-sighted eye, would be a misnomer. (Fig. 2.)

But there is within the eye the accommodative apparatus, consisting of the accommodative muscle, the lens and the ligament of Zinn, by means of which refractive power can be added to the eye, and the rays be brought to a focus on the retina.

This accommodative apparatus is well named; it is surely an accommodation in some conditions. But Nature never intended that it should be used to further the interests of the hyperope. It was primarily given in order that the emmetrope might see objects well within

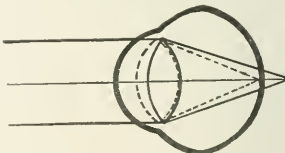


Figure 2.

20 feet. For it must be clear from the foregoing that since the emmetropic eye can only focus parallel rays, the divergent rays coming from objects nearer than 20 feet, would fall on the retina of the emmetrope in the act of convergence, and circles of diffusion instead of points would be formed. (Fig. 2.) This apparatus has its natural function in bending the divergent rays of light coming from objects nearer than 20 feet, to a focus on the retina of the emmetrope, or the man with the properly shaped eye. This is its primal function and this alone. Our brain apparently abhors an imperfect image on the retina, for the only occasion in which this can possibly happen to the ideal emmetropic eye, the occasion of looking at near objects, is quickly met by the apparatus of accommodation and the imperfect image is immediately transformed into a perfect one.

When, then, the hyperope opens his eyes on the world

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

and perceives an imperfect image on his retina. he turns to his native instinct for relief, the instinct or desire for perfect vision. A call is made on his accommodation, the mechanism of this apparatus is set in motion, and a perfect image obtained. But this is distinctly a vicarious and a vicious act, contrary to right, vicious in its conception, and subversive of physiologic law. Law broken demands its inexorable penalty and the uttermost farthing is paid. Imagine a child with 2 D. of hypermetropia, and look for a moment at the effort that that child supports even to see for distance—an act that ought, in the natural order of things, to be achieved without discomfort, if not with pleasure.

Two D. of hypermetropia measured in the inch system, means that the possessor, in order to see clearly in the distance, has to strain as much as an ordinary emmetrope does to read a fair-sized type at 20 inches from his eyes. To put it in other terms, it would require as much work as would be required for an emmetrope to wear a pair of concave lenses of 20 inches focal distance in going about. When near work is attempted by such a child, of course this labor is added to the natural accommodative act.

These illustrations give a fair idea of the condition of the hypermetrope, and the cost at which he purchases clear distant vision. The condition of the myope is no less unfortunate, but in a different way.

Myopia is the condition in which the eyeball is longer in its anteroposterior diameter than in emmetropia. Given the same refractive media then as the latter, the parallel rays of light from distant objects will come to a focus before they reach the retina, in fact, in the vi-

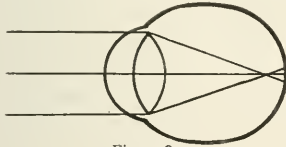


Figure 3.

treous humor, and having formed a focus, will cross each other, and will fall on the retina in the act of diverging. An obtruncated cone of light thus falls on the retina, and points are seen as circles. Such a person has an enlarged, badly defined image on the retina. Now, there is a great similarity between the state of the myope and the hypermetrope, and if one can imagine the accommodation eliminated, this similarity becomes evident. It will be remembered that the rays from distant objects fall on the retina of the hypermetrope in the act of converging, so that circles are formed instead of points, hence the image is badly defined and enlarged. (Fig. 3.)

The rays from distant objects come to a focus in the vitreous humor of the myope, cross and proceed to their destination on the retina in the act of diverging; hence, on the retina circles are formed instead of points, and the image is enlarged and badly defined. In the one case, the hyperope, it was the converging rays, before the focus was reached, in the other, the diverging rays, after the focus was reached.

Now given, let us say, 2 D. of error, hypermetropia and myopia, in two cases, and suppose the accommodation eliminated: the size of the images in the two cases will be the same, and the definition of the image equally bad. But the actual result is different. As a matter of fact, the child with 2 D. of hypermetropia overcomes its error and achieves a perfect image by an appeal to

its accommodation. But suppose the myope should do the same thing. The act of accommodation in his case will simply add refractive power to his eye and the focus, so far from being thrust toward to the retina, will be brought still further forward in the vitreous, the circles on his retina will be enlarged, rather than decreased, and his sight made worse rather than bettered.

It is quite probable that every myope, as the condition commences to develop, attempts to remedy his evil by appeals to his accommodation, in accordance with the apparently natal instinct for perfect vision and abhorrence of an imperfect image. As a rule, time teaches the myope the futility of the effort, and his hope lies in the art of man. The hyperope sees well, but has to pay the price in the coin of broken law; the myope can not see distinctly and is doomed, unless artificially relieved, to imperfect images and the mental confusion that naturally results therefrom.

The eyes that have just been described are called "spherical eyes," and are so named for good reasons. The radius of curvature of the cornea in spherical eyes is the same in the two principal meridians, and this fact constitutes the spherical quality. Now it is possible for eyes not to be spherical, and when they are not, they are astigmatic.

An astigmatic eye, in short, is an eye the radius of

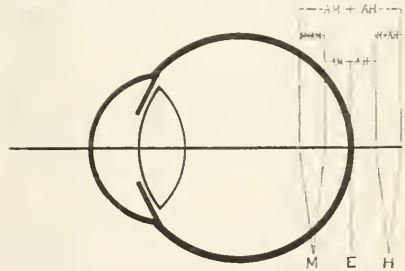


Figure 4.

curvatures of whose two principal meridians is not the same: the two meridians differ in curve; broadly speaking, the cornea is not the segment of a perfect sphere. Given a difference in radius in the two principal meridians, it is obvious that the image formed on the retina of the astigmatic eye is an indistinct one, and it is one which can not be correct in shape.

If a perfectly circular object, say the moon at full, is viewed by an astigmatic eye, the image of it can not be round—it must be more or less oblong. This is the essential character of the image in astigmatic eyes. Two foci must exist in such eyes, the one caused by the junction of the rays passing through one meridian, the other caused by the junction of the rays passing through the other. Mental confusion must necessarily result to the possessor of such an eye. (Fig. 4.)

CORNEAL ASTIGMATISM.

In astigmatism, the three conditions, emmetropia, hypermetropia and myopia are found severally in the principal meridians. There are five kinds of corneal astigmatism; simple hyperopic, simple myopic, compound hyperopic, compound myopic and mixed astigmatism. There are other kinds of astigmatism, but the corneal is the kind to which I would call your attention.

Simple Hyperopic Astigmatism.—Of the various kinds of astigmatism, there is little doubt that the hyperopic varieties cause the most important and the most

varied nervous symptoms. The reason for this is obvious. In simple hyperopic astigmatism, one focus is on the retina and the other behind it. Following the natural impulse to accommodate in the presence of an imperfect image, the brain sets the accommodation in motion, the swelling of the lens brings the hyperopic focus to the retina, but immediately the focus of the cymetropic meridian which was before on the retina, is now advanced into the vitreous, and the error is changed into a simple myopic astigmatism, because the muscle of accommodation is a ring-shaped muscle and acts spherically, and the lens increases its curve in the two principal meridians equally. The individual relaxes again and then accommodates again until a vicious habit is acquired, called an "accommodative spasm."

Compound Hyperopic Astigmatism.—If this is true of simple hyperopic astigmatism, how much more so is it true of compound hyperopic error. There is a double impulse to accommodate, to overcome the spherical error common to the two meridians and the astigmatic error of one meridian. These cases present the most varied and protean forms of reflex symptoms.

Myopic Astigmatism.—In the case of myopic astigmatic errors, the impulse to accommodate is less marked; the possessors of these errors usually do not develop spasm of the accommodation; but the images on the retinae are blurred and misshapen, and thus reflex symptoms are the result of mental confusion rather than accommodative strain.

Mixed Astigmatism.—In mixed astigmatism, the image is possibly most misshapen of all, and the resultant confusion on that account, most marked. But there is apt to be also in this condition an element of spasm by virtue of the instinctive attempt to correct the hyperopic meridian.

ACCOMMODATION IN ASTIGMATISM.

It will be seen from this that it is entirely impossible for the astigmatic person to profit himself by the accommodative act. Like the myope, these unfortunates look to man's art for relief. It is important and necessary to remark here that the smaller errors of refraction, both spherical and astigmatic, are more frequently responsible for reflex symptoms than the greater ones. When the error is slight, as in hyperopia, for example, it seems quite impossible for the owner of the eye to avoid using his accommodation. In slight myopic errors, the brain seems to be unable to realize that it is quite as impossible to remedy an error of .50 D. as it is an error of 3 D. or 4 D. The analogue of this phenomenon is found in life. For example, one would not think of attempting to carry one or two hundred pounds, but would laugh at 25 or 30. The latter, if borne on a long and tedious march, will soon make itself felt.

Our European confrères can not be induced to share our views on this point. They maintain that slight refractive errors cause no discomfort, and correct only the great ones. Their views may be supported by their experience in Europe, but are contradicted by daily experience in the United States. Even our working classes are more highly strung than theirs, and the children in our schools are surely built of more nervous and sensitive tissues. The terrific pressure under which we live is largely at the bottom of this fact.

MUSCULAR DEFECTS.

We come on now to consider the external muscular system of the eye, consisting of the recti and the oblique muscles, by means of which the eye is turned in the various possible directions. To each eye there are four

recti and two oblique muscles, making twelve for the two eyes. Now if in the natural order of things we had been made cyclopeans, with one eye in the middle of the forehead, this chapter in ophthalmology would not have been written, the task imposed on mankind simplified, and the nervous system would have been saved many disorders. As a matter of fact, however, we have two eyes, and we have an irresistible, instinctive desire to fuse the images of the two eyes and see an object single instead of double. If this act is achieved with comfort, it is not appreciated, but if it is achieved and continued with difficulty, it will nevertheless be continued whatever may be the price until paresis of one or more of the muscles sets in. When once single binocular vision is no longer possible (as a rule the nervous symptoms subside) and the possessor of the eyes sees double, or the brain denies one image, and single vision with one eye exists. While double vision may produce varied and diverse nervous symptoms, they are not of the character of those symptoms which are produced by the single binocular vision with muscular imbalance. When once the image of one eye is denied, all symptoms referable to the muscular system disappear. Children who have squinted from early life, generally see with one eye alone; in such cases it is exceptional to observe nervous symptoms referable to the eyes.

Each eye, then, has six muscles, and each muscle has its co-worker and antagonist, and each is entitled to a certain amount of pulling power for its own use and a certain amount of check power to limit the actions of its opponent.

When we consider the phenomenon of single binocular vision, the necessity of a clear and perfect image on both retinae, the fusion of the two images into one, and the associated and antagonistic actions of the twelve external or extrinsic muscles, we can not but be impressed with the complicated and intricate nature of seeing one with two eyes and of continuing to perform the act. If by any chance the image on one or both retinae is blurred, if by any chance it is necessary to strain to obtain clear vision, if further, even one of these complicated muscles possesses too much or too little power, the entire mechanism is disturbed, the balance is destroyed and disorder results.

Now, there are few if any eyes which are in all these particulars perfectly adjusted, and the wonder of it all is that men are able to perform their duties and achieve good results under such conditions.

Those who live out of doors, or whose occupations do not demand constant use of the eyes near by, do not so frequently exhibit the effects of eye-strain as those whose duty requires constant use of the eyes for near work.

CAUSES OF EYE-STRAIN IN CHILDREN.

The causes of eye-strain in children are found in refractive and muscular irregularities, in the unhygienic and badly illuminated school and study rooms, and in the silly and unreasonable demands made on the brain and nervous systems of the children of this generation by parents and educators. At the very age when the tissues are most yielding and soft, and the whole nervous system is tingling with new and unanalyzed sensation, before experience has had opportunity to teach the value of economy of time and effort, mental and nervous loads are put on our children that could not be borne under the most ideal conditions.

NERVOUS SYMPTOMS IN CHILDREN.

Headache is, by far, the most common nervous symp-

tom in children, caused by ocular irregularities; it is usually frontal, over both eyes, and is at times accentuated over the supraorbital notch. It may, however, be in the occiput, in the back of the neck, and there are areas of tenderness just behind and below the mastoid process. The headache may be constant, after the duties of the day are begun, or may come on only when near work is commenced, and disappear when it is laid aside. As a rule, however, the headache persists during school hours. Along with headache may be associated nervousness, inability to fix the attention, the lack of power of concentration, cold hands and feet, restlessness, irritability, peevishness, sleeplessness, lassitude and scotoma scintillans.

The severer forms of headache met with by eye surgeons, in my experience, do not occur amongst children, and I have rarely seen a school child who came to me with a story of periodic sick headache in which there was vomiting, photophobia, nervous exhaustion, and the necessity of taking to the bed. The headache which I have found in children that is due to ocular disturbances is, as a rule, headache of the subacute and chronic variety, or that form which comes on directly the eyes are set to do near work. Such patients generally possess a facial expression which ought to lead the acute observer to the suspicion of ocular strain. The brow is usually corrugated, either by straight vertical furrows between the eyes, or by nervous lifting of the brows, which throws the forehead into longitudinal wrinkles; sometimes one eyebrow alone is lifted, and is kept in that position or drops and lifts alternately in nervous spasm. I have two such cases of the latter in mind at this moment. At the same time, the general expression of the countenance is one of weariness and anxiety. Sometimes it hegets a furtive look, at others, the aggressiveness of the frown.

When the error is hyperopic, the expression is generally one of painful alertness, but when the refractive error is sufficiently great and of a character to produce bad distant vision the expression is one of uncertainty, hesitation and indecision. In high spherical myopia, the expression of the face is placid, inane and vacuous; in young girls it has sometimes been esteemed a mark of dreamy beauty; in boys, it has been considered a mark of stupidity. In these particular cases the utter impossibility of achieving a sharp image on the retina has already been recognized, and the vacuous look is an expression of hopelessness. At times, such patients, particularly when they desire to scrutinize anything at a distance, squeeze their eyelids together in order to lessen the size of the circles of diffusion on the retina. This act, while it strongly suggests myopia, and is indeed the basis of the word describing the condition, is nevertheless not peculiar to the myope, but may be used for the same purpose by one whose pupils are artificially dilated or by those with very high degrees of spherical hyperopia which they can not overcome; and still again by those with a high grade of astigmatism. One should not be misled by this act. It suggests myopia, and should arouse the suspicion of refractive errors, but it should not necessarily be interpreted to mean the presence of myopia.

The expression of the human face is usually an index of the visual acuteness; those who see sharply, quickly and accurately generally present the facial expression indicating alertness and intellectual or intelligent perception of surroundings. The face naturally mirrors the impressions received from the outside world, and chiefly those received through the eye.

When the impressions of the outside world received through the eye are acquired at the expense of pain and labor they are accordingly mirrored in the countenance. When the impressions are indistinct and confused, they are again consistently reflected. The value of facial expression as an aid in diagnosis has not, in my opinion, been sufficiently appreciated. In ocular disturbances, it is particularly significant.

Migraine.—Referring to the condition known as migraine or hemicrania, I observed that it has rarely been my fortune to find in children the typical attacks of periodic migraine or hemicrania. I have generally found these headaches among young adults, or adults who are literary, or whose occupation demands the constant near use of the eyes; yet, I have at times found it among children. It is held by some that cases of true periodic sick headache or migraine can not be cured by correcting ocular faults, and by others that they can. The truth, in my opinion, lies as usual, between the two. I can cite several cases in young adults, in whom the recurrence of the periodic attack and all the accompanying symptoms have been absolutely prevented by the correction of an ocular defect.

In this connection I would refer to the so-called cyclical vomiting in children, recently described by Holt. The refractive errors in such cases should always be corrected, and I herewith suggest that careful histories be kept of all such cases after the refractive correction has been made. It is not improbable that some of these cases, at least, may be relieved, and I believe that all of them may be modified by ocular correction. From the standpoint of the eye surgeon, I do not believe these cases have been properly studied.

I regret the scope of my paper will not permit me to go more thoroughly into the philosophy of migraine. But I can not let the subject pass without reiterating the statement that I have had a number of cases in my practice in which the recurrence of sick headache has been absolutely prevented by the correction of refractive errors. Such cases may be said to be cured, but under all circumstances I consider that the first rational method of treatment should be the accurate and careful adjustment of ocular errors, particularly the refractive ones.

Epilepsy.—Within the last fifteen or twenty years certain claims have been set forth to cure epilepsy and insanity by correcting ocular errors. Just after these claims were made, a number of test cases were given by a committee in the city of New York to the author of them, and a report was made by said author of the results of treatment at the end of a length of time sufficient to warrant conclusions. The results were practically *nil*, and the author and his claims were set aside by the great body of eye surgeons and neurologists as not worthy of scientific consideration. More recently abundant experiments have been made in the Craig Settlement for Epileptics. No case has been found to be cured or materially benefited by treatment of the eye.

Neither time nor the scope of my subject permit me to review more thoroughly the experiments referred to, the method of treatment, or the results of it. But the above simple assertion will be found to be amply corroborated by minute investigation. In my opinion there is not one single scintilla of scientific evidence to prove that either insanity or epilepsy has ever been in the slightest degree modified in their essential symptoms, by the correction of refractive errors, or the adjustment of the muscular imbalance.

While epilepsy and insanity do occur in children, they are rare, particularly the latter; and while they

are not, in my judgment, caused by ocular errors, yet so many absurd and vapid claims have been made by a few eye surgeons that the subject has been considered to be entitled to mention. Be it said, to the credit of neurologists, there are none among that ilk who held such views.

Paralysis and paresis have been mentioned as the result of ocular errors. I am not able to cite in my experience any single case in which a refractive error could be said reasonably to lie at the bottom of a true paresis or paralysis, be it in eye muscles or other structures. There are certainly mild cases of squint which may be interpreted as squint or phoria, which are relieved by refractive correction, but they are not cases of paralysis or paresis. Temporary paralysis or paresis of ocular muscles, ptosis and double vision have been cited, but I do not believe the observations on these cases have been correct. I believe they can all be placed in the category just mentioned, or are the result of hysterical mental imbalance.

I have frequently known people with refractive errors to complain of numbness in the hands or feet and in other portions of the body, and I have known these symptoms to disappear after the correction of the ocular errors. I believe all these cases are the result of hysteria, and the refractive or muscular error is simply the direct cause of the nervous storm. Such cases generally occur in neurotic subjects who are neurotic by nature, and who have been rendered exceedingly nervous by circumstances coupled with peripheral irritation.

Such symptoms do not very frequently occur in children unless the subject is the type just described, and possesses extraordinary intelligence and development. Hysteria and all the protean sensations characteristic of it are the result of experience, knowledge and introspection, coupled with the neurotic temperament. The combination just outlined is rarely possessed by children. Psychic sensations do, however, occur in children as the result of ocular strain, and one should not shut one's eyes to the fact. But they are much modified by lack of intelligence and experience, and the faculty of introspection, the latter being, in my opinion, a basal element.

Chorea.—It has also been claimed that true chorea is cured by ocular correction, but I have never known of a case of the chorea of Sydenham being caused by refractive or muscular error, or cured by its correction. This disease is prevalent among neurotic children, even among those who are not, and I have no doubt it is often confounded with an allied but different affection, namely, *tic convulsif*. This affection may often be relieved by correction of refractive errors or the adjustment of muscular imbalance.

Blepharospasm.—Blepharospasm or convulsive snapping of the lids, is a frequent concomitant of refractive errors, particularly hyperopic ones, and is almost invariably relieved by correction. In addition, however, it is a common custom to exhibit arsenic at the same time. These two particular nervous symptoms are by far more frequently associated with refractive errors than muscular ones. Nevertheless, convulsive movements and grimaces of the entire face may be caused by muscular errors, and the following case, briefly related, illustrates this fact:

A boy of 13, highly nervous and of headstrong character, had exhibited for several years irregular and almost continuous facial spasms and grimaces. His hyperopic error had been partly corrected by some one, but without materially benefiting him. I corrected his error under atropin, giving

him an almost complete correction. He was so willful that it was quite impossible to make him wear his glasses all the time, and the symptoms so far from getting better, grew much worse in the course of several months. It was observed by me at the time of the first examination, that he had marked exophoria, particularly in the right eye; finally the exophoria became so troublesome and the nervous symptoms became so much more marked, that his entire face was contorted into wrinkles and grimaces. He said that these grimaces were necessary in order to keep him from seeing double; at will he could let his eyes "go" and see double, or bring the images together. His parents permitted an operation, and his right external muscle was accordingly completely divided. On the next morning he could retain single binocular vision with ease, and all his facial contractions had gone; he threw away his glasses and has never used them since. His parents informed me later that he was cured. I saw him two years afterward, and he appeared to be normal, albeit a trifle annoyed by his hyperopic error while reading.

REFLEX DISTURBANCES.

Some writers have laid much stress on gastric disturbance caused by uncorrected refractive errors. There can be no doubt that eye-strain, by reflex action, will affect the stomach; it frequently causes nausea; sometimes the nausea goes to the extent of vomiting; generally, however, it is simply a constant sickening distress, and can not possibly be appreciated by any but those who have experienced it. It simply fills one with unqualified disgust for the world.

It would be bootless for me here to review the cases in children and adults, whose gastric symptoms I have known to be relieved by correction of refractive errors. At the same time I would be understood as recognizing the fact that acute or chronic indigestion may be a causative factor in the production of eye-strain and ocular headaches, but I have always observed that in such cases there are at the same time present refractive or muscular errors, or both.

I have a case in mind in which flatulence frequently produces diplopia and dizziness, which symptoms immediately disappear the moment the flatulence is relieved. I do not doubt that this has been remarked by others. It is my firm conviction, however, that refractive and muscular errors more often affect the digestion than that bad digestion affects the eyes. The two things often react on each other, and so create a vicious circle, the beginning and end of which it is impossible to define.

I find the above symptoms as frequently among children as adults.

MENTAL AND MORAL RESULTS OF EYE-STRAIN.

I can not let this subject pass without making some observations on the effect produced by uncorrected ocular errors on the mental and moral characters of children. When we think of the highly sensitive quality and plasticity of the juvenile tissues, particularly the brain, we can not scientifically omit to give every influence its full value. As an eye surgeon, it has been my fortune to be able to keep track of a number of boys whom I knew at school, whose qualities and characters I even then thoroughly appreciated, and whose ocular conditions I have subsequently come to examine and to know.

If I may be permitted to cite my own case, it will represent one of a type. I now know I have always carried about 1.50 D. of hypermetropia; in my very early days, possibly more. Books and school were to me a nightmare, a source of unutterable disgust. I drove myself to my tasks with the scourge of duty; I never took one moment's joy or pleasure in the acquisition of knowledge, unless it was a satisfaction of a

task accomplished or conquest gained. I have no memory of a sense of pleasure connected with my studies at school or college. The only pleasant memories I have of these periods of my life are those connected with outdoor sports or facts gained through observation, or in the lecture room through my ears; and from my boyhood I could never understand why we were forced to read from books all that we learned.

Early in life I pondered over the easiness of the task of those who never sat at the feet, but who followed in the tracks of the peripatetic philosophers. Verily, my school and college days would have been a joy to me had my ears and my distant vision been my means of acquiring knowledge. And yet, I never had a headache in my life at school nor in after years until the commencement of presbyopia. I was nervous to the point of madness at times, and the more nervous I was the more diligent I became, and the nearer I put my nose to my book. I have frequently observed that my right eye was crossed after prolonged study, or after a long written examination; this was also at times observed in my case by a fellow student. The difficulty lay in my hypermetropia. I have no manner of doubt. I had inherited a love of learning. I felt sure, and I had a right to the assurance, and my hatred of close application was a mystery to me. I created a frown by my accommodative strain, which has ever been a part of me. Prolonged application to books would be followed often by sleeplessness or violence in the field at play. I learned for these reasons the art of complete concentration, but at what an expense of nervous energy!

I can also remember a boy with remarkable mental ability who seemed to achieve his tasks very quickly and easily, but who was shy, retiring and apparently did not like study any more than I. He showed in after life 3 D. of hypermetropia, and was practically, at the age of 31, debarred from the practice of the law for a long while on account of his eyes; and then I remember a fool, as we thought him, blear-eyed as Crispinus, with red lids, and eyes within ten inches of his book, who knew nothing, who never learned anything, who never played in the field, and who early became the victim of vicious habits. Examination of his eyes later in life showed a high grade of astigmatism and distant vision, amounting to two-fifths of normal. And then I remember the myope, with head bent down, peering about, living in his books, and the world which revolved within his far-point; and the stupid myope, with no love of learning, the early victim, likewise, of vicious habits.

These things are not imagination. These boys live to me again, and I can judge them by a different standard to that I then used. If the hyperope is relieved of his strain, near eye work becomes easy and natural, and if he is intellectual by nature, he has unending avenues of pleasure and profit before him, without paying the price of learning in the coin of pain and exhaustion, and for the myope, a new and enlarged world is opened. Impressions are received at an early age that may go to the formation of his character along profitable lines. He may easily improve his physique by exercise and play, since he can see without danger and with comprehension. He will grow up straight, perhaps, without stooping shoulders, bent head and facial characteristics of his error, for he will no longer try to reach things by sticking his nose into them; they will come to him instead.

We do not observe our children enough, particularly in these respects. Many a career and many a character might have been altered by correction of refractive er-

rors at an early age. That child that hates its books, that resents the incarceration of school, that is nervous, restless and irritable, is entitled to have its eyes examined. That child that avoids its fellows, that is always pouring over its books, that stoops and looks stupid, is entitled to have its eyes examined.

In the beginning of this paper, I cited the irregularities of the external muscular system as a factor in the results of eye-strain. I desire to make myself unqualifiedly clear when I affirm that I do not believe the irregularities of the muscular system of the eye are so frequently the cause of nervous symptoms as refractive errors. Indeed, unless the muscular insufficiency is very marked, and borders on absolute squint, I believe it has no bearing on the great majority of cases of nervous disorder. It is well known that absolute squint when it has persisted from early life causes no symptoms of itself.

Squinting children hardly ever complain of asthenopia after the double vision has been eliminated by the mental abnegation of the image of one eye. Such people are in an ideal condition of "cyclopia," if I may be permitted to coin a word. It may safely be said that in the majority of cases muscular insufficiency or imbalance adjusts itself after the proper correction of refractive errors. When it is not adjusted by this measure, operative interference is usually demanded.

Good effects from the use of prisms, in such cases, have rarely been found by me; nor do I belong to that class of eye surgeons who believe that prismatic exercise is of value; I have found this procedure of no value whatever. By constant practicing with muscles it becomes possible for one to induce a weak muscle to overcome a very high grade of prism. In this manner, the minds of the surgeon and the patient are often led to a false conclusion. If any benefit has been found to follow this method of treatment of muscular insufficiency, it has been due, I believe, to the refractive correction, and the other treatment which has been employed at the same time.

I would like to put myself on record as stating the opinion that it is the small refractive errors, rather than the large ones, which produce nervous symptoms. And this applies as well to those cases in which it is possible for the eye to overcome the error, as to those in which it is not. I have rarely seen nervous symptoms follow 3 or 4 diopters of hypermetropia. It is the errors ranging from one-half to two diopters which produce the symptoms in hypermetropia. Of course, in astigmatism and myopia, the eye can not correct its own error. The small errors of refraction, I think, may be likened to the straw that breaks the camel's back, or, more properly still, the farthing-weight which the camel invariably resents. I believe that these small errors more frequently precipitate nervous symptoms in those of exceedingly nervous organization and neurotic temperament, but I distinctly, likewise, can affirm from my own experience, that I have known refractive errors to throw into imbalance the nervous system of strong and well-regulated men.

As a source of peripheral irritation, eye-strain has been overestimated by some, but has been underestimated by more.

There are, then, in my opinion, three factors in eye-strain which are the result of refractive errors:

1. The accommodative effort which at times degenerates into spasm.
2. The spasm which is the frequent result of the

fruitless attempt on the part of the eye to overcome astigmatism or myopia.

3. The mental confusion and psychic perturbation which ensues when an imperfect image persists on the retina.

CONCLUSIONS.

1. Nervous symptoms of a variety of kinds occur as the result of eye-strain.

2. Eye-strain is due to refractive errors, to imbalance of the external ocular muscular system, or, more frequently, to a combination of the two.

3. Of these two, the refractive errors are by far the more frequent cause.

4. Muscular imbalance alone may cause it.

5. Headache is by far the most common nervous symptom in children, caused by eye-strain.

6. The headache is chronic or induced directly by near work and is generally in the forehead or temples.

7. Migraine or hemicrania, due to eye-strain, is comparatively rare in children.

8. Any nervous symptom in children should arouse the suspicion of ocular defects, either as the direct or a contributory cause.

9. The refractive correction should be made under atropin.

10. Muscular defects are secondary to the refractive, and should be corrected only in certain cases.

34 West Thirty-sixth Street.

CONGENITAL OCCLUSION OF THE LACHRYMAL CANAL

AND ACUTE CONTAGIOUS INFLAMMATIONS OF THE CONJUNCTIVA IN CHILDREN.*

JOHN E. WEEKS, M.D.
NEW YORK CITY.

I have endeavored to write in a more or less general manner of the acute contagious inflammations of the conjunctiva that occur in children, prefacing my remarks on the subject by a brief allusion to a perplexing condition that sometimes confronts the pediatricist. I refer to congenital occlusion of the lachrymal canal.

Shortly after the secretion of the lachrymal fluid begins (from three to eight weeks after birth), one or both eyes become suffused with tears and some flakes of mucus appear in the conjunctival sac. Pressure over the lachrymal sac may cause the escape of a minute quantity of pus from the sac. Accompanying this appearance of mucus, there is little redness of the conjunctiva, but no marked swelling, nor is there any marked swelling of the lids. The presence of the secretion excites the concern of the parents, and the physician is called.

This condition is often mistaken for acute contagious conjunctivitis, and it requires careful observation to avoid confounding the two. Treatment, if at all irritating, rather tends to increase the difficulty than to cause it to subside, and the persistence of the affection becomes somewhat alarming. The disturbance to the child is very slight. If during the continuance of this condition the cornea should become abraded, infection of the latter may result.

TREATMENT.

The treatment should be extremely mild and should

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Keller, H. M. McClanahan and John C. Cook.

consist simply of cleansing the conjunctival sac with a solution of boric acid two or three times daily, and in protecting the skin of the lids by the use of some bland ointment. No attempt should be made to open the lachrymal canal by the passage of probes or in any other way until Nature has been given a fair opportunity to establish the passage. The patency of the passage will become established in from two to six weeks in a large percentage of the cases. If after the lapse of two months the passage is not free, a canaliculus may be slit up sufficiently to permit the passage of a small lachrymal probe (Bowman's No. 4 or 5) and a probe passed through the obstruction. A single passage of the probe is usually sufficient. A solution of boric acid should now be syringed into the canal by means of a lachrymal syringe to determine the patency of the canal.

It is very evident from the nature of a case of this character that measures for the protection of other members of the family or of the other eye, if one eye only is affected, are unnecessary.

ACUTE CONTAGIOUS OPHTHALMIAS.

The acute contagious ophthalmias to which children are subject are those which are developed as a consequence of infection from the pneumococcus, the Koch-Weeks bacillus, the gonococcus, and the Klebs-Loeffler bacillus.

DIFFERENTIAL DIAGNOSIS.

The clinical picture as a result of infection from the first two micro-organisms mentioned is that of mucopurulent conjunctivitis; a purulent conjunctivitis is the characteristic clinical picture of infection by the gonococcus, and a membranous conjunctivitis is the characteristic clinical picture of the infection produced by the Klebs-Loeffler bacillus. All of these forms of conjunctivitis are contagious, some to a much greater degree than others, and since this is the case, a safe rule to follow in treating cases of acute conjunctivitis is to isolate, or to virtually isolate, the patient as soon as secretion occurs as a result of acute inflammation of the conjunctiva. This rule may be carried further to the length of continuing the isolation until the discharge has entirely disappeared.

A pneumococcus conjunctivitis is indistinguishable clinically from a Koch-Weeks bacillus conjunctivitis. On the whole, a conjunctivitis produced by the latter cause is considerably more severe than that produced by the former. A differential diagnosis is possible only on examination of the secretion with the microscope, but the necessity for differentiating between the two is really not great, as the treatment is very nearly the same and the results are almost always benign.

It is well known that the pneumococcus requires a soil especially favorable for its development, and that individuals who do not present a favorable soil may have the pneumococcus in the conjunctival sac without a conjunctivitis; but when the small bacillus of acute contagious conjunctivitis (Koch-Weeks) is in question, the conjunctiva on which the bacillus falls, whatever its condition, is sure to become affected. These remarks also hold true in regard to the gonococcus. The Klebs-Loeffler bacillus holds the same relation to the mucous membranes of the body as does the pneumococcus, the frequency with which it may produce its pathologic manifestation being perhaps less than with the pneumococcus.

Acute conjunctivitis as a result of the pneumococcus

may be epidemic in small localities, but it never, so far as my observations and investigations have been able to determine, produces widespread epidemics. Occurring in families, one or two individuals may be affected; frequently one only. Occurring in residential schools, a few of the inmates may be affected. This relatively slight tendency to spread is due in all probability to the necessity for a favorable soil, as before mentioned.

Conjunctivitis due to the small bacillus is very apt to affect all the members of a family and, occurring in residential schools, is apt to affect the greater number of inmates; perhaps all of the inmates, unless isolation measures are instituted. This form of conjunctivitis may become widely epidemic, affecting the inhabitants of large sections of the country.

Gonorrhoea of the conjunctiva can become epidemic in localities, as in institutions where numbers are massed together in residential schools, barracks, etc., but it can not become epidemic in communities. When gonorrhoea of the conjunctiva occurs in children, whether in a family or in asylums or residential schools, it is desirable to ascertain, if possible, the source of infection, and it is incumbent on the physician to examine any urethral or vaginal discharge occurring in boys or girls. I once observed an epidemic of gonorrhoeal conjunctivitis affecting twenty-two of the inmates of a residential school for girls. Examination disclosed the fact that a number of the girls were suffering from a gonorrhoeal vaginitis.

Diphtheria of the conjunctiva, while contagious, is probably never epidemic.

All of these affections vary greatly in degree of severity. It is possible that an acute conjunctivitis due to the pneumococcus or the Kochs-Weeks bacillus may be so severe as to be confounded with a conjunctivitis of gonorrhoeal origin. It is possible that a gonorrhoeal conjunctivitis may be so mild that it may be mistaken for an ordinary mucopurulent conjunctivitis, but the secretion for this mild case will possess the power of producing in another eye a gonorrhoeal conjunctivitis of the most severe type. It is possible that gonorrhoea of the conjunctiva may reach a degree of severity which would cause it to be confounded with diphtheria of the conjunctiva.

Acute mucopurulent conjunctivitis due to the pneumococcus or to the small bacillus is devoid of danger to vision except in an extremely small percentage of cases, while gonorrhoea and diphtheria may cause great damage to vision in a large percentage of cases. The making of a true diagnosis not only gives one an idea of the contagiousness of the affection, but it also gives one knowledge of the proper measures to be employed in the treatment and makes it possible to form a correct prognosis. For these reasons, if any uncertainty exists regarding the kind of conjunctivitis, a microscopic examination of the secretion should be made.

Different forms of treatment are necessary for all of the different varieties.

In the mucopurulent conjunctivitis due to the pneumococcus, the milder cases recover within a few days if ordinary cleanliness is observed. It is well to have the eyes cleansed with a 3 per cent. solution of boracic acid every one or two hours, or sufficiently frequently to remove the secretion as it forms. The application of cold to the lids in the acute stage is sometimes gratifying to the patient.

RATIONALE OF MOIST COLD APPLICATIONS.

In considering this matter, it is well to bear in mind

the thermal conditions under which the pneumococcus, Koch-Weeks bacillus, gonococcus, and Klebs-Loeffler bacillus develop. The thermal range of development of the pneumococcus is between about 55 F. to 110 F.; of the Koch-Weeks bacillus and the gonococcus, 88 F. to 110 F.; of the Klebs-Loeffler bacillus about the same as the pneumococcus. The object of cold applications is really to inhibit the growth of the specific micro-organism. This can be accomplished in the cases of conjunctivitis caused by micro-organisms that do not develop below 88 F., as by cold applications the temperature of the conjunctiva may be reduced, approximately, to 92 F. In cases due to micro-organisms that develop readily below 92 F., cold does little good.

APPLICATION OF MOIST HEAT.

Moist heat applied to the lids can not be employed to raise the temperature of the conjunctiva above 110 F., seldom above 102 F., consequently it is of no value as an agent to inhibit the growth of the micro-organisms concerned. It is only of value to assist in disposing of effete material, plastic or otherwise, which may be present in the tissues by rendering the flow of blood and lymph more free.

GENERAL TREATMENT.

In pneumococcus conjunctivitis, cold applications, when applied, should be made for from one to two hours at a time with intervals of from one to three hours, as desired. In these cases, if severe, a solution of a salt of silver in water (protargol 10 per cent., or argyrol 20 per cent.) should be dropped into the eye two to four times daily. When the subacute stage is reached, the protargol and argyrol should be discontinued, and, in addition to the cleansing of the eyes with boracic acid solution, an application of nitrate of silver (0.5 per cent.) may be made to the conjunctiva once daily if required. Experience has proven that protargol, and to some extent argyrol, leave the conjunctiva in a slightly thickened condition if their use is persisted in long after the acute stage has subsided, and that some other astringent, particularly the nitrate of silver, will cause the conjunctiva to return to a normal condition very much more rapidly.

The conjunctivitis due to the small bacillus requires similar, but more energetic treatment. Cold applications are positively indicated in the acute stage. They should be made for from two to three hours at a time, the interval between periods being from one to two hours. The cleansing of the eyes must be performed more frequently and the solution of silver salts also used more frequently.

In the conjunctivitis due to the gonococcus, similar measures may be employed in a somewhat more vigorous manner. The solution of protargol should be 15 to 20 per cent., and the solution of argyrol 30 to 40 per cent. The solution used should be freely dropped into the eye every two hours in severe cases during the acute stage, somewhat less frequently in the milder cases. Cold applications should be made for a longer period of time and the intervals should be shorter. The tendency of the lids to become glued together may be combated by the introduction of borated vaselin (5 per cent.) or bichlorid vaselin (1-3000 to 1-5000) into the conjunctival sac three or four times daily. The conjunctival sacs should be cleansed with a solution of boric acid sufficiently frequently to keep them free from secretion. In addition to this, the urethritis or vaginitis that may exist must also be treated.

The results after treatment of this kind in gonorrhoeal ophthalmia occurring in children is almost always satisfactory. Corneal ulceration may be obviated in perhaps 95 per cent. of the cases.

In diphtheria of the conjunctiva the treatment is altogether different and consists in the early administration of diphtheria antitoxin in sufficiently large dose and sufficiently often repeated to cause the membrane to disappear and to bring about rapid amelioration of the symptoms. In addition to the use of the antitoxin, cold applications may be made for two hours at a time with intervals of one hour during the acute stage, should they prove agreeable to the patient; they will have little influence on the course of the disease. The eyes should be cleansed frequently by means of boric acid solution. Accompanying nasal or faucial diphtheria should, of course, receive attention.

In diphtheria of the conjunctiva, the results depend entirely on the stage of the disease at the time of the commencement of treatment. While diphtheria of the eye before antitoxin was known caused destruction of the cornea in perhaps 95 per cent. of the cases, it is now possible to prevent any affection of the cornea in almost, if not quite all, of the cases by the proper use of antitoxin, provided the patient comes under observation before the cornea is involved. If ulcer of the cornea is already present, its progress may be arrested within twelve or twenty-four hours, and the damage done can be materially limited.

DISCUSSION

ON PAPERS OF DRs. CLAIBORNE AND WEEKS.

DR. ARTHUR G. BENNETT, Buffalo, N. Y., indorsed Dr. Claiborne's remarks about the apparent stupidity of school children who are suffering from errors of refraction. In connection with Dr. Burrows, he examined all the pupils of the truant school in Buffalo. There were 66 pupils, and the great majority had marked defects of vision. Three had strabismus. He told the principal of the school that it was the absolute duty of these children to play hookey. The nervous strain was greater than they could carry. The result of treatment in these cases was very satisfactory, excepting in those who were mentally deficient. The majority were much benefited by proper correction of the defective vision. Dr. Bennett has recently seen three very pronounced cases of cyclic vomiting. In one he discovered a very grave error of muscular balance, the correction of which by glasses gave marked relief. In this case the child was nervous and undersized. In another similar case an absolute cure followed the correction of a small degree of compound hypermetropic astigmatism. In this case the vomiting had recurred every two months for two years, at least. In the third case, which was lost sight of, he discovered by objective measures 2 D. of hypermetropia. At the Craig Colony for Epileptics, although only one case was apparently cured by correcting the errors of vision, the number of attacks in the aggregate was materially diminished. Dr. Gould and Dr. Bennett examined 100 patients in five days, and the work could not be satisfactorily done in so short a period of time. Dr. Bennett believes the statistics showed a reduction of 35 per cent. in the number of attacks for one year. Certainly the patients in whom the attacks did not stop were made much more comfortable. He doubts whether true epilepsy is ever cured by eye treatment, but believes that many of these patients are made more comfortable by correcting the errors of vision, and a certain number, in which there is an epileptiform condition, which is many times regarded as true epilepsy, are absolutely cured.

DR. ISAAC A. ABE, Chicago, asked Dr. Claiborne at what age he would correct refractive errors. Parents are often conscious of these errors of vision in their children, but they usually prefer to postpone treatment until the child is old enough to go to school.

DR. SAMUEL J. WALKER, Chicago, has seen numerous cases which would probably be described as cyclic vomiting, but he has never seen a case of what he could call by that name. The cases he had in mind were always associated with other features, such as loss of appetite, disinclination to play, marked depression, and in some cases even a stuporous condition; these symptoms practically always preceding the vomiting by from six to twenty-four hours. Several years ago in a paper on migraine he gave it as his opinion that cyclic vomiting, so-called, is in reality an atypical form of migraine; and in the discussion following the paper, several men agreed with his view of the question. His experience with such cases since then has tended to confirm that view. We all agree that all abnormal conditions should be corrected, and that errors of refraction and any other abnormal state will precipitate attacks of epilepsy or migraine, or serve to make the attacks more severe in character, but that refractive errors can be a fundamental cause of epilepsy or insanity, is in his opinion not tenable.

DR. HERMAN JARECKY, New York City, said that at the Manhattan Eye and Ear Hospital and in his clinic at the Sydenham Dispensary, so far as he could see, in no case was the chorea cured by correcting the eye errors. In these cases there is apparently a lack of general muscular balance; the whole system seems to participate in the condition. The child should be taken away from school, given proper tonics, etc. He should insist on refraction in every case where the error is at all marked. In those cases where the error is slight, it may be allowed to go uncorrected, and the majority do not require glasses. It is a serious question to put glasses on very young children, and while he does not hesitate to put them on, yet in those cases of astigmatism where the error is slight, he believes it should be corrected until the child's general condition improves under the combined influence of systemic treatment and the use of proper glasses. Then the glasses should be discontinued in a number of cases, and if there is further weakness shown, the errors can again be corrected. He has never seen epilepsy or insanity improve after the correction of eyestrain. He has seen certain cases of chorea helped by attention to the eyes, but the general care of the choreic will depend on the pediatrician and not on the ophthalmologist. While in a certain number of cases glasses must be worn all the year round, he never insists on their use during the summer months, when the children are romping in the country.

DR. CHARLES G. KERLEY, New York City, asked Dr. Claiborne how many cases of cyclic vomiting he has relieved by correcting refractive errors.

DR. J. H. CLAIBORNE, in replying to a question, said that he has not seen a great many cases of cyclic vomiting, but has come to regard it as an exceedingly difficult condition to cure. He also looks on it as an atypical form of migraine. The only suggestion he makes in regard to these cases is that the possible coexistence of refractive errors should be borne in mind, that they be completely corrected under atropin when found, and that careful records of those cases be kept, and a subsequent report made regarding them. Dr. Claiborne has never seen epilepsy cured by the correction of refractive errors. He believes that the effect in such cases is a distinctly moral one. Couple personal magnetism with a bloody eye and a distinct impression is made on the nervous system. He usually takes glasses off children during the summer. Eyes have much to do with the nervous system, but not everything. When the children return to their lessons in the fall glasses should again be worn, and in cases of myopia or astigmatism they should not even be removed during the summer. He has never seen a child injured by breaking its glasses.

War Prices on Drugs.—Alcohol, carbolic acid, picric acid, anise seed, cinnamon bark, ergot, camphor, menthol and lycopodium are mentioned by *Meyer Bros.' Druggist* as affected in price because of the war. It is stated that a barrel of alcohol is consumed every time a thirteen-inch gun is discharged. Carbolic acid and picric acid are necessary ingredients in the manufacture of modern high explosives.

PROPHYLAXIS.

ITS VARIOUS PHASES IN RELATION TO CONSERVATION OF

THE TEETH.*

CHARLES F. ALLAN, M.D.

NEWBURGH, N. Y.

I want to make a broad distinction between reparative and restorative operations, and to weigh relatively the importance, from a tooth-saving point of view, of some prophylactic measures.

Broadly speaking, prophylaxis, the prevention of disease, should be the highest aim of the physician. In our specialty of medicine we are nearer, perhaps, concrete facts than the general practitioner; the organs that furnish us our principal work are in sight and lesions are generally visible and within reach, and possibly it is not asking too much of the average patient to expect more of us in the way of prevention than in the warding off of disease by the family physician. Certainly if we do not accomplish quite as much, we are very culpable.

Prophylaxis is prevention—prevention of what? Not simply the loss of teeth by caries, nor added to it the loss of few or many teeth by pyorrhea, but it means the prevention of the loss of the full comfortable use of thirty-two teeth through the whole or main part of possibly a long life. I do not think this at all a too high ideal to have before us. At present, in a large majority of cases, we certainly will not reach to this standard.

The great controlling factor in relation to immunity or non-immunity from caries has reference to the condition of the secretions of the mouth. We are now in the early stages of our examinations in the histo-chemistry of the saliva, and though we have a limited knowledge of the conditions making for decay, we are as yet unprepared and unable to change those conditions to one of immunity. Often we will not have the complete support of the patient in the matter of hygienic cleanliness, without which we are powerless to accomplish the best results; and it will also generally be impossible for any one person to have the consecutive management of many mouths extending over a series of years dating from childhood, without which the best services can not be rendered.

Still, prophylaxis is steadily gaining; hygienic cleanliness is being more and more insisted on by the dentist and more and more practiced by our patients, and this greatly offsets environment. With better modes of treatment and a more careful living up to the high ideals of Nature, we have every reason for encouragement.

The high standard of success here outlined in the salvation of the teeth involves of necessity a knowledge of the perfection of the normal conditions of the tissues and organs of the mouth; this in the environment of the teeth, in the teeth themselves and in their arrangement, and in the relation of the teeth of one jaw to the teeth of the opposing jaw.

I have placed at the head of these phases of necessary normal conditions that of environment; and yet if I am asked to describe what I consider a normal environment, mainly, of course, with reference to the juices of the mouth, I can only say I can not tell. So far the chemical constitution of what may be called normal

saliva has, to my knowledge, never been described and I think can not be; that is, in its exhaustive and ultimate analysis within the varying limits of what still may be termed normal.

We occasionally hear of the rare case of an aged person who has never been to a dentist and who never has lost a tooth, and very, very much more rarely we meet such a person, but in what respect the saliva of this *rara avis* has differed from the mouth secretions of the ordinary individual we do not absolutely know.

We do know that Dr. Michaels (to whose investigations in the histo-chemistry of the saliva I will shortly refer) found that a hypo-acid condition of the saliva was generally associated with rapid destruction of tooth tissue, and the hyper-acid condition was associated with comparative immunity from decay. The researches of Drs. Kirk, Kyle and others confirm those of Dr. Michaels. We know also that the immunity from caries in the rare cases I have referred to has not been as the result of extraordinary cleanliness. The deduction seems obvious.

The researches of Black, Williams and others have proved to us that, in the main, the physical conditions of the teeth of different individuals of adult age are substantially the same, and the facts that are before us every day, showing the wide difference of conditions of tooth preservation, all point to a cause for tooth destruction outside of the teeth themselves; this means, of course, in their environment, and this is now universally recognized.

In August, 1900, before the Third International Dental Congress, Dr. Michaels of Paris read a paper on "Sialo-Semciology," which was a record with deductions therefrom, of a long series of examinations and analyses in connection with the histo-chemistry of the oral secretions. The limits of my paper preclude even a résumé of this paper, but he clearly proved the intimate relation of immunity from caries with certain conditions found in the saliva, and he found radically different conditions of the saliva where caries in a mouth were rampant.

Though by no means exhaustive, Dr. Michaels' investigations were most carefully made, and his results and deductions have been amply confirmed by other investigators.

To quote a truism of medicine put in simple words: "It is a well-known clinical and laboratory fact that a study of the products of the secreting organs, which in their excreting functions throw off waste material, gives us by deduction a fair idea of what process is going on within the body." This being true, why, as an index of systemic condition, would not the study of the saliva give as good an idea as the study of the urine, especially as the latter is solely a waste product, while in the saliva, swallowed as soon as excreted, we have products of metabolism which return into the system as a part of a physiologic process?

The bearing of all this on tooth destruction is, of course, even more intimate than I have suggested above in connection with general systemic conditions, for the teeth are bathed in the secretions of the mouth and are exposed continuously to the fermentative and bacterial results of their environment.

The present relation of prophylaxis in this connection is as follows: We know the distinctive condition of the saliva, as found by Dr. Michaels and others, when related to rapid decay of the teeth; we know another distinctive condition of saliva seemingly always associated with immunity from decay; but I am afraid to

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

say that as yet we know how to influence nutrition to that point that we can change the one undesirable condition to the one that means tooth preservation.

The study of the histo-chemistry of the saliva is one involving organic chemistry of the most intimate nature, and requiring an immense amount of laboratory detail and the study of formulae and analyses requiring any amount of time. The advance already made is very great, and the introduction of the micropolariscope, according to Dr. Kirk, is a most valuable aid. To know the actual condition from which we require relief is a great point gained.

Drs. Kyle, Milligan and others, in connection with hay fever, ozena and diathetic and nervous diseases of various kinds, have gathered diagnostic indications from the saliva that have secured successful treatment and have proved to them of the greatest professional value. We are pointed in the right direction, with a solid substratum of facts to work up from. Laborers in this field are very necessary, and the reward, how to help secure immunity from caries, is the greatest that can be put before the dentist.

We can not conceive of any period when absolute hygienic cleanliness in the mouth will not be necessary, but up to that time in the future when we shall be able to change by treatment the destructive character of the mouth secretions, this same hygienic cleanliness, as advocated and practiced by its well-known exponent in Philadelphia, is, and will be, our best sheet anchor for the preservation of the teeth. So much has been written by him, and his principles and practice are so well approved by the profession in the main, though not in all details, that it would be supererogatory for me to add any words.

Normal occlusion, that is, occlusion as opposed to mal-occlusion, as described so well by Dr. Angle in his record work on "Orthodontia," is a very necessary factor in prophylaxis. The knuckling up of the several teeth against one another, thereby securing for each tooth under stress the support of all the teeth of the arch, is most necessary and most helpful, and is provocative of comfort and tooth preservation. Now, when we add to this the perfect normal relation of the teeth of the mandible to the teeth of the upper jaw, that perfect relation of the planes and cusps of the teeth of the two jaws to one another, we have an ideal arrangement, a perfection of mechanical adaptation and artistic lines better than which we can not conceive of; so, when we have before us a case of mal-occlusion to correct, it is this perfect ideal we must try to work up to, and we must always remember that the Almighty found thirty-two teeth none too many for the purposes of his perfect work, and it is not at all likely that we can do as well with less.

Now, the practical application of this matter of normal occlusion to prophylaxis lies in the interdependence of one tooth on another, as mentioned above. It lies in the fact that each tooth in a normal arch is necessary to the best welfare of every other tooth, and that you can not remove one tooth without injuring all. The natural tendency of the back teeth, in the absence of mesial support, is to move forward, and unfortunately that tendency is not to move *en masse*, but to follow the line of least resistance and seemingly pivot on the ends of the roots, the crowns tilting, with the effect of not only destroying to a great extent the mutual support of adjoining teeth, but also destroying more or

less that perfect relation of the teeth of the two jaws to one another.

All irregularities of the teeth, and especially all losses of teeth, are provocative of further trouble. The proper interdigitation of the cusps of the teeth of one jaw in the sulci of the teeth of the opposing jaw is interfered with, the area of masticating surface is reduced, and what remains is usually not in as good condition for service. Some of the teeth no longer have the stress of use along the line of the axis of the roots, and the tilting continuously increases. The mal-occlusion affects also certain teeth that otherwise would be in normal health by putting on them unusual strain, and that strain in a direction the teeth are not expected to bear, with the result of loosened teeth in diseased sockets. The tendency of all such mal-occluded teeth is to get lame and loose and to be early subjects for pyorrhea, and in the end the forceps. Teeth irregularly placed in the jaws are difficult to keep clean, and are much more prone to caries, and in more ways than I have time to speak of mal-occlusion tends to tooth loss. Proper occlusion, especially when attended to early in life, is an eminently important factor in prophylaxis.

Tooth loss is mainly occasioned by departure from the high ideals established for us by Nature. The teeth, generally erupting with normal shapes and with normal structure and physical conditions, are, by reason of perverted environment, subjected to caries. Caries generally means repair and, in the fullest sense of the word, should mean restoration; and it is this in many cases incomplete repair and hardly at all restoration that is a great cause of tooth destruction. To give a broad generalization in one short clause, we should live up to Nature.

All of these many years, in which we have made so many and great advances as a profession, we have been handicapped by the fact that we have had no filling material that was at all ideal. Amalgam, tin, gutta-percha, cements, have all done us great and good service, and above all gold. The latter is a royal metal, and has done our patients a royal amount of good, but restoration has been a restoration of contour only; not a restoration of color and appearance; not a restoration of thermal non-conductivity; not a restoration of the vitreous polished enamel surface which is of such immense importance; and this lack of restoration has generally been at the expense of serious distress to our patients; often of serious physical and nervous strain to the operator. Drs. Varney and Webb, and others as well, practically gave their lives to establishing their high ideals of tooth restoration, and then their ideals failed in the above-mentioned serious respects. All glory to them, however: they were in advance of their fellows, and we are greatly better dentists by having had their ideals to work up to.

Now the relation of all this to prophylaxis lies in the fact that in just these important matters in which tooth restoration fails with gold, it is a success with porcelain. The vitreous polished surface, practically continuous with the enamel surface, the non-conductivity of the material, its comparative ease of insertion at an immense saving of time, pain, and nervous strain, are all important respects in which the prophylactic value of porcelain transcends that of other materials.

Again, I can not go into details, but it is entirely practical in the great majority of cases to fill the occluso-proximal cavities of the bicuspid and molar teeth with porcelain, at a great saving of strain and pain to the patient, with a perfect restoration of contour made in

the furnace and not in the patient's mouth. Some of you, I fear, will dissent from this statement, but I want to go on record as saying that it is practical, and that such restorations, if properly made, will be permanent.

For the sake of brevity, I have instanced only occluso-proximal cavities because they are, possibly, the most difficult and the necessities of such cases are greater, but the principles involved are the same with all proximal fillings, and the essential saving conditions are just as evident.

The last few years have developed an immense amount of literature on prophylaxis, but it has been of the narrow kind that has seen but one phase of the subject, and for that has claimed the earth. All of you know that prophylaxis is many sided—has, indeed, many more sides than I have had time to indicate—and that though hygienic cleanliness is one phase, and that a very important one, it is still not all there is that stands for the prevention of the loss of the teeth.

The investigations of Michaels, which include an immense amount of painstaking laboratory work, have opened up a field of activity whose promise is very great.

In the language of the very reserved and modest claim made by the eminent editor of the *Dental Cosmos*, "Dr. Michaels has thrown a ray of scientific light on the problem of dental prophylaxis and has clearly indicated the direction from which greater light on the problem may be expected to come."

Dr. Angle in his great work on mal-occlusion has treated his subject in a scientific manner quite beyond anything hitherto attempted, and in the simplicity of his classification and in the clear idea he has given us of the ideal we are always to work up to, with methods and apparatus most simple of use, has given the profession great aid in treatment, which in so many cases makes for prophylaxis.

To this should be added a word of tribute to the enthusiastic and earnest labors of Dr. Jenkins, stretching over many years and all to the end that tooth structure might be imitated and that tooth repair might mean tooth restoration in the fullest and best sense of the word.

Other names could be added to this brief list, but these I have mentioned seem to me typical of the best, in that they have obtained their important results only because of great labor, backed up by most earnest enthusiasm.

It is such enthusiasm that in the end will conquer for tooth salvation. It is such enthusiasm that always conquers.

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CHANGES IN THE SALIVARY SECRETION, AFFECTED BY SYSTEMIC DISEASE.*

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Compared to other subjects of interest to the stomatologist, only a few papers of practical value have appeared on this subject as yet. Various experiments, and conclusions drawn therefrom, are scattered throughout medical literature, but these are of no great practical value, as the investigations were carried on at dif-

ferent times, under varying conditions and on different subjects.

The task which the writers have undertaken is to study the saliva in a number of systemic diseases under as analogous conditions as possible, which is rendered more difficult by the fact that the literature existing on the subject is so little congruous and the results so far obtained are at a great variance.

For example, if we study the investigations of the saliva in febrile conditions, what a chaos confronts us. If investigators do not agree on the modifications of the salivary secretion in so ordinary a condition as a febrile disturbance, how much more lacking in unity must be the results of investigations of the oral fluid in chronic affections which present so many different phases and aspects.

The conclusions of this paper are the results of investigations which were carried on under as uniform and congruous conditions as possible concerning the saliva in: *a*, diabetes mellitus; *b*, uricacidemia; *c*, gastric disease.

It is not our intention to enter into the details of this vast subject, as time is limited, but we simply present the results of certain examinations, which will be fully described and published in various journals at a later period.

Before studying the salivary secretion as it becomes modified by systemic disease, it is, perhaps, not out of place to define normal saliva.

Saliva, in the strictly physiologic sense of the word, implies the secretions of the parotid, the submaxillary and sublingual glands. Ordinarily, however, the term denotes the aggregate secretions of all the glands pouring their contents into the buccal cavity; the sum total of all these secreta shall be spoken of as saliva in this paper, as it is impossible to obtain saliva in that condition in which it is secreted by the salivary glands proper, and before it becomes admixed with the other fluids and factors introduced into the mouth.

In order to collect any amount of saliva for measuring or examination, it becomes necessary either to introduce a sponge into the mouth to collect the fluid, or to instruct the subject, from whom the sample is to be taken, to keep the mouth open for some time, without swallowing, so as to permit the secretion to accumulate. Anything or any method that may be employed to collect the saliva directly, will act as a stimulant to the gland, by contact or reflexly, and when nothing is employed and the mouth is simply kept open, the muscular exertion of keeping the jaws apart, the air striking the oral mucous membrane, as also the psychical influence, will act as stimulants, and the saliva obtained is not true physiologic saliva, but saliva obtained by stimulation; hence the output of the gland is augmented and more fluid is obtained than would be secreted without the stimulant. However, as the fluid medium is but water, and the chemical factors and active principles are held in solution or suspension therein, it will facilitate matters, by only considering these organic and inorganic constituents of the secretion, irrespective of the solvent medium, and to define physiologic normal saliva as:

"The total amount of organic and inorganic material, elaborated and secreted by the salivary glands under normal conditions, i. e., without undue stimulation by either drugs or other factors, irrespective of their fluid medium and without the admixture of excessive amounts of histologic elements."

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rheln.

Under normal conditions but varying diet, the glandular cells may be taxed to perform varying amounts of work, for the ingestion of large amounts of soluble, assimilable elements which enter the blood current may be followed by an increased output of salivary solids. As long as the system retains perfect metabolic equilibrium, and as long as no local disease obtains in the salivary glands, it does not matter how large the excretion of solid matter may be. The greater the amount of the solvent medium, up to a certain limit, the more perfect may be the excretion. However, it will always remain an open question whether the salivary solids should be completely excreted, or if a residue in the gland, of the same composition and concentration, is normal or not.

The variations that the saliva may be subject to in health may either be a change in the quantity secreted or an alteration in the composition. In order to ascertain any deviation from the normal, it becomes necessary to establish a standard as normal.

The actual amount of saliva secreted during twenty-four hours has been expressed in varying figures by different authors. However, as the activity of the glands is modified by many conditions, all of which must be considered normal, as diet, amount and nature of ingesta, the manner of eating and masticating and also the psychic condition of the subject, and as all these factors do exert a positive influence on the organism and actually modify the secretion, and as it is impossible to have all these conditions congruous in any two cases, and as the results under unlike conditions must vary, figures are but relatively correct and can not be accepted as the absolutely physiologically correct standard of the amount of fluid secreted. As figures will not express the normal amount of saliva secreted, for stated reasons, it will, perhaps, be physiologically correct to define the normal output of saliva as follows:

"The normal amount of saliva secreted is that which is put out without artificial stimulation (by drugs or any factor that will act as an irritant to the gland directly or reflexly) without the subject being aware of its secretion, irrespective of figures."

Having determined what can be called the normal output of saliva, what will be abnormal and what will be pathologic, and which can be classed as either?

Any condition beyond those productive of normal secretion will, of course produce an abnormal or pathologic action of the gland, but how to distinguish between these two, what is abnormal, what is pathologic?

"An abnormal secretion is one produced by artificial stimulation, as by drugs or any other factor producing an altered secretion."

"A pathologic secretion is one produced or altered by local or systemic disease."

Another property of the saliva that is expressed in greatly varying figures is the specific gravity of the fluid. Inasmuch as this property depends on the amount of solids contained in the secretion it (specific gravity) also is subject to many modifications, and the absolute physiologically correct standard can only be obtained by determining the amount of solids in a given amount of normal saliva.

Experiments in this direction will also appear at a later period.

To study the question of modified saliva from all points of view would necessitate an accurate quantitative and qualitative analysis of the secretion in a normal state and the same examination of the fluid as se-

creted in disease. To do this at the present is impossible, as the glandular activity and the secretion itself are subject to many and rapid changes, so that no two examinations would show like results. Therefore, we confine ourselves to the study of such eventual alterations of the oral fluid which are not accidental and thus may become of practical value to the medical and dental diagnostician.

ALTERATIONS OF THE SALIVARY SECRETION IN DIABETES MELLITUS.

The saliva of 158 cases of diabetes mellitus was examined; altogether 384 tests were made, from which the following data were obtained:

Alterations of the Quantity Secreted.—The amount of saliva was found to be decidedly increased in 6 cases, decidedly diminished in 89 cases, normal in 63 cases.

The subnormal secretion was very likely due to the same causes as is the diminution of the secreta of other glands in this disorder, namely, the increase of the urinary water.

In making these quantitative examinations, the samples were always obtained about two hours after breakfast (except where otherwise stated). In order to avoid any secretory changes due to psychical influences, the patient was requested to expectorate into a watch glass, while being engaged in conversation. This was measured by a standard obtained by taking many hundred samples in the same fashion from healthy individuals. If the patient could not bring forth but a few drops of saliva after repeated efforts, the secretion was called decidedly diminished; if, on the other hand, the amount expectorated would fill or flow over the watch glass, it was termed decidedly increased.

The Reaction.—Acid in 47 cases (215 examinations); alkaline in 92 cases (116 examinations); neutral, 8 cases (14 examinations); not examined, 11 cases.

The tests for the reaction were litmus paper and phenolphthalein.

ALTERATIONS IN COMPOSITION.

Glucose was found in the saliva in 85 cases (181 examinations), and no glucose was found in 73 cases (203 examinations).

The examinations for glucose were made with Nylander's solution, and with phenylhydrazin.

The diastatic quality was found unchanged in about 90 per cent. of the cases examined. A quantitative test for the conversion of amylum into maltose, glucose and dextrin was not made on account of the small amount of secretion obtained at a time.

Trommer's test was employed in these examinations; the tests were made at 40 C.

One gram of amylum was boiled with 10 c.c. of water and 10 parts of the starch solution were mixed with 1 part of saliva and kept at 40 C. To this Trommer's solution was added. If the diastatic quality of the saliva is normal, a yellow precipitate, which later turns red, is formed in from fifteen to forty-five minutes. If the changes take place in from five to fifteen minutes, the diastatic property is increased, and if it takes longer than forty-five minutes for the reaction to take place, the diastatic property is subnormal.

All the cases in which glucose was demonstrated in the saliva were of undoubted genuine diabetic character, and in those cases where glucose could not be found in the oral secretion, although it was excreted in considerable amount in the urine, the glycosuria of some was apparently of non-diabetic origin. The cases of true diabetic glycosuria, after a rigid antidiabetic diet, had been

pursued for some time, so that the urine became free from sugar, exhibited the same changes in the salivary secretion, so that no salivary glucose could be demonstrated after the urinary sugar had disappeared. This fact would evidence the common hyperglycemic origin of the glucose in both fluids. Again, the appearance of salivary glucose is by no means indicative of the severity of the diabetic condition, for the degree of the diabetic condition does not depend on the degree of hyperglycemia. The milder cases of diabetes, at least those cases of well-established diabetes not influenced by dietary regulations, are often characterized by the excretion of very large amounts of urinary and salivary glucose. The reduction of the carbohydrates often causes a secession of the sugar in both fluids. In some of the graver cases of diabetes no glucose was found whatsoever in the saliva on any occasion. In one instance more than twelve examinations were made, and salivary glucose could not be demonstrated. These are the cases where, very likely, secondary glandular changes, sclerotic in character, had taken place and where no secretion whatsoever was going on.

ALTERATIONS OF THE SALIVARY SECRETION IN URICACIDEMIA.

Twenty-eight cases were observed; 59 examinations were made. These cases examined partly manifested symptoms of arthritis urtica, partly of chronic affections of the upper air passages, and partly of contracted kidney and its consequences.

The saliva was found to be increased in not one case; was diminished in only one case.

The reaction was obtained by the same tests employed in diabetics, was found to be alkaline in 52 examinations, acid in 5 examinations, neutral in 2 examinations.

The diastatic quality in but 18 examinations made was found normal 13 times, somewhat subnormal 3 times, and decidedly subnormal twice.

Biliary pigments were looked for at 14 examinations, and demonstrated but once by Gmelin's test.

Uric acid was looked for 59 times, and demonstrated in the saliva but 21 times, the murexid test having been employed.

ALTERATIONS OF THE SALIVARY SECRETIONS IN SOME GASTRIC DISEASES.

All the examinations of the saliva in gastric disease were undertaken after the diagnosis had been made and before treatment had been begun, as medication would influence the saliva both systemically and locally.

Acute Gastritis.—Twenty cases were examined.

The quantity of saliva secreted was found to be increased in 9 cases; in the others, about normal.

The reaction was found to be acid in 8 cases, alkaline in 12 cases; acidity was found to be due to lactic acid in 2 cases. Uffelmann's test was employed (modified, as it has been used in Dr. Stern's laboratory for some years; that is, salicylic acid is substituted for carbolic acid). Twice the acidity was found to be due to acetic acid (ferrie chlorid test), and in 4 cases the character of the acidity was not determined.

Hyperchlorhydria.—One hundred and eighty-two cases examined gave the following results: An increased secretion was found in 27 cases; the others showed a fairly normal secretion.

The reaction was found acid in 71 cases, alkaline in 41 cases, neutral in 5 cases; amphoteric in all others, or in 65 cases—that is, the secretion was both alkaline and acid; in other words, red litmus paper turned blue and blue paper turned red.

These facts are of interest to the stomatologist, as it shows that a hyperchlorhydric stomach does not always produce an acid saliva; also is it important to always use both red and blue litmus paper in testing the reaction of a secretion, as one or the other, used alone, is liable to mislead the examiner.

The acidity was found to be due to lactic acid in 12 cases, acetic acid in 12 cases, lactic-acetic acid in 9 cases, inorganic acid (HCl) in 6 cases (Guinberg's test); in the others it was not demonstrated.

Hyperchlorhydria.—Twenty-three cases were examined.

The quantity of saliva secreted was found to be decidedly increased in but 1 case; the other cases showed a fairly normal quantitative secretion.

The reaction was found to be acid in 2 cases, alkaline in 15 cases, amphoteric in 6 cases; acidity was found to be due to lactic acid in 1 case, formic acid in 1 case.

Pyloric Stenosis.—Fifteen cases examined.

The secretion was found to be increased in 3 cases; balance fairly normal.

The reaction was found to be acid in 5 cases, alkaline in 8 cases; in 2 cases the reaction was not determined. Acidity was found to be due to lactic acid in 2 cases, acetic acid in 2 cases, lactic-acetic-formic acid in 1 case.

REMARKS.

In presenting these data, obtained from over 1,300 individual examinations, we do not claim to have brought forth anything new or startling, but have applied old principles in a new direction, and the results obtained may not be of direct value presently, but they open new avenues for investigation which in course of time may become instrumental to shed light into pathways that at present are somewhat dark, namely, the coherence or non-coherence of systemic and oral disease, what rôle the salivary secretion plays in these derangements, how it is affected by either, and the disclosure of this will entail new, better and perhaps more successful treatment.

DISCUSSION

ON PAPERS BY DRs. ALLAN AND STERN AND LEDERER.

DR. EUGENE S. TALBOT, Chicago—So far as malposition is concerned, the extraction of a tooth or teeth has great influence on the alveolar process and the dental arch. The irregularity of the arch (other than the local causes) is due to an unbalanced nervous system. The teeth that decay the most in this country and Europe are in those persons who suffer with nervous difficulties. They are found in the insane hospitals, schools of idiocy and all institutions for degenerates. In a study of the teeth of nationalities it is found that the English lose their teeth sooner and irregularities are more common among them because evolution has gone on to a greater extent. Decay of the teeth next in frequency is in New England, and in the older parts of the country. Irregularities are also greater there than in the newer parts of this country. In pregnancy teeth decay faster; in neurasthenia the teeth begin to decay rapidly, and the same condition obtains in grief. How far the environment and the saliva have to do with this matter is a question. I believe these factors have something to do with it, but the experiments shown do not indicate the saliva has very much to do with the conditions. If the saliva be at fault, why does the decay not occur except at the approximal surfaces and the crowns? Why does it not occur at certain periods rather than others? These things must be taken into consideration in regard to the general condition of the system. I have been experimenting along certain lines to show from my standpoint why decay occurs in certain mouths more than it does in others. I believe that in disease, pregnancy and in conditions of neurasthenia there is a want of resistance in the pulp which has as much to do with decay as any other cause. It is not often that acidity of the salivary

glands takes place to a marked degree. It is unlike the urine which carries off the waste products. The saliva is a physiologic secretion for the purpose of digestion, and therefore diseased conditions are not expected to be found in the saliva of mouths where changes have taken place in the system, as in the urine.

DR. EDWARD A. BOGUE, New York City—I hope that Dr. Talbot will not regard as unfriendly anything I may say. He has been for years gathering facts. These facts we accept, but not his conclusions. In the past twenty years not a child who has ever come into my hands and stayed there has ever had the toothache or ever lost a tooth. Not only that, but during that twenty years only five adults who have been in my hands have lost a good, firm tooth. Three of these were impacted molars; one was an upper wisdom tooth and one was a right lateral incisor from a lady having an irregular row of teeth from which a number of teeth had been lost already. Dr. Talbot's remarks are so mingled with splendid truth and possible error in his statement that evolution shows loss of teeth that I can not accept his conclusions. Whether the removal of the last molar which has been so extensively practiced is going to result in Nature excluding that tooth is a question. He also says that teeth are not necessary. Perhaps that is true, and perhaps not. For the present time we may look on teeth as necessary for our healthful existence, and the better we can keep them the better it will be for the individual's health. He also said that perfect occlusion was not necessary and that what it had to do with decay of the tooth he could not see. Dr. Talbot says that the English people lose their teeth most frequently and next in frequency the New England people; and he had just said that loss of teeth was especially noticeable in degenerates, ergo, the English people and the New England people are degenerates. That being the case, and these being the head nations of the earth, with them the whole world is degenerating. Dr. Talbot said that the loss of pulps and the destruction of the resisting power of the pulps tended toward decay. With this I heartily concur. He did not seem to know that that is in opposition to the statement of one of our profession who says that teeth do not need pulps after adult life. I also agree that prophylaxis begins as far back as Dr. Rhein has suggested, and as far back as Dr. Talbot suggests in his book, long before birth. And this brings us to Dr. Allan's paper. If the child is born in good health and has a constitution which is adequate to the eruption of good temporary teeth which perform their function in life and are shed at the proper moment and replaced by the permanent teeth in their proper position, there is no reason why those teeth should not last during the threescore years and ten almost without care. I have before spoken of a man 52 years of age who told me he had never had a toothbrush in his mouth. Yet that man's teeth were clean and in good condition. The dental apparatus was so admirably arranged for the purpose of mastication that it not only did that part of the work thoroughly, but in the very act of mastication the teeth were cleansed by the flow of the saliva and by the friction of the food taken in. When civilization came and gave us soft food instead of hard, cooked food instead of fibrous and raw food, it did us a damage so far as the teeth are concerned. I find that where the occlusion and the arches are perfect there is very little decay; and acting on that principle during these last twenty years my results have been attained.

DR. M. H. CRYER, Philadelphia—Dr. Angle and others have used a picture made from a photograph of a negro skull which indicates considerable prognathism to illustrate the typical and normal occlusion of the teeth. In my paper on "Retarded Eruption of the Teeth: Their Liberation and Extraction," will be shown a fairly good illustration of the teeth of a Caucasian, which, in my opinion, gives a better standard than this photograph of the negro. Dr. Allan spoke of the teeth moving forward in the jaws. He said the crowns move forward, while the roots do not, thus causing the tipping of the teeth. In the normal jaw where there has been but little interference with its physiologic functions, the roots will advance in the same proportion as the crowns. The cancellated tissue of the

alveolar process, in which the teeth are developed and retained, moves forward in mass, but when the physiologic functions or any portion of this cancellated tissue has been interfered with by either pathologic means or mechanical appliances, then the crowns may tip forward or twist because the cancellated tissue, holding the roots, is more or less withheld.

DR. N. S. HOFF, Ann Arbor—I think the value of a perfect occlusion of the teeth is one of the most important facts that Dr. Angle has brought into prominence by his work. It has its bearing not only as a prophylactic measure but on operative procedures in filling teeth. Much injury has come to the teeth by the use of amalgams, cements, and other plastic filling materials, because it is impossible to restore the contour of the teeth with them. We all know that amalgam is liable to change form, and that cements are transitory in character. The teeth tip out of their normal positions because an incline plane is made as an occlusal surface where a cusp is the natural condition. There is but one material that can be successfully employed to restore the cusps of the teeth as they ought to be, and that is gold. Many operators prevent recurrence of decay with gold fillings which securely stop the cavity, but the occlusal surface of the tooth is put into such form that it changes its place or position in occlusion. It does not occlude in a proper manner to perform its function. Many a filling, for lack of contour, provides a condition between the teeth which favors destruction of the gum, by irritation, or perhaps ulceration, which may result in so-called pyorrhea, which is often nothing more than an inflammatory condition caused by the impact of food in the interdental spaces. The attention of the profession has not been properly called to the value of restoring the cusps of the grinding teeth to their original form for the purpose of preserving the surrounding gum tissue and also for preserving these teeth in their proper articular relations. Dr. Allan said it could be done with porcelain. I have no doubt it can in a measure be done with higher fusing porcelain, but tendency of porcelain is to flatten in fusing and thus lose the valuable cusps. The crown surfaces are too often made without regard to their articular relations; inlays are made to conform to cavity margins only. The restoration of natural cusps is one of the most important features in operative dentistry, and I would emphasize the necessity for it because I think it is being overlooked in the present agitation for cavity extension, and in the increasing use of the plastics and inlays which are made only to accurately fit cavity margins.

DR. G. V. I. BROWN, Milwaukee—It seems to me that Dr. Lederer is in a way to reach the pith of the question. What we want to know first of all is the relation between urine, an excretory product, and saliva, that which is simply a secretion for a specific physiologic purpose. I believe that the work which Dr. Kirk has done is going to give our branch of this great profession a standing which it has never had, and I believe examination of saliva will ultimately be accepted as one of the standards of physical diagnosis. I speak of it to illustrate the broadness of this subject and to warn against using terms, such as perfect occlusion and various other expressions, that may be construed in a narrow way and misunderstood when they get into cold print. It seems to me that "typical occlusion" and "perfect occlusion" are vastly different. I have an illustration of a condition due to malocclusion pure and simple. Dr. Talbot will tell you the condition is due to degeneracy. Dr. Cryer will tell you that he can prove conclusively the influence of the want of development and the want of symmetry, and both would be right, yet we, in our treatment of the case, depended simply on correction of the occlusion. Another illustration is along similar lines and represents a case of nervous spasm, *tic douloureux*, cured by grinding down the teeth and removal of the pulp. Another is apparently the same condition associated with disturbance of the salivary secretion, which was markedly different from other saliva. Another condition represented is due, as we believe, to miliary tubercle, from which the patient finally died. Another is due to malopposed teeth. We ought to be particular about cataloguing such things all under one head.

DR. M. L. RHEIN, New York City—I sympathize with Dr.

Brown's desire that we should be very particular about our statements. I agree with him about the question of a perfect occlusion. I think that a perfect occlusion is too radical a remark. I have made a chemical analysis of oral secretions in a number of cases of diabetes mellitus and simple glycosuria, but I have never published the result. Dr. Lederer speaks of "salivary secretions." He has no right to make use of that term. It is saliva mixed with oral secretions and to a large extent is the secretion from the mucous follicles. I may be at fault in my criticism.

DR. BROWN—When we speak of a condition due to pathologic change of some organ or organs of the body, and undertake to show that coincident with such disease there may, by examination of the salivary secretion, be determined certain distinct pathognomonic changes in its character under chemical or microscopic study which can be recognized by reaction or the form of crystals, or in any other way as sufficiently indicative to warrant dependence in basing a diagnostic opinion, then it goes without saying there must first be accurate methods of excluding from the tests all results of mixtures with other fluids and agents in the mouth, since saliva, as we recognize it, is a mixed product, and since it is equally true that dependence in leading to diagnosis of more or less remote disease must be placed on results apparent from the true physiologic secretion of the salivary glands, and until this can be done the results must be largely influenced by oral conditions and necessarily variable.

DR. RHEIN—In order to speak of saliva, it is necessary for us to draw that saliva from the ducts or the glands as the catheter would draw the urine from the bladder before it passes through the urethra and is not allowed to come into contact with the urethral glands. The catheter-drawn urine and the ordinary urine are different. In the mouth the difference is still more marked. Dr. Lederer speaks of examining the saliva by having the patients spit. It is impossible for that to be saliva. I have devoted a vast amount of attention to the clinical observation of the fluids of the mouth, and have examined over 5,000 cases of guinea-pigs infected with tuberculosis, and the clinical observation in every one of them was identical, and it has been of such value to me that I can tell a case of tuberculosis of the lungs at once by inspection of the mouth. This is not necessarily saliva. The saliva, so far as we can judge from our clinical experience with the salivary glands, is one that is less apt to be infected by general pathologic conditions than the mucous follicles of the mouth and the other secretory organs which do not excrete materials especially for physiologic functions. Until a method can be evolved by which the secretion from the salivary gland can be examined without mixture with the other fluids of the mouth, all the statistics that Dr. Lederer has presented to us are absolutely valueless. They do not at all correspond with facts according to my observations. The very things he tells us in regard to the acidity and alkalinity in the same line of cases illustrate that there is something substantially wrong. The error lies in the fact that a great many of these cases are of acid reaction from the mucous follicles where there is likely nothing of this kind from the saliva itself. The prophylactic care of the mouth—and I prefer that term to prophylaxis, because I do not think the noun is well adapted to the purpose—has been very well presented to us by Dr. Allan. To preserve the occlusion as nearly akin to perfection as possible, it must naturally be started almost, as Dr. Bogue said, before birth. Dr. Talbot misunderstands my views in regard to the value of the pulp. I have never said that the teeth of adults would be better off without the pulp. No one appreciates the value of the pulp in the tooth more than I do. What I have said is that in a large number of diseases, especially of the arthritic and sclerotic types, when we see pulp disease inviting constant trouble, removal of those pulps is of the utmost value to the patients. I agree with Dr. Hoff relative to the filling up of the cusps so that the occlusion will be perfect. I have replaced the rubber dam many times on an operation to add to the cusps of my molars or bicuspids where I failed to get the occlusion that should be normal under such circumstances. I do, however, dis-

agree with him when he says that only the high fusing porcelains can be used. I have too many cases of the Jenkins body that had been used in bicuspids and molars where I have absolute restoration of occlusion. There is an objection to the use of porcelain in these cases. The number of favorable cases, as Dr. Allan has outlined, is rare, because of the difficulty of obtaining the filling as near perfection as possible. I claim that when a porcelain inlay is inserted it should be so closely adapted to the margin of the enamel that the line is almost imperceptible. If that is not obtainable, a gold restoration is by far the more serviceable.

DR. VIDA A. LATHAM, Chicago—I would like to draw the attention of the section to work done by Dr. Joseph M. Flint in the *American Journal of Anatomy*, Vol. I, No. 3, on the structure of the submaxillary gland. It is one of the most profound histologic researches ever made in this connection. There are new theories, new facts, and new methods of investigation which will certainly make a great difference in our future work. He is now, I believe, at work on the second part of the contribution. I should like to ask, how much do the deposits that occur on the teeth bear on the question of salivary or oral secretions? There are cases where a set of teeth may be typical of that type of person. There has been no disturbance, when suddenly the teeth become sensitive and there is a discharge of secretion from the glands of the gingival surfaces. The condition may be due to the saliva which produces irritation. I have a case now in which a V-shaped piece is dissolved or eroded at the cervical border, and if teeth are extracted the patient is relieved from neuralgia. I simply bring this question up, because there is something in the relation of the deposits of the teeth with prophylaxis.

DR. BROWN—I have been criticised and I want to make myself clear. It seems to me that the remarks are unnecessary, because the author very clearly distinguishes between saliva of the mouth and of the glands. Until we can distinguish these differences which are due to mixture and to other conditions of the mouth, from the saliva pure and simple, we are not warranted in ascribing the condition of the saliva to constitutional diseases.

DR. RHEIN—I think it is wrong to speak of the oral secretions and claim that they are saliva.

DR. ALLAN—It is such investigations as those of Dr. Lederer, involving great labor and serious inroads on one's time, that dignify our profession and lead to practical results. In relation to the use of the word "saliva," which has been so much criticised by one of the speakers, I wish to say that there is the best of authority for such use. Gould ascribes saliva as "the mixed secretion of the parotid, submaxillary and sublingual glands and the small mucous glands of the mouth," and Gould is supported by general usage. Dr. Hoff said that porcelain restoration, such as I have referred to, would have to be made by the use solely of high heat porcelain; but, as Dr. Rhein has so well observed, it can be as well or better done by low heat porcelain and with equally good results.

DR. LEDERER—In answer to Dr. Rhein, I would say that he came in late, and did not hear the first part of the paper, therefore he can not accuse me of using a misnomer. No one has as yet made an accurate quantitative or qualitative analysis of any oral secretion, and as we can only work with what can actually be obtained in a normal condition, we must be satisfied with the mixed secretion of all the oral glands. I think Dr. Rhein is doing a great injustice to humanity at large by not telling how he is able to diagnose tuberculosis and diabetes by simple oral inspection; he is withholding a good thing, of inestimable value, from the general medical profession.

Whooping cough, a disease little dreaded by the laity and considered lightly by the profession, is as much to be dreaded because of its fatality as scarlet fever. It may cause less after-effects than scarlet fever does, but it causes enough serious after-effects to make it a disease to be avoided.—Root, in *Pediatrics*.

PNEUMONIA.

THE VALUE OF INTERNAL MEDICATION AND LOCAL EXTERNAL APPLICATIONS.*

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In carrying out the part assigned to me on this program I shall try to consider some of the more important aspects as briefly as possible. If in my efforts at brevity I lapse into dogmatism or incompleteness, I must ask your indulgence.

So long as the best method of treating pneumonia is unsettled discussion is proper and experimentation legitimate. I think we can safely assert that the best treatment is not yet established, despite the many articles claiming specific value for various methods. Of these methods it can be said that they give no greater assurance than dozens of others which were looked on in the past as perfect and abandoned as the result of further trial.

In many of the reports we can see the reasons for ultimate failure. Among them can be mentioned: 1. A belief that all cases of pneumonia are very severe and that without the treatment carried out each would run a long and dangerous course. In regard to this it is important to note that mild or abortive cases of pneumonia occur, not often, it is true, but often enough to weaken many small statistics. 2. The fact that many claims are based on small collections of cases, in which the possible errors are necessarily large, and when, as often happens, these small groups are added together the weak points are multiplied. 3. The failure to report unfavorable cases, depending on many things, especially the desire to avoid the accusation of unskillfulness of the use of an inferior preparation. 4. The use of impressions instead of objective descriptions.

There is need of further experimentation in the treatment of pneumonia along various lines, but for those who have not facilities nor inclination for this I would urge, as a fairly satisfactory plan, the treatment of the patient in the light of the natural history of the disease. As I shall outline this, there is nothing novel nor original in either principles or details.

Among the advantages of this method I place first the obligation it imposes of careful examinations in the beginning and at all times in the course of the disease; next, the familiarity it teaches with the action of various details of treatment, so that the physician can carry out promptly and with confidence such procedures as may be necessary, and from past experience recognize when the results desired are being obtained.

I shall speak only of the most important details.

THE NECESSITY FOR REST.

First I place rest, physical and mental. The possibility of a long course, or of serious complications or sequels, makes it wise to conserve all the energy possible. For mental and nervous rest, quiet, the absence of all mental effort, and sufficient sleep, are essential. Regarding the mind, I find it useful to follow the principle that every pneumonia patient is delirious, even when, as we so often see in the case of physicians, the patient is able to carry on complicated trains of thought. Even in these, temporary lack of attention by the nurse may result in overexertion, serious accident, or even death.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

DIET.

Proper feeding is important for the same reasons that indicate rest, and as a full meal or an indigestion may cause serious inconvenience to the heart or lungs, the food must be nutritious, easily digestible and given at short intervals. Water is useful, not only on account of the high temperature, but also to assist in washing out the poisons formed in the disease, and in keeping up the volume of the blood. Like the food, it must be given with regard to time and amount, and it may be medicated or flavored, or carbonated, provided the latter does not cause distension of the stomach. Both for comfort and to lessen the danger of infection of self and others, scrupulous care of the mouth is necessary.

MEDICINAL AND OTHER TREATMENT.

In pneumonia, as in most other acute diseases, a cathartic in the beginning often conduces to comfort and saves trouble in the later stage. Calomel is a convenient remedy, but castor oil or other preparations may be used if preferred.

In some cases of pneumonia nothing more is needed than the treatment mentioned, except a faithful and cool-headed nurse and a physician to examine the patient and chart at intervals, noting at each visit the general condition, state of pulse, color, breathing, cough, expectoration, lungs, heart and pleura, stools and urine, mouth and abdomen, and frequently the ears. The examination of the blood for the number of leucocytes is often interesting, but not essential during treatment. The diagnostic value of blood examinations in pneumonia needs no argument, and the cultivations of the bacteria in the blood is of great value in explaining many irregularities and complications.

Often there are symptoms that need attention.

Pain is often severe, either in the chest or abdomen, and suggests the use of morphin. In most cases I find the ice bag will relieve pain just as well, and its use avoids the untoward effects of morphin on the stomach and mental condition. I admit that it requires some courage, and often involves much difficulty to change from the use of the hypodermic needle or Dover's powder to the ice bag, but those who have used the latter will agree with me when I say that one can often see patients crying with pain in spite of liberal doses of morphin, who quickly become calm with the ice bag.

Heat sometimes seems to relieve pain as well as cold, but the latter has other advantages. Among these is the relief of the cough, and the improvement of the breathing.

It is necessary to speak of expectorants, because there are many who believe these are necessary for the removal of the exudate, notwithstanding positive knowledge to the contrary. In some cases there is a complicating bronchitis that can be treated with advantage by expectorants, but in many cases the expectoration and cough are kept up by unnecessary drugs.

Fever rarely requires active treatment in pneumonia. Coal tar antipyretics are with reason reprobated in print, but still used too much in practice. If the nervous or cardiac symptoms are severe, not from the fever, generally, but from intoxication, ice bags or cold coils to the head and heart region, or bathing, are useful. If the symptoms are only moderately severe local ice bags, or coils, with tepid sponging of the body will suffice. If toxic symptoms are marked the full bath, as in the Brand treatment, either beginning at 65 F. or reducing.

from 85 F.-90 F., according to the case, with friction, often gives striking relief to all the symptoms. In some cases insomnia more than delirium requires treatment. Here morphin is useful, a single dose often being sufficient, though a full dose of bromid is sometimes successful.

Tympanites usually yields to simple enemas if treated early as it should be. It may require calomel, turpentine enema or the rectal tube. An ice bag to the abdomen often does good.

Other internal medication is not a regular part of this treatment. Alcohol can be left out without loss. Strychnia is sometimes given, never necessary as a routine remedy, never indicated at a particular day, in all cases, and I can not yet admit its uselessness in circulatory weakness. I consider the heart and vascular conditions as the most important single ones in pneumonia. So-called cardiac stimulants, however, are not always needed, and when they are, the ice bag externally, hot milk, beef tea or coffee internally, come into use before medicines. Hypodermoclysis, often used for circulatory weakness, I shall also not consider, though I recognize the value of the method in introducing water into the body.

As regards external applications, the only routine ones I use are the ice bag and coil. In some cases, old people or babies especially, cotton jackets are used instead, but even in young children a light ice bag, not kept on all the time in all cases, or a cold coil, often seems better than any other treatment I have seen.

The cold bath is invaluable in some cases, but not necessary in all. Blisters are still recommended by some. I used them very thoroughly under one of the most accomplished masters of that heroic school, putting on fly plasters from 9x15 to 12x18 inches, sometimes on both sides, and drawing literally quarts of serum. I have put them on soon after the initial chill. I have never been able to see any shortening of the course or lessening of the symptoms, and pleurisy and pericarditis were as frequent as under other methods. I have occasionally seen less radical counter-irritation, but with the same negative results.

Two or three years ago it would have been unnecessary to speak of poultices in the treatment of pneumonia. They often relieve symptoms, but can usually be substituted without loss by the cotton jacket. Within a short time the poultice has been revived in a new form under the stimulating influence of printer's ink and an amount of physiologic and therapeutic misinformation that would make Rabelais laugh, but must make all judicious therapeutists grieve.

Oxygen is one of the most important needs for the pneumonia patient, but the compressed variety could often be replaced with advantage by fresh air. Nothing can be more paradoxical than the practice of putting oxygen tanks in the sick room, and turning on a few gallons every half hour or so, while all the windows are closed, often battened down with cotton, sometimes an oil lamp burning in the room and not rarely as many people as can find place in it. Open windows, avoiding actual draughts, give much more distinct relief to dyspnea and cyanosis, are indicated on obvious grounds, and should be used. If it seems desirable, the atmospheric kind can be reinforced by pure oxygen, given in an efficient manner, but it is well to ascertain whether the cyanosis, the usual indication for oxygen, can not be relieved by treating a tympanitic abdomen or a dilated heart.

THE PREVENTION AND TREATMENT OF HEART FAILURE IN PNEUMONIA.*

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PHILADELPHIA.

"The time to treat heart failure is before it happens." These words, used by Abraham Jacobi in a discussion on the treatment of diphtheria nearly twenty years ago, impressed me forcibly. The maxim applies equally to pneumonia.

From what sources does the danger of heart failure in pneumonia threaten? Its causes are many and their interaction may be complex. There are three principal causes and many secondary ones. The principal causes are, first, the toxemia; second, the mechanical obstruction to the circulation in the lung, causing overburdening and dilatation, especially of the right heart; third, the alteration in the physical and chemical constitution of the blood which, apart from the toxic effect on nervous and muscular action, central and cardiac, predisposes to the formation of antemortem clot. Among the most important of rare causes are hyperpyrexia and a sudden paralysis of inexplicable origin.

THE TOXEMIA.

The old name "lung fever" is, perhaps, better than the modern one of croupous pneumonia, inasmuch as it emphasizes the fact that we are dealing with a general infection of which the local lesion is merely one expression; while the modern term, concentrating attention unduly on the morbid anatomy of the disease, has certainly misled an earlier generation, if not our own, into neglect of the toxic condition which is the source of greatest danger to the patient. The pneumotoxin unquestionably disturbs cardiac and respiratory action much more than does the interference with pulmonary and cardiac function caused by the local morbid process. No further proof of this is wanting to him who, having observed the respiratory distress and the laboring pulse just before crisis, has seen the return within a few hours to tranquil breathing and quiet cardiac action, while the physical signs over the consolidated lung remain practically unchanged. Whether the toxin acts centrally or peripherally, or both, is a question unsettled and of minor importance at present, but that it acts is evident; and from clinical observation I am inclined to believe that its action on nervous tissues, both central and peripheral, is supplemented by a directly depressant effect on the cardiac muscle itself. Thus we have to guard against failure of the central organ of circulation, as well as against widespread vasomotor paresis.

Against the toxin and its action in bringing about cardiovascular failure, effort must be directed from the moment we are summoned to the case. Our chief means of combating it at present is elimination. Hence the value of early blood letting, followed or accompanied by subcutaneous or venous infusion of saline solution, in cases in which this measure can on other grounds be considered justifiable, and of free sweating if a case is seen sufficiently early. Hence also the importance of maintaining free diuresis and excretion generally. Chemical neutralization of the toxin by antitoxin is a measure strongly indicated theoretically, and we may

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

some day be supplied with an efficient preparation for this purpose. The antipneumococcic and antipneumotoxic serums thus far introduced do not seem to meet the requirements.

Other chemical antagonists—natural drugs, synthetics, serums or animal extracts—may be found that, if unable to neutralize the toxin completely, may yet in some measure interfere with its reception by the cells, or its destructive action on them, and it is possible that this will be found to be the explanation of the good effects attributed from time to time to a number of drugs, some of which are still used and some of which have fallen into disuse. We must, however, wait further development of the studies now being made on the action of the specific toxins and the actions and reactions of the animal tissues and juices, before opinions or therapeutic experiments of this kind can be more than vague guesses. A few recent experiences with veratrum viride, so highly lauded on empiric grounds by many experienced practitioners, but whose usefulness, if real, most surely does not depend on its supposed substitution for the lancet, have led me to inquire whether there might not be some principle in veratrum that in part or in whole antagonizes the pneumotoxin or prevents its action on cells, or stimulates the formation of an immunizing body or complement. For whatever reason, veratrum given early and freely and stopped soon, is of proved usefulness. Concerning quinin, from time to time advocated as a jugulant of the disease, the same queries may be raised.¹ These questions, however, I can not answer, nor am I prepared to advocate the routine use of veratrum or of quinin as a means of bringing about an early crisis on the strength of three surprising observations in the course of twenty-one years of practice; more especially as the apparent abortion of the disease in these instances precludes diagnostic certainty. I am, however, willing to mention these observations and to state that I consider them seriously. I am both willing and prepared to advocate strongly the use of a hot bath or any other means available for inducing copious diaphoresis, in any case of either croupous or catarrhal pneumonia, and especially of influenza pneumonia, when seen at a comparatively early stage.

In the late stages, in the dangerous period of the disease, that is to say, about the height of the stage of consolidation, and later toward crisis and after crisis, while the toxic action and its results are still to be feared, forced elimination no longer offers the same prospect of success either as a measure of prevention or as a means of treatment. In the absence of a known chemical antidote we are compelled to depend empirically on drugs that meet the symptomatic indications. To these I shall refer later. At this point, however, mention may be made of a combination of sodium salicylate (10 grains) and sodium benzoate (20 grains) which, given in a pepsinated vehicle every hour or two until the full physiologic effect of the salicylate is manifest, as by *tinnitus aurium*, seems to supplement admirably the effect of the sweat-bath.

THE MECHANICAL OBSTRUCTION TO CIRCULATION IN THE LUNG.

In the early stage, interference with the pulmonary circulation has but slight influence on the heart, but,

as the lesions progress, and especially if large areas be involved, blood begins to accumulate in the right heart, which is not only weakened by the effect of the toxin, but also over-distended by an accumulation with which it can not deal. The left heart, weakened by the toxin, attempts to carry on the circulation against this double obstacle, but labors, and frequently fails. Vasomotor tone being diminished generally, the weakness of peripheral circulation embarrasses the cardiovascular system still further. Here the indication is direct to relieve the circulatory channels of the volume of liquid with which they are unable to deal; and venesection is strongly indicated or, perhaps, even an emergency puncture of the right heart might be justified. It is possible, however, in some degree to prevent this excessive accumulation of blood on the venous side of the body by measures which delay the general circulation and which increase the capacity and regulate the tone of the peripheral arteries, arterioles, capillaries and veins—as counter-irritation, vigorous friction with or without cold water, the use of a precordial ice coil, the use of digitalis, perhaps the use of veratrum, and certainly the use of nitroglycerin and amyl nitrite when vascular dilatation seems most desirable, or of barium chlorid, strychnin, adrenal preparations, atropin, digitalin, perhaps ergot, when it seems most necessary to heighten vascular tone.

THE EXCESSIVE TENDENCY TO COAGULATION OF THE BLOOD.

That the pneumotoxin so alters the chemical relations of the blood as to favor coagulative processes needs no demonstration at this time. I am aware that modern pathologists discard the old theories of death from antemortem clot, but admitting the alteration in the constitution of the blood and realizing the fact that the circulation in the pulmonary artery and its tributaries is obstructed, delayed, and in some places brought to a standstill, the mechano-biologic conditions are present for the formation of thrombi and the suddenness with which death sometimes occurs in patients whose other symptoms have given no intimation of the imminence of cardiac, vascular or respiratory failure, or of general exhaustion, seems to point to the actuality of such occurrences.

In rare cases, pulmonary thrombus, as verified by postmortem examination, has even occurred during apparent convalescence. Measures to maintain the fluidity of the blood are therefore wise. The disturbance in chlorid excretion seems to point to the wisdom of increasing the sodium chlorid content of the blood. Ammonium, too, is known to oppose the deposit of fibrin. In the absence of an efficient antitoxin the old empiric use of ammonium chlorid and ammonium carbonate and the modern use of saline infusion after the method of F. P. Henry, of Philadelphia, to whom credit for its introduction should always be given, seem to have their philosophic justification. Of their practical advantage I shall speak later.

SECONDARY CAUSES OF CARDIAC FAILURE.

The secondary causes of cardiac failure are so numerous that an attempt at systematic study of them and of their indications would be both prolonged and incomplete. It will suffice therefore to indicate briefly a few of the more prominent. When febrile heat rises to an excessive degree (106 F. or more) undoubtedly it aids in depressing the heart. Antipyretic measures, chiefly the application of external cold, are then indicated. I have already referred to the value of cold friction rubs

1. Since this paper was read I have seen a similar suggestion concerning digitalis, whose antipneumotoxic power is said to have been verified by test-tube experiments. The field is a promising one for investigation.

in stimulating peripheral circulation, but this use of cold water is independent of temperature. When the temperature is persistently low, on the other hand, it usually evidences deficient reactive power on the part of the individual, or what amounts to the same thing, from the other side of the shield, a profound and overwhelming toxemia. Eliminative and supporting measures are thus indicated, and among these may even be the external application of heat.

The effect of heat in relaxing the external circulation, and reflexly the pulmonary circulation, may even assist to diminish the effect of mechanical obstruction.

Distention of the abdomen, pressing on the diaphragm, often adds a straw, perhaps a determining one, to the load the heart has to carry. Loss of appetite, deficient digestion, absorption and assimilation—in other words, general want of nourishment—deprives the heart of potential energy. Deficient oxygenation of the blood acts in a similar manner and also perhaps impedes the destruction and elimination of toxins.

Such contributing causes are best met either by general measures or by symptomatic means directed to the removal of the special symptom or condition. Thus turpentine internally, in relieving tympanites, helps the heart. Inhalation of oxygen in maintaining the store of oxyhemoglobin and in relieving respiratory distress and in diminishing the toxemia, helps the heart. Strychnin, in calling forth a greater liberation of the stored energy of the system, compensates temporarily for the deprivation of the potential energy of food. Alcohol, readily oxidizable, may be an efficient substitute for food and thus help the heart, apart altogether from its disputed stimulant and antitoxic effects.

MEDICINAL TREATMENT.

Drugs may be employed with care and discretion to antagonize the results of the toxemia on the cardiovascular apparatus. We recognize two classes of remedies—those used to support the heart and vessels during the progress of the case, and those used in emergencies. Of the former, I have already mentioned digitalis, barium chlorid, strychnin and atropin. Digitalis, of which an efficient preparation must be obtained, may be given as soon as there are signs of hepatization; before this, it is counterindicated, as aconite or veratrum should be used. The dose, the frequency and the persistence of its use, will depend on the conditions present in the individual case. It has the advantage of raising peripheral vascular tone as well as of increasing the force and diminishing the rate of the heart. Often very large doses have to be given to obtain physiologic effect, a circumstance for which a chemical explanation may some time be forthcoming. The infusion, if it can be tolerated by the stomach, is usually the best form, for the sake of the diuretic effect. It can be strengthened by adding the tincture, if necessary. Four-hour intervals are usually appropriate. Barium chlorid (in doses of about $\frac{1}{2}$ grain every 4 or 6 hours) and atropin (1/200 grain every 2, 4 or 6 hours) are useful, more especially for effect on peripheral vessels. In the bronchopneumonia of children, the alternate use of atropin and digitalin hypodermically is often of signal service. Sometimes a combination of atropin and camphor in very small doses—1/2,000 grain of atropin and 1/8 grain camphor—may be given at short intervals (every half hour) with better effect than larger doses further apart. Strychnin is an extremely useful drug to maintain general neurocardiovascular strength, but is also extremely apt to be abused. It should be given alone when there is no special indica-

tion for any of the cardiac and vascular tonics mentioned, and usually should be continued in conjunction when the other drugs are indicated. Small, comparatively frequent doses are needed, the exact intervals depending on special conditions. For this reason the drug should never be put into a mixture, but is to be kept separate, and best in the form of tablet triturates or minute pellets. Sugar-coated and gelatin-coated stock-pills are to be avoided; their solution is too uncertain. The usual dose of strychnin arseniate is $\frac{1}{2}$ milligram (1/128 grain) every hour for ten hours daily. This produces a mild and continuous discharge of nervous energy and avoids violent and exhaustive discharges. For prompt emergency effect, hypodermatic injection is needed, and the dose may be from 1/40 to 1/10 grain (1.5 to 6 milligrams).

Usually, however, strychnin is not the best drug for use in an urgent case of collapse. When we desire to cause, as it were, a prompt artificial contraction in a heart no longer sustained by its natural functional stimulants, there are at our service three more potent agents—suprarenalin, camphor and musk.

Suprarenalin may be given on the tongue or injected in any convenient solution under the skin. Its effect is quick and transient. I have had made by my druggist suprarenalin triturates containing 1/20 grain active principle in a very small quantity of sugar of milk. These are preferable to solution for lingual administration. They dissolve quickly and do not fill the mouth with liquid. Such a tablet may be given every ten minutes, if needed; as a rule, one every one-half hour to two hours suffices. The drug likewise raises vascular tone—a great advantage. Camphor may be injected hypodermatically in a 10 per cent. solution in sterilized olive oil or in 10 per cent. solution in ether. Exact dosage is unnecessary, about a syringeful, say from 20 to 30 minims, can be used. The effect is prompt and usually lasts for some hours. The injection is to be repeated as needed.

Five or ten drops of tincture of musk given hypodermatically exert a powerful influence in overcoming the tendency to cardiac collapse, and the action of musk is even more sustained than that of camphor. Unfortunately much of what is sold in the shops for musk consists of the outer covering of the musk mixed with a great deal of dirt and is therapeutically inert. Real musk is expensive, but is therapeutically potent. One must see that his druggist has the real musk in stock and is prepared to dispense it on prescription, and one must provide himself with a small quantity of the tincture to be prepared for emergencies when the druggist cannot be reached.

In cases in which a cardiac collapse is suspected to be impending it is useful to administer five or ten drops of musk by the mouth two or three times a day in anticipation, and often in successful prevention of such an accident.

The camphor solution and the adrenalin should be at hand for use hypodermatically in any sudden emergency. Compound spirit of ether, in doses of 10 drops every ten minutes, and aromatic spirit of ammonia, in similar dosage, may be used, if at hand, in the absence of the more active agents previously mentioned. Ammonium carbonate is of little use in an emergency, but given with alcohol and liquor ammonii acetatis, after the emergency has passed, may help to avert its recurrence.

Such drugs should be used promptly. An intelligent

nurse being provided, she should be given liberty to employ them at once without waiting to call the physician and without delaying for his arrival. I sometimes think that perhaps cases of pneumonia have been saved by the fact that a resident physician in the hospital or an attending physician in a private house has inspected the patient frequently during the night and has been at call within a few yards of the bedside. The timely use of strychnin, atropin, camphor, amyl nitrite, sup-renalin, or musk, whichever may have been indicated by the conditions present, has enabled the machinery of the patient to continue working under artificial stimulation long enough for crisis to occur and to pass safely.

PRECORDIAL ICE COIL.

The precordial ice water coil is one of the most efficient agents that we have for direct and continued invigoration of the heart in all infectious fevers, and especially in pneumonia. Its efficiency, however, depends very much on the manner in which it is applied. In the first place, the application of a cold coil should always be preceded by a brief application of heat to the precordium. This may be done by applying a hot compress over the precordium and running a current of hot water through the overlying coil for two minutes, after which a cold compress is to be substituted and cold water run through the coil. The cold application is to be continued for from ten minutes to half an hour, according to the effect on the heart as shown by the pulse.

The action, as Winternitz observes, is practically that of digitalis without any of the unpleasant effects of the drug. I am not in the habit of applying cold to the chest as a routine measure in pneumonia, preferring, as already stated, the relaxing and pain-relieving effects of heat, but the application of the precordial ice coil twice daily for from 20 minutes to 30 minutes, does seem to have a steadying and strengthening influence on the heart that is well worth the trouble it causes.

When the precordial coil is not available, hot-water and ice-water compresses or hot-water and ice bags may be used instead.

I have frequently seen the pulse rate reduced by ten beats and strengthened proportionately from twenty minutes' application of cold to the precordium in this manner. The advantage of the coil over the ice bag is that it is less weighty and that it maintains a constant temperature.

Prolonged cold applications should not be used, however, in the late stages when the right heart begins to be overdistended. In such cases brief applications of heat followed by very brief applications of cold, say a hot compress for two minutes, followed by a cold compress for two minutes, are more useful.

Whenever and however used, the temperature and time of the cold application must be carefully regulated and changed according to necessity. No fixed temperature and no fixed time can be laid down. One accustomed to hyriatric applications can judge from the general condition of the patient about what prescription to give on these matters. But even he must work tentatively and observe carefully. More necessary is it for one who is beginning to make his experience to go cautiously. A tentative prescription may be somewhat as follows: Compress at 108 F., coil at 104 F. for two minutes; then, compress wrung out of ice water (32 F. to 40 F.) and coil of 60 F. for five minutes. If this is well borne, the temperature of the water running through the coil may then be reduced to 50 F. for five

minutes more, and if the effect as observed by the pulse is still good, the application may be continued for ten minutes longer. The second application may be made some six hours later and if the preceding application has had a good effect the temperature of this one may be 50 F. to begin with, or may be higher or lower according to what seem to be the necessities of the case. As a rule it is not wise to make a very cold application, that is to say 40 F. or less, for longer than fifteen minutes. An application of 50 F. may be continued for half an hour, or even for an hour in exceptional cases.

NITROGLYCERIN AND AMYL NITRITE.

These are drugs of the first importance in the prevention of heart failure in pneumonia. It is true that unless they are given in very large doses these drugs do not have any relaxing influence on the pulmonary circulation, but their influence on the peripheral circulation does unquestionably diminish the load on the heart, improve the contraction of the ventricle and lessen the tendency to pulmonary congestion. They raise pulmonary blood pressure favorably, therefore assisting both pulmonary and systemic circulation. Especially is their combination with digitalis of use. The attempt should be made to reduce radial tension as appreciated by the finger a little below normal, while at the same time bringing the rate of the pulse distinctly under the influence of the digitalis. In this way the best effect of each drug can be obtained, the work of the heart being lightened and the organ helped. An additional guide to the use of these agents is the effect on respiration and on the circulation in the skin. Reduction in the rate, increase in the ease of breathing and the change from cyanosis toward a normal color of the lips and cheeks are indications of the good effects of the remedies. It is, however, quite possible to abuse these drugs, first, by using them when there is no necessity for their use; second, by giving them in insufficient doses; third, by giving them in too great doses; fourth, by continuing their use beyond the point at which they are helpful. No exact rule can be laid down for this use and abuse. It is a matter of careful observation in the individual case; a question of art, not of science. When the pulse tension is already too low the nitrites are contraindicated. When the pulse tension remains too high, notwithstanding the free use of the nitrites, digitalis is contraindicated. So, too, dependence on digitalis or on the nitrites early or late when venesection is called for, is unwise and prejudicial to the patient. The effect therefore in the individual case and the changing circumstances of the case are to be our guides in administering, withholding or intermitting the use of these agents rather than maxims or theoretic considerations.

HEAT.

The external application of heat is a matter concerning which there has been considerable diversity of opinion. The vogue of the old-fashioned flaxseed poultice and its present desuetude are well known and I shall not discuss the subject in full. From the standpoint of the prevention of cardiac failure, however, I wish to urge strongly the use from the beginning of the case of the external application of heat, and I find a well-made poultice the best means of applying heat evenly and comfortably in such a manner that the application can be kept up with a minimum of disturbance to the patient.

If a cuirass of rubber tubing could be made which would fit snugly to the chest, which would not be heavy

or uncomfortable, and which could be fed with hot water at a definite temperature in such a manner as not to be disturbed by the movements of the patient, it would be preferable to the poultice. But the mechanical difficulties in the way of this measure are quite great. A well made and properly applied poultice will retain its heat for at least four hours and should not be uncleanly. My practice is to apply poultices during the day and to wrap the patient up in a lamb's wool jacket at night so that his sleep need not be broken by the expiration of the fourth hour period nor, on the other hand, a poultice that has lost its heat be suffered to remain in place.

When possible, hot-water bags are placed outside of the lamb's wool jacket in such a way as not to incommodate the patient. I believe that the use of heat in this way tends to equalize the circulation within the bony thorax as well as to relax the external vessels. Also there can be little question that pleuritic pain is relieved by heat more quickly and more certainly than by any other means.

IMPORTANCE OF REST.

In the effort to combat toxemia by elimination or by neutralization or to give relief to pulmonary circulation by any of the methods mentioned, we must not lose sight of the fact that rest is imperatively demanded and that unwise interference by the physician and unnecessary disturbance of the patient by the nurse will do harm by depriving the heart, and the organism in general, of the rest needed. In certain instances, indeed, the necessity will be presented to make choice between undisturbed rest and the problematic good that some measure of treatment may seem to offer. Unless there is a clear indication for the treatment, unless its effect is reasonably certain or unless the patient is in such danger that it is worth while to risk a clearly indicated, but uncertain measure, rather than to let certain death come unopposed, it is wise in all such instances to refrain from interference. One reason why the old-fashioned poultice fell into undeserved disrepute was the fact that poorly made poultices necessitated such frequent change that the evil wrought by the disturbance outweighed the good done by the poultice. Well-made poultices, retaining their heat from four to six hours, however, give so much relief from pain—thus acting as sedatives to the nervous system—that they may be classed among agents promoting rest. Sleep is necessary, and there is a tendency among some practitioners to give opium to relieve pain and to promote sleep. Opium, however, has always seemed to me a dangerous drug in pneumonia, being depressant to the respiratory centers and the heart and possessed of a deleterious influence on excretion, especially through the kidneys. Hence other means of inducing sleep must be sought. Among these the external application of heat by poultice or otherwise is again to be mentioned.

DANGERS OF ANTIPYRETIC AND HYPNOTIC DRUGS.

Ice caps to the head, ice to the nape of the neck, hot applications to the feet, cool and cold sponges, even cold sprinkling and tubbing; in extreme cases, nitrous oxid and oxygen by inhalation; in other words, agents that tend to relieve pain, equalize circulation, soothe the higher nervous centers, ease respiration and diminish toxemia, tend to promote sleep. In the presence of a sufficiently urgent indication, however, when all of these measures have failed and the loss of sleep is among the depressing and irritating influences that tend to exhaust the strength

of the patient and consequently to make heart failure more probable, full doses of bromids, preferably strontium bromid, may be given.

DANGERS OF ANTIPYRETIC AND HYPNOTIC DRUGS.

Such drugs as chloral, chloralamid, trional, sulphonal and *a fortiori* acetanilid, antipyrin and the proprietary abominations such as thermol, antikamnia and the like, are too depressing to the heart to be considered for a moment. Thermol is among the worst of these preparations, and in several cases which I have seen in consultation, and in which this poisonous agent had been used prior to consultation, I have observed a degree of cardiac irregularity and weakness which could not be attributed to the advanced stage of the disease and the profundity of the toxemia or to the mechanical interference with circulation. In some of these cases recovery has ensued on cessation of the thermol, others have died. Death is not unknown in cases of pneumonia in which thermol has not been given, and consequently I cannot say positively that in these instances it was caused by that compound, but I have every reason to believe that the patient's chances for recovery were greatly diminished by its use, and on account of the unwarrantable claims made for this proprietary agent and its rather extensive use in cases of pneumonia (in the neighborhood of Philadelphia at least). I have been impelled to utter this special warning against it. It certainly does no good, and as certainly does much harm—to the heart especially. I have little doubt that in a case wavering between life and death the use of some depressing coal tar product, needless as an analgesic or as an antipyretic, may directly determine the fatal issue. It is also to be remarked that in many cases of pneumonia in which the heart is found to give trouble from the outset, or in which irregularity and feebleness of its action supervene unexpectedly without apparently sufficient cause, inquiry will elicit the fact that the patient has been in the habit of taking trional, sulphonal, acetanilid and other hypnotic and analgesic synthetics for the production of sleep or for the relief of headache. I have little doubt that many of the cases of death from heart failure in pneumonia within recent years, and thus a large part of the increased mortality of this disease, are to be attributed to the self-drugging habit, or, in other words, to the abuse of hypnotics and headache powders.

I wish I could feel sure that the skirts of physicians are entirely clear of blame in this matter. I have frequently had occasion to warn patients who have acquired this habit before coming under my care of the danger involved, and in some instances I have found that patients had begun taking these sleeping and pain-relieving powders either through the original recommendation of a physician or by the advice of a friend or of a friend's friend for whom they had been prescribed. We cannot, of course, be held responsible directly for this indiscriminate prescribing, but we certainly should warn all persons for whom we have occasion to order such drugs that they are dangerous agents, to be used only under medical advice. It is necessary on our own part to be careful not to prescribe them needlessly and not to permit them to be continued for any length of time.

DANGERS OF CHANGE OF POSTURE.

Rest is necessary not only during the period of active disease, but also, and especially, during the earlier period of convalescence. It not infrequently happens that the patient who has safely passed the crisis of pneumonia

and seems on the way toward full recovery, has suddenly collapsed, dying immediately or after some hours of struggle as the apparent result of the mere effort of sitting up in bed. Patients should not be allowed to lift or turn themselves for examination, feeding, evacuations, sponging or any purpose whatsoever. They should be told and trained to remain passive while all necessary changes of posture are gently made by the attendants; even then there should be no unnecessary changes nor any lifting out of the horizontal for any purpose at any time until recovery is thoroughly established. In very many cases this extreme degree of caution is unnecessary. In a few cases it may be the means of saving life. As we have no means of discriminating between the cases in which it is unnecessary and the cases in which it is imperative, until the accident occurs, it would seem the wiser plan to avoid such accidents by considering the caution absolutely necessary in every case.

NURSING SCHEDULE.

In order to prevent even the best of nurses from disturbing the patient too frequently for food, medicine, external application or other purpose, it is often necessary for the physician to write out a detailed schedule with explicit directions as to the time of giving water, medicine, food and oxygen, and of performing the other nursing duties. The more complicated the treatment the more difficult will it be to arrange such a schedule and still give the patient sufficient time for rest. The wisdom, therefore, of simple treatment is evident from this standpoint at least. On the other hand, there should be no hesitation in doing whatever is necessary at any time, the important point being to be sure that the thing done is necessary and then to be prompt with it. This applies especially to the inhalation of oxygen and the use of saline infusion and to the administration of the emergency cardiants. Concerning these, it is to be said that "readiness is all." They may never be needed in the course of the case, but they should always be at hand to avoid the least delay in their administration when necessary.

FOOD.

The diet is an important element in maintaining the nutrition and in keeping up the strength of the heart. In this paper it is not necessary to go into that subject in detail; it is sufficient to say that the food should be such as may be absorbed readily with the least possible demand on the energy of the system for digestion, while producing the least possible amount of toxin necessary to be guarded against by the liver. It should be given in small amounts, at not too frequent intervals. As the patient's sleep should never be disturbed for medicine so it should never be disturbed for food.

Milk, pancreatized, and given to the adult in intervals of about four ounces every three hours while awake, is all-sufficient when the patient can be induced to take it in that way. Alcohol may be added to it in the beginning of the disease and should be added about the fourth day if it has not been used earlier. Koumyss (kefir), junket, buttermilk and other milk preparations, when more agreeable or better borne than pancreatized milk, may be substituted for it. If the patient can be induced to take the milk hot it may suffice to mix equal parts of milk and hot water with or without the addition of lime water. Sometimes a little essence of pepsin given after the milk has been swallowed is useful. But it is unnecessary to elaborate

the subject further. The diet, while sufficient, must not be burdensome.

GENERAL OBSERVATIONS.

The evacuations must be carefully watched and maintained at a little beyond the normal rate. To avoid straining at stool as well as to avoid all danger of constipation, with attendant intoxication or liberation of putrefactive gases and intestinal distention, it is well to begin the treatment of every case with the administration of calomel and to wash out the bowel daily with hot saline solution when this can be done without disturbing the patient, as is usually the case when the nurse is skillful. Sometimes the administration of calomel or a mild saline laxative, or of some vegetable laxative, such as cascara, throughout the case or on occasion, is useful. When tympanites occurs notwithstanding due care of the intestinal evacuations, consequent pressure on the diaphragm increases the load thrown on the heart and thus adds to the factors which are tending toward heart failure. In such circumstances the administration of intestinal disinfectants such as guaiacol, spirit of chloroform, ichthoform, ammonium formaldehyd, acetozone, etc., may be useful. I have seen the greatest benefit, however, from the use of turpentine, or when turpentine fails, the injection into the rectum of milk of asafetida. Hot compresses or a hot coil over the abdomen, or turpentine stupes over the abdomen are sometimes useful.

Elimination of urine must be promoted by the administration of a sufficient quantity of water, given at such periods and in such quantities as will not unduly disturb the patient. Saline injection into the colon may be used when from any reason it is impossible to administer a sufficient quantity of water by the mouth, and it is not considered wise to resort to hypodermoclysis. Indeed, I have often thought that it might be wise to do this as a routine measure, watching the effect on the elimination of chlorids by the urine and endeavoring to restore the normal quantity. The effect of calcium chlorid in stimulating the cardiac muscle suggests the employment of this drug, but, on the other hand, its tendency to increase fibrinogenesis is a contraindication, and for that reason there at least can be no objection to its omission from saline mixtures given under the skin or in the colon.

I have not made a sufficient study of the chlorid elimination and of the attendant toxicity of the urine to dogmatize on this point, but it seems to me deserving of serious study both pathologically and therapeutically. In this connection it may be well to recur once more to the great value of cutaneous stimulation by systematic friction, which may be pleasantly done with alcohol and cold water. This measure has been urged, not as a means of antipyresis, although it does tend to prevent dangerous hyperpyrexia, but as a means of equalizing circulation. A further usefulness remains to be pointed out—nerve stimulation and increase of elimination of toxins both by the skin and by the kidneys. It, therefore, has a deservedly high place among the means of prevention and treatment of heart failure.

The Physician's Greatest Problem.—Patients will take medicine when they will not take advice, and too often it is advice they need and not medicine. The physician whose force and character make his advice sought after and followed is the one who accomplishes the most. He can not ignore drugs, but his success depends on the extent to which he can dominate his patients and correct the omissions, errors and excesses of their lives.—*Vermont Medical Monthly.*

SERUM TREATMENT OF PNEUMONIA.*

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PHILADELPHIA.

The most rational treatment of pneumonia is that which aims to neutralize the pneumotoxins in the circulation. By the side of this object of treatment, efforts to influence the local inflammatory process are subordinate in point of practical importance. It is now universally recognized that the continuous high death rate in this disease is dependent on the toxemia, and that the cardiac exhaustion is to a greater extent due to the same cause than mechanical embarrassment. Recognizing the fact that the principal danger arises from the general pneumococcal infection, the great desirability of finding successful means of combating this source of danger must be obvious.

The effect of antipneumococcal sera, according to the reports of those who have had experience of their use, seems to manifest considerable variety both as to character and extent. A somewhat extended series of observations by a large number of careful clinical observers are now on record, as may be seen by an analysis of the subjoined table.

One point is clear at the outset, namely, that the serum treatment has not, as a rule, been employed alone, but in conjunction with other expectant and symptomatic treatment and the usual supportive measures. Indeed, some observers have used the serum in cases of pneumonia without the slightest success, while others have obtained encouraging results. Unfortunately, too much stress has been laid on individual instances in which the serum treatment appeared to be influential in bringing about recovery. It is reasonably certain that we have no conclusive evidence to the effect that the serum exercises a specific influence in this disease, as will be shown hereafter.

METHOD OF PREPARATION AND STANDARDIZATION.

We are sadly in need of further laboratory experiments with a view to furnishing a more effective product than has been available until the present. The accurate standardization of the anti-pneumococcal serum is a question that awaits final solution. The method of preparing the serum is of great practical importance in order to obtain its best action in this disease. Both Washburn¹ and McFarland² state that practically the same process applies to the manufacture of the antipneumococcal serum as that of diphtheria antitoxin, although, according to the last-named author, it is necessary to cultivate the pneumococcus by a special method.

All investigators have thus far failed to produce a serum that produces antitoxic properties, although it is claimed by some (Lambert, Washburn, Pane et al) that antipneumococcus sera have anti-infectious qualities and may prevent death from pneumococcus septicemia. Thus Lambert's serum (prepared from horses) would invariably protect any rabbit when 1 c.c. was mixed with .001 c.c. of culture and injected subcutaneously. "But, if the pneumococci were already in the blood in sufficiently large numbers to be proven by cultures, even large doses of the serum given for several consecutive days would

not save the animal. It would prolong life, but not save it." W. H. Welch³ affirms that the present stage of progress does not hold out any hope of a protective antitoxin owing to the low vitality of the pneumococcus in artificial inoculation, and, further, that there is absolutely nothing that can be termed specific in the disease. Tyler⁴ has given a detailed statement respecting the leading methods of preparation, to which the reader may be referred for further information.

CONTRADICTIONARY RESULTS OF THE SERUM TREATMENT AND THEIR CAUSES.

Croupous pneumonia is not an uncomplicated affection, in many instances at least. The disease is often to be classed as a mixed infection with the streptococcus. Obviously, in cases of mixed infection with the streptococcus or other micro-organisms, less favorable results are obtained than in simple pneumococcus infection. McFarland and Lincoln⁵ state that in about 15 per cent. of cases of pneumonia the pneumococcus is present in combination with the influenza bacillus, streptococcus, staphylococcus, colon bacillus, etc., and in an additional 10 per cent. of the cases various bacteria other than the pneumococcus. Moreover, still other specific organisms than the pneumococcus may give rise to clinical lobar pneumonia, hence it is necessary to prove the specificity of any given case by bacteriologic studies before accurate results from any form of serum treatment can be obtained.

As a prime preliminary requisite, then, a rigid bacteriologic classification and differentiation of the cases it is proposed to treat, must be attempted, so that the clinicians may eliminate from consideration cases that are clinically identical with the disease, but show some infecting microbe other than the pneumococcus, and this diagnostic precaution would also render the reports on the antipneumococcus serum treatment more trustworthy. One thing is certain, it would be found that the serum is not indicated in all cases in which a clinical diagnosis of pneumonia is possible.

EFFECTS OF THE SERUM ON THE SYMPTOMS AND COURSE OF PNEUMONIA.

An analysis of the effects of the antipneumococcus serum on the symptoms and course of the disease brings to light certain contrasting results and points worthy of record. Most authors who have reported personal experience of the use of serum in the treatment of this disease, invite attention to a slight fall of temperature following the administration as the most constant, although oftentimes slight, effect. In the minority of instances a slight rise of temperature occurred. Individual observers, however, report variable, and even diametrically opposed results. Thus Cooke,⁶ who treated two cases of acute lobar pneumonia with antipneumococcus serum, states that the serum injections were generally followed by some degree of subjective improvement, though no marked effect, either on the temperature or physical condition of the lung, was observed.

Park,⁷ speaking from personal observations, together with a review of the literature, remarks that, as a rule, the cases did better than was expected, "but certainly no striking curative effects were apparent. The cases did

2. Alexander Lambert, THE JOURNAL A. M. A., vol. xxxiv. 1900. p. 901.

3. THE JOURNAL A. M. A., April 23, 1904.

4. THE JOURNAL A. M. A., June 1, 1901, vol. xxxvi, p. 1540.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

5. THE JOURNAL A. M. A., Dec. 16, 1899, vol. xxxiii, pp. 1334-35.

6. British Med. Jour., 1897, p. 1297.

7. Bacteriology in Medicine and Surgery. p. 515.

1. Cited by Tyler, THE JOURNAL A. M. A., June 1, 1901, p. 1541.

develop pneumococcus blood infection, and it seems probable that the serum may be a preventive of general infection, even though it may fail to influence the local process." Snively⁸ says: "Our own experience with the serum has impressed us favorably. It certainly lowers temperature, relieves pain, ameliorates symptoms, shortens the attack by hastening crisis, brightens the patient, and starts him earlier and more surely on the road to recovery."

A careful review of the reports of those authors who first employed the serum reveals the fact that the doses administered were too small, in view of later experience, to prove of practical utility, and I shall therefore pass over the earlier writers. In recent years, as before stated, a manifest tendency to massive doses at frequent intervals has been observed. Furthermore, the only promising results furnished by the literature have been obtained from the latter mode of administration.

J. C. Wilson and H. F. Page,⁹ as a result of its use in a series of 18 cases, state that the effect on the temperature and respiration was not marked. Defervescence occurred by crisis or by rapid lysis, the average day of normal temperature being the tenth. They conclude that these clinical studies have not been satisfactory, and "it has been determined to abandon for the present the treatment of pneumonia by the antistreptococcal serum in the wards of the German Hospital." Writes Lambert:¹⁰ "The pneumonia serum at present does not seem to shorten the duration of the disease, nor cut short the pneumonic processes in the lungs, nor bring about the desired 'crisis.' But it does seem, in certain cases, to prevent a general pneumococcus septicemia, and thus in these cases it may save life." This observer continues: "I have not persisted in the use of the serum because I could not see that it shortened the duration of the disease nor held in check the pneumonic processes within the lungs. In one or two patients I honestly believe it did marked good; in others it was useless."

The last-named authority refers to favorable results reported by Italian physicians, who found that Pane's turkey serum produced a lowering of the temperature, improvement in the pulse and a diminished death rate, as compared with the results of any other known method of treatment. Per contra, the disease, as a rule, ran the usual course of six to ten days. Those Italian clinicians who expressed contrary opinions seem to have done so on theoretical grounds or have employed it in minute doses. Goldsborough¹¹ confidently affirms that the serum possesses a curative effect if administered early and in large doses. He adds: "I should feel culpable to a great degree had I a case of pneumonia and failed to use the serum."

My own experience of the use of antipneumococcus serum is limited to six cases. In not a single instance did the results justify its employment. The principal effect consisted of a slight primary reduction of temperature, although invariably a rise to the former degree of elevation occurred. A premature crisis was not observed in any case, but, as stated above, a notable delay occurred in two instances. The essence of my personal experience is to the effect that, judged by its merits, the serum treatment, as at present conducted, is undeserving of popular favor.

EFFECT OF THE SERUM ON THE CRISIS.

It may be stated that favorable terminations with

crisis often occur, but there is no evidence of any specific effect in hastening a true crisis. Certain writers have adduced the claim that when the serum is employed early the pneumonic process may be aborted; in other words, that a premature crisis may be brought about at the end of twelve or twenty-four hours instead of the usual period in the course of the disease. In two of my own cases in which the antipneumococcal serum was administered, the crisis was greatly delayed; it occurred on the fourteenth and sixteenth days respectively. Lara¹² has used both rabbit and dog serum in ten cases of pneumonia and affirms that the crisis occurred on the third to the fifth day in all. Lambert employed his own serum in twelve cases of pneumonia; it did not cause a crisis in any case nor seem to cut short the pneumonic process.

If the serum possessed a truly specific action it would tend to bring about a crisis by successfully combating the toxemia and pneumonic septicemia. It is to be recalled, however, that pneumonia is not uniformly due to the same organism, hence no form of antipneumococcal serum could be expected to produce a specific, therapeutic effect (i. e., induce an artificial crisis) in all cases.

It may be reasonably claimed that an efficient antitoxin would induce a rapid fall of temperature or premature crisis. In this way the course of the disease would be greatly abridged and convalescence less protracted owing to the short duration of the illness. Unfortunately, as previously stated, the sum total of human experience with this agent contradicts any noticeable influence on the crisis.

NECESSITY FOR A MORE UNIFORM MODE OF ADMINISTRATION OF THE SERUM.

It is to be regretted that the profession has not adopted a standard mode of administration with a view to obtaining uniformity of results. Since the antipneumococcus serum is employed to neutralize the pneumotoxin, the question of dosage must be one of first importance. The great majority of authors emphasize the fact that massive doses should be administered at the earliest possible moment and repeated at intervals of about eight hours. Says Washburn:¹³ "I would suggest that the injections be made twice a day until the patient is convalescent, and it is important to commence the treatment as early in the disease as possible." Snively found that the action of the serum is favorable, especially in early cases, and markedly so where there is not mixed infection and where a freshly-drawn serum is available, and where it is used in sufficiently large doses. McFarland¹⁴ confirms the same view. He states: "We found that small doses of the serum did but comparatively little good; it should be administered ad libitum until a large total amount of serum is given."

Tyler administered the serum in 20 c.c. doses every six hours in six cases. It was given to pneumonia patients regardless of the general condition of the patient or the stage of the disease. The administration of antipneumococcal serum to pneumonia patients that might be considered hopelessly ill, or at an advanced stage, is not to be encouraged and advised. We may expect *a priori* the serum to yield the best results when administered early or before a pneumococcal septicemia is developed. The best results have also followed the exhibition of large quantities of newly-made serum. Rosen-

8. Proceedings of the Philadelphia County Medical Society, vol. xxii, No. 3, p. 154.

9. Therapeutic Monthly, July, 1901.

10. THE JOURNAL A. M. A., vol. xxxiv, 1900, p. 902.

11. THE JOURNAL A. M. A., June 28, 1902.

12. Lambert, Alex.: THE JOURNAL A. M. A., vol. xxxiv, 1900, p. 903.

13. British Med. Jour., 1897, p. 512.

14. *Ibid.*, 1900, p. 600.

Cases treated by	No. cases treated.	No. of recoveries.	No. of deaths.	Per cent. of deaths.
Kiemperer, G.	20	6	..	..
Ibid.	20	20	..	..
Neisser	3	3	..	..
Fox	1	1	..	..
Hughes, W. E.	1	1	..	..
Audeoud, H.	3	1	..	..
Janson, C.	10	9	1	10.0
Lava, G.	10	10	..	..
Washburn and others.	6	6	..	..
Spurrell	1	..	1	100.0
Cooke, A.	2	2	..	..
Hartnett	1	1	..	..
Weishecker	21	21	..	..
Clinici	14	12	..	..
Pane, N., and De Renzi.	23	21	2	8.6
Maragliano	5	..	..	?
Capua	1	1	..	..
Monda	3	3	..	..
Ferrara	1	1	..	..
Rossi, G.	1	..	1	100.0
Pecoraro	1	1	..	..
Fazio, F.	1	1	..	..
De Renzi	1	1	..	..
Nasclimbene	1	1	..	..
Sciancone	5	5	..	..
Carus and Stagnitta	2	2	..	..
Muzzorelli	1	1	..	..
Bondi	23	16	2	13.6
Massalong and Franchini	10	?	?	?
Marone, A.	1	1	..	..
Croce, S.	1	1	..	..
Cantieri, A.	17	15	2	11.8
Bruchl, C.	1	1	..	..
Bargellini	1	1	..	..
Pacchiotti, F.	1	1	..	..
Aiello, S.	4	4	..	..
Recupito	1	1	..	..
Margotta, C.	1	..	1	100.0
Capri, G.	1	1	..	..
Dagnini and Silvani.	6	..	6	100.0
Gagnini and Silvani.	8	1	7	87.5
Dagnini and Silvani.	10	13	2	13.2
Banti and Pieraccini.	21	15	6	28.5
Tomasini, S.	5	5	0	0
Gamba	2	?	?	?
D'Ambrosio	1	1	..	..
Ettari	1	1	..	..
Papi	1	1	..	..
Sacchitelli	1	1	..	..
Vincenzi	3	2	1	33.3
Belfiore	1	1	..	..
Spolverini, L. M.	11	8	3	27.3
Spolverini, L. M.	9	9	..	..
Spolverini, L. M.	7	6	1	14.3
Silva	5	3	2	40.0
Rodini, T.	2	2	..	..
Lambert	12	9	3	25.0
Bozzolo	5	4	1	20.0
Rosoni, A.	18	17	1	5.5
Elfstrom, C. E.	14	11	3	21.4
Rosenthal, E.	2	2	..	..
Canby, Everhart Frey.	4	4	..	..
Wilson, J. C.	18	14	4	22.2
Kelly, A. O. J.	1	1	?	?
Rocheater	1	?	?	?
Tyler	6	5	1	16.7
Holmes	1	..	1	100.0
Sweeney, E. A.	1	1	..	..
Sears, G. G.	12	8	4	33.3
Elchberg	6	5	1	16.7
Talamon, Ch.	50	43	7	14.0
Raynaud, L.	1	1
Landrieux and Legros.	10	8	2	20.0

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 American Med., Philadelphia, 1902, iii, 690.
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Summary (including 61 cases treated with the antiphtheria serum):
 Total recoveries 377
 Total deaths 70

Total cases 447
 Percentage of deaths 15.7

From a review of the literature and personal experience, I have added to the above list of Goldsborough, the following 88 cases:

Cases treated by	No. cases treated.	No. of recoveries.	No. of deaths.	Per cent. of deaths.
Wilson and Rosenthal.	1	1	..	..
Wilson and Page.	18	12	6	33.3
Snively	6	5	1	16.6
Little	1	1	..	..
Rosenthal	0	0	?	?
Jones	14	13	1	7.1
Bosley	1	1	..	..
Bunte	1	2	..	..
Smith	2	1	..	..
Goldsborough	9	7	2	22.2
Crandall	3	2	1	33.3
Vandeboncoeur	17	17
Anders J. M.	6	5	1	16.7

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TOTAL RECOVERIES 73
 TOTAL DEATHS 15

TOTAL CASES 88
 PERCENTAGE OF DEATHS 17.0

In summarizing the cases tabulated by Goldsborough and the figures given in my own table, the following results are obtained:
 Total recoveries 450
 Total deaths 85

TOTAL CASES 535
 PERCENTAGE OF DEATHS 15.9

SUMMARY.

thal¹² has pertinently pointed out that none of the foreign antipneumococcal serums or antistreptococcal serums are reliable, since they must lose their efficacy before reaching practitioners in this country. Fortunately, the antipneumococcal serum is perfectly harmless and does not prevent the simultaneous use of other methods of treatment. Injections should be made into the subcutaneous tissue and strict aseptic precautions should be observed.

CONCLUSIONS.

1. A sufficiently extensive trial of the antipneumococcal sera has been made to determine with a reasonable degree of accuracy their efficiency, and the results, as a whole, fail to carry conviction.

2. An efficient serum, or one that will cut short the pneumonic process, is yet to be produced, although according to some clinicians, the sera available at present have a restricted field of usefulness.

3. Recent observers have employed the serum in massive doses from the commencement of the disease without gratifying results.

4. The practical results of the use of antipneumococcal serum, as shown by the very slight reduction in the mortality percentage, does not warrant its general introduction.

5. The sera thus far found possess no antitoxic qualities, and their supposed anti-infectious properties have not been proven.

6. Further investigations into the subject with a view to discovering an efficacious serum are to be strongly advised and encouraged.

DISCUSSION

ON PAPERS BY DRs. DOCK, SOLIS-COHEN AND ANDERS.

DR. F. R. WEBER, Milwaukee, Wis.—In considering the subject of pneumonia we are apt to conceive of it as a toxemia. It has been referred to as a complex disease, a proteinemia and toxemia. In order to study this disease we must approach it from the point of view of experimental physiology. Observers, especially French, have taught us that the pneumococcus has among its products some which have an especial effect on the arterial circulation. These products, which the French call ectosins, produce a paralysis of the vasomotor nerves. This paralysis is the first thing which we notice in going into the sick-room. There is a peculiar pallor and loss of turgescence of the face; the abdominal viscera appear to be turgid, and we have all the symptoms of vasomotor dilatation. This has nothing whatever to do with the condition of the heart muscle. When the heart muscle is affected we have disturbance of rhythm of the pulse, dyspnea, and the symptoms of beginning myocarditis. In our treatment we should observe particularly this effect of the products of the pneumococcus on the arterial circulation. One can also study the effect of the application of the ice-bag. If the experiment be made with the moist chamber, under proper conditions of heat, the heart of a dog can be kept heating for an hour or more. Defibrinated blood can be passed through the heart, and various medicaments may be added to it and their effects studied. We see that when the ice-bag is used the amount of blood passed into the veins is increased from 30 to 40 per cent. The application of the ice-bag, therefore, increases the work of the heart. The effects of strophanthus, digitalis, barium chlorid and other agents can also be studied. Thus it has been found that digitalis has some effect on the heart muscle, but more on the vasomotors. It also contracts the coronary artery and thus reduces the amount of blood going to the heart itself. We should not, therefore, apply the ice-bag to act on the heart muscle when digitalis is given. Barium chlorid is always reliable; according to German investigators, if three or four

doses a day are used dilatation of the heart muscle and vessels is prevented; it does not interfere with digitalis, and one can keep up the action of digitalis by combining it with barium chlorid.

DR. T. POTTER, Indianapolis—We gain our clue to the study of pneumonia by the study of the crisis, that most remarkable event in its clinical history. The more we study the crisis of pneumonia the more we become impressed with the significance of the toxemia. Aside from any complication that may appear there are three things that stand in the foreground, the embarrassment of the respiration, the mechanical strain on the heart and the evidences of toxemia. The more we study the crisis the less we are impressed with the importance of the mechanical strain on the heart. When a patient has one or two lobes filled with exudation, so long as he keeps quiet he is in no special danger from embarrassment of respiration; but how about the mechanical strain of the heart? Do we not see in cases with large pleural effusion the lung contracted, and yet the heart does not suffer greatly from strain? Even where the effusion accumulates rapidly, if these people keep quiet there is little danger; it is very rare for such people to die of heart failure. Then again we have the treatment of tuberculosis by injecting nitrogen into the pleural cavity, where one lung is quickly made useless for the time, and yet these patients do not die of heart failure. There must be some other cause of heart failure than the mechanical disturbance. At night we leave the patient suffering with dyspnea, with laboring heart, in a condition of great danger hovering between life and death. In the morning we find him apparently convalescent, all the symptoms relieved, but the condition of the lung is about the same. Something has happened in the night that has relieved the strain on the heart, but it is not a change in the mechanical condition. The more we study the crisis of this disease the more we are convinced that we have to deal with a toxemia, and in our therapeutics we want an agent to counteract it. While I realize that the fight we have is a fight for the heart and approve of means for sustaining the circulation, yet what is wanted is an antitoxin for pneumonia that will do what diphtheria antitoxin has done for that disease; and the phenomena of the crisis show what may be expected from such an immunizing agent.

DR. H. C. WOOD, JR., Philadelphia—We might as well confess the truth even though it is unpleasant. The death rate from pneumonia is the same to-day that it was fifty years ago. While the death rate from typhoid fever and other acute diseases is falling off that of pneumonia is the same. I know that Dr. Cohen will say that we are not dealing with statistics but with individuals, but statistics deal with individual cases, and our statistics would be better if our results were. The truth of this is shown by the very bedlam of therapeutics: Veratrum viride, acouite, digitalis, quinin, creosote; in fact, nearly every drug in the Pharmacopoeia has been used in pneumonia. Dr. Anders has just told us that the serum treatment is of very little use in pneumonia. Symptomatic treatment is all we have to fall back on, keeping in mind the toxemia and the strain on the heart. Now, the drug that will carry the patient through the trouble is something which will keep up the power of the right side of the heart. Unfortunately, we know very little of the action of drugs on the right side of the heart. We do know, however, that the great cardiac stimulant, digitalis, does not affect the right side of the heart as it does affect the left side of the heart. I am pleased to know that Dr. Cohen's clinical experience confirms the truth of my laboratory experience. The drug that I have found to have the greatest effect on the right side of the heart is nitroglycerin.

DR. DAVID S. FENK, Harrisburg, Pa.—Dr. Wood spoke of the search for drugs to sustain the right heart in pneumonia. As we all know, there are cases in which the onslaught of the disease is so sudden and terrific that the right heart seems to be overwhelmed because of the resulting obstruction to the pulmonary circulation. This is evidenced by a full bounding pulse, and cold extremities with cyanosis of the lips and face. My experience inclines me to believe that the physician, when

confronted with this condition, is not doing his whole duty unless he practices venesection. I am sure I have seen lives saved by having had recourse to this measure—taking about sixteen ounces of blood from the arm.

DR. W. R. WHITE, Providence, R. I.—I would feel exceedingly gratified if some of the teachers present would refer to that terrible form of acute pneumonia in which the most marked symptom is a type of delirium which is active, violent and apparently beyond control. In almost all the cases that I have seen of this type the end was fatal. It was practically acute mania. The underlying symptoms do not seem to be severe; the pulse is good, the pulmonary signs are not very marked, but the chief symptom is this mania. The patient seems to be overwhelmed by the nervous struggle. What is to be done for these cases?

DR. J. O. STRANAHAN, Rome, N. Y.—We have just heard that the primary effect of the toxins in pneumonia is a paralysis of the vasomotor nerves. One drug that has been useful in my hands in overcoming this effect is ergot, which I use freely in this disease. It should be used in full doses, enough to overcome this vasomotor paralysis. I give two drams of aqueous solution hypodermically every two hours. It keeps up the tension of the pulse. There is always a low tension pulse in pneumonia. My experience is that if you keep this up you do not have dilatation of the right heart. Ergot is the best means of overcoming the delirium which Dr. White has mentioned. I recall a case that had a temperature of 106.3, and the whole lower lobe was consolidated and part of the upper lobe. I gave him two drams of ergot in watery solution. This was given every two hours for forty-eight hours. He showed improvement from the first dose and became more quiet, although he had been highly delirious. His crisis came a little early, on the seventh day, and he recovered. I have had several experiences of this kind illustrating the value of ergot in acute pneumonia. It has proved very efficacious in my hands, and I wish to recommend it.

DR. O. T. OSBORNE, New Haven, Conn.—In New Haven, as in Chicago, we have studied the distribution of the disease in all parts of the city, and have found that pneumonia follows congestion of population. As regards climate, it is more prevalent when there is dust in the air; we found that there is no pneumonia so long as there is snow on the ground. When we take a map of the city showing the distribution of pneumonia and compare it with a similar map of tuberculosis, we observe that they both observe the same law of following the points of congestion of the population.

DR. GEORGE DOCK—I was very glad that Dr. Weber brought out so clearly the vasomotor conditions of the disease, for, although we all speak of it as a condition of heart failure, it is generally admitted that it is not so much heart failure as vasomotor failure that we have to deal with. From that point of view ergot is useful. And from that point of view strychnia also receives support. In regard to the delirium, of course I realize that these cases are extremely serious. Some of these cases have meningeal symptoms, and the pneumonia may be secondary. Many are relieved by the ice-bag to the thorax. They are very good subjects for cold bathing; they may be put in the bath at a temperature of 70 or 65. In older persons the bath can begin at 85 or 90 and be reduced by five degrees each subsequent bath. If one only watches these patients and sees how they are improved, he will have more confidence in the treatment and courage to carry it out.

DR. S. SOLIS-COHEN—The questions of therapeutics in pneumonia can not be settled by any statistics now at our command, because these statistics do not make the distinctions that have to be made. Young persons and old persons, the robust and the weak, drunkards and abstainers, cases of terminal infection in various diseases, pneumococcus and other kinds of general and local infection are lumped together as pneumonia in statistics, and results in cases so varied, thus aggregated, can not be made the basis of any rational therapy. Moreover, the stages of the morbid processes at which treatment of any given order is instituted are not set forth in the

tables. I would welcome a trustworthy antitoxin, but we have none such as yet. We are reduced at present to symptomatic treatment, and because individual cases vary so, we can not observe fixed rules. One patient needs alcohol, another aconite, another digitalis, another venesection, another external heat, another cold bathing, another cold sprinkling. Cold sprinkling will often overcome the delirium in the class of cases inquired about by Dr. White. We get much less objection from the patient and his friends to sprinkling with ice water than to the bath. It should be a very brief application, from three to five minutes, accompanied with brisk friction, and used for effect on nervous symptoms without regard to febrile temperature. In other cases of the kind venesection and saline infusion may bring about marked relief.

DR. O. T. OSBORNE, New Haven, Conn.—It is possible that many reported deaths from pneumonia are not really caused by pneumonia. Since insurance companies are so strict, it may be that a great many deaths from tuberculosis are reported as from pneumonia.

LATENT AND AMBULATORY PLAGUE.

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Assisted by

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MANILA, P. I.

From the Government Biological Laboratory, Manila, P. I.

On Aug. 21, 1903, Mr. Henry A. Blake,¹ Governor of Hongkong, addressed a communication to the Secretary of State for the Colonies, entitled "Bubonic Plague in Hongkong; Memorandum by His Excellency the Governor, on the Result of the Treatment of Patients in Their Own Houses and in Local Hospitals During the Epidemic of 1903." The writer of the memorandum makes some very startling assertions as to the danger of the spread of plague by animals of the most varied kinds and also comes to the amazing conclusion that there existed in Hongkong during the period of time intervening between June 23 and July 10, 1903, between 8,000 and 9,000 or more cases among the native population, in which plague bacilli existed in the circulating blood in spite of the absence of all clinical symptoms of the disease. The Governor calls this condition "latent plague" and considers it a potent factor in the spread of the disease and a factor which can not, of course, be reached by the ordinary methods employed to limit the spread of and possibly to suppress plague.

Fully to understand the assertions of the Governor of Hongkong it will be well to quote a few paragraphs from his memorandum, which read as follows:

We have from Professor Simpson's report evidence that pigs, calves, sheep, monkeys, geese, ducks, turkeys, hens, pigeons and rats are susceptible to plague, which may be contracted by food or by inoculation direct, or by means of suctorial insects. To this list the examination mentioned above adds bugs, spiders, flies and cockroaches. I may add that quails kept in the market for sale were also found to be infected. In paragraph 22, page 100, Professor Simpson points out that domestic animals suffer from chronic plague and surmises that this is probably one of the bridges by which the interval of the attacks in man is connected. I have for a considerable time been of the opinion that man himself is subject to chronic plague, which may either pass away after a considerable time, or continue dormant over the winter months, regaining activity with the annual movement of spring, when the curve of the epi-

1. Henry A. Blake: Bubonic Plague in Hongkong. Memorandum by His Excellency the Governor on the result of the treatment of patients in their own houses and in local hospitals during the epidemic of 1903. Hongkong. Printed by Noronha & Co., government printers. 1903.

demic is almost constant. This opinion was strengthened by the fact that in August, 1899, the body of a Chinese lift-man at Queen's buildings, who was accidentally killed when attempting to enter the lift while in motion, was found to contain plague bacilli. A similar result followed the examination of a man who, on March 4, 1901, was killed at Tal Koo sugar works by a bag of sugar falling on his head from a height of 20 feet; while on April 2, 1903, in the body of a chief steward of a ship lying in dock, found floating with a large wound on the head, were also found plague bacilli. Early in June several men from H. M. S. *Ocean* were sent to the Naval Hospital, suffering from pneumonia; on examination of their blood seven were found to be suffering from mild cases of plague. In like manner two officers of the Sherwood Foresters who developed feverish symptoms were, on having their blood examined, found to be similarly affected. In the *Boletín Oficial* of Macao, containing the report of the plague epidemic, 1895, Dr. Gomes de Silva, the medical officer who published the report in 1895, stated that during the height of the epidemic he had discovered plague bacilli in his own excreta.

Sec. 21. In June 1 directed Inspector Gidley to obtain as many specimens of blood as possible, on slides secured from the government bacteriologist. He obtained 110 specimens from men, women and children taken at random. These slides were sent to Dr. Hunter for examination, who reported that in five slides he found plague bacilli, and in seven "bacilli were present in considerable numbers, some of which showed bipolar staining. They were not sufficiently distinctive, however, to be regarded as *Bacillus pestis*." These slides were obtained between June 23 and July 10. Since they were obtained there were but three cases of plague in the district, from none of which a specimen of blood was taken.

Sec. 22. I am not unmindful of the fact that these reports were the result of microscopic examination only. But the examination was the same as that on which a great many of the cases treated in the Kennedy Town Hospital were sent to that institution, where their cases ran the usual course of plague invasion.

Sec. 23. Now, putting aside the seven doubtful slides, it will be seen that of those people examined at random 4.54 per cent. were found to be infected with plague, though to all appearances perfectly healthy. If we exclude all the well-to-do, and take the working coolie population alone, they probably number 180,000, and, assuming the same average amount of infection, there are among that class alone 8,172 persons at present infected in Hongkong. If even a quarter of that average be accepted for the 105,000 inhabitants of the superior class, the number of infected will be increased to 9,634. In appendix G will be found the number of rats examined in each month of the present year, with the proportion of infected rats. I am afraid that the incidents mentioned in paragraph 5 weaken deductions as regards Hongkong. But from whatever source the rats were procured the proportion of infection in June was 9 per cent., or 4.46 per cent. more than the percentage of the slides examined; or, if doubtful cases mentioned by Dr. Hunt be included, 1 per cent. less, while in January the proportion falls to .8 per cent. This being so, with the complete circle of vermin, insects, food, rats, domestic animals and man all infected in possibly similar, possibly different, proportion, it appears to me unsound to concentrate attention on the rat as the principal means of bridging over the dormant season.

It appears that Governor Blake, after writing the above, felt the great danger of coming forward with so sweeping an assertion, and in the introduction to his memorandum he himself makes an appeal for a more thorough scientific investigation of the hypothesis of the existence of latent or dormant plague among the natives of countries where this disease is endemic. He says:

My hypothesis in paragraph 23 may not bear the light of scientific investigation, as the hypothesis of a layman may not carry much weight, but I venture to submit that it is worthy of scientific inquiry, for, while a timely glass of water may prevent a great conflagration, and plague at its first intro-

duction may be stamped out by immediate segregation and thorough disinfection, its endemicity once established this is no longer practicable, and if the hypothesis of dormant or chronic plague in man be ultimately proved to be correct it is difficult to see how quarantine for even ten days can prevent its annual recurrence, or how any practicable examination of departing passengers can prevent its export from the plague center and possible dissemination elsewhere, if suitable conditions for its propagation be present. What the remedy, or what the necessary precaution, I leave it for scientific men to determine, but if my hypothesis results in a wider radius of investigation the experiment will not have been useless.

THE RESULT OF BLOOD EXAMINATIONS IN CASES OF PLAGUE.

It is, of course, obvious to anyone versed in this kind of examinations that a diagnosis of plague can not be made by a microscopic examination of the blood. Such an examination may possibly be resorted to in urgent situations, when a rapid clinical diagnosis is desired, but to base on such a microscopic examination far-reaching deductions is certainly not permissible. What is necessary in order to determine beyond doubt the presence of plague bacilli in the circulating blood is the examination of the latter by cultural methods. We have undertaken a series of such examinations in order to determine whether or not there exists such a thing as latent or dormant plague, as suggested by the Governor of Hongkong. Before giving the details of these experiments it will be well to take a survey of the work that has been done with reference to the presence of plague bacilli in the blood in undoubted cases of this disease.

The German Plague Commission,² in its report, says that it made blood examinations in the case of 141 plague patients, including 17 convalescents, who were in the period of convalescence varying between the seventh and the twenty-fifth day after the disease. These examinations were made in the following manner: A drop of blood was obtained from the finger, with the usual aseptic precautions, and inoculated into agar tubes, while at the same time a cover-glass preparation was made. It was found that in a number of cases where the cultural method furnished positive results, the mere microscopic examination failed to demonstrate the presence of the plague bacilli. In 10 cases the bacilli were encountered only once, while in the case of 33 other patients sick with the plague they were repeatedly found in the blood. Of 81 patients, the examinations of whose blood were always negative, 52 recovered and 29 died. Of 10 cases in which there was a positive result only once, the other examinations being negative, eight died and two recovered. It is interesting to note that in one case the bacilli could be detected two and three days before death, while twelve hours before the crisis and at the postmortem examination it was impossible to find them. Seventeen cases of convalescent patients invariably failed to show any bacilli in the circulating blood.

Zobolotny,³ in his researches on plague, says that the bacilli are found in large numbers in the blood of animals sick with the disease, but that in the case of human beings the bacteria are much less abundant and sometimes can not be found at all.

Musehold,⁴ quoting the work of Albrecht and Gohn, reports that the latter examined 122 cases of undoubted plague. In 55 the bacilli were found by the culture

2. Bericht der deutschen Pest Commission: Gaffky, Pfeiffer, Sticker and Dieudonne. Arbeiten aus dem Kaiserlichen Gesundheitsamte, vol. xvi, 1899, p. 265.

3. Zobolotny: Recherches sur la peste. Archives des Sciences Biologiques, St. Petersburg, 1901, vol. viii, p. 81.

4. Musehold: Die Pest, Berlin, 1901, pp. 150-178.

method in the circulating blood during life. Four of these 55 cases recovered, in two of them the bacilli being present in large numbers in the circulating blood. In the case of 51 patients who died the bacilli were found in considerable numbers in the blood on the day of death as well as on the previous day.

Cairns⁵ studied the blood of patients during an epidemic of plague occurring in Glasgow in 1900. He gives the results of the examinations made *inter vitam* on cases which subsequently terminated fatally. Four of these cases may be cited in connection with our investigation. In three of them juice drawn from the buboes developed pure cultures of *Bacillus pestis*. Only in one of the four fatal cases was it possible during life to obtain cultures of the bacilli from the blood. The other three cases gave negative results. In one of these seven daily consecutive examinations were made, as well as one shortly before death, all of them proving negative.

Calvert⁶ studied two epidemics of plague in Manila in 1900 and 1901. He found that the clinical examination of the blood for *Bacillus pestis* gave unreliable results, it being impossible to place any weight on the negative findings. He made his examinations by taking the blood at intervals of four hours from the ears of the patients, examining it in smears as well as by the cultural method. This plan was followed until the death or recovery of the patient. Thirty-six cases, four of which recovered, were examined in this manner. Most of the cases were followed to autopsy, when the plague organism was demonstrated by culture and even by animal inoculation.

This author gives the following table of positive findings of the bacilli in the blood:

	Per Cent.
24 hours before death in 51 cases.....	100
48 hours before death in 7 cases.....	82
72 hours before death in 5 cases.....	16.12
96 hours before death in 2 cases.....	6.45
120 hours before death in 1 case.....	3.22

On looking over the table it appears that the plague bacilli could be found in all fatal cases twenty-four hours before death, but that forty-eight hours before death the percentage of positive findings was much smaller. In searching for the bacillus in the blood of plague patients who finally succumb to the disease the chances of finding the microbe five days before the fatal termination are only one out of thirty. All of this shows that even in fatal cases the plague bacilli are not found at an early date in the peripheral blood.

Jennings⁷ says that it is extremely rare to find the plague bacillus in the blood in large numbers except immediately before death. Their absence, therefore, in the early stages of an attack is frequent, and must not be regarded as a negative diagnosis of the plague.

Terni,⁸ who studied the plague in Rio de Janeiro, in an excellent article on the disease, makes the following statement:

"The examination of the blood is by no means reliable. It is astonishing that Galeotti places any value in blood examinations in the diagnosis of early plague."

Terni found that in many cases diagnosed as plague septicemia, examinations of the blood, both microscopic and by culture method, were negative. This was true even at the postmortem examination, because the bacilli were exclusively localized in the lymph channels. Even in the most profound cases, in individuals particularly

predisposed to the disease, the bacilli were found in the blood in only moderate numbers. Their presence could never be compared with what we find to be true in connection with other septicemic microbes, such as anthrax or diplococci. Only in exceptional cases do we find a multiplication of the plague bacilli in the circulating blood during the agonal stage.

One of us has been studying for some time the morbid anatomy and histo-pathology of a number of cases of plague. These studies appear fully to confirm the statement of Terni to the effect that plague, as a rule, is not to be looked on as a true septicemia, but, on the contrary, as an infection, particularly confined to the lymphatic system. Even in cases where sections from the lymph glands contain innumerable bacilli, the lumina of the blood vessels are generally free from such microbes. In fact, in the study of sections from all of the internal organs, when plague bacilli are seen, they are always found in the lymph channels or lymph spaces and not in the blood vessels.

Powell⁹ has recently reported the result of 3,400 blood examinations of febrile diseases in Bombay. Most of these cases were malaria, but 117 were plague. In only 15 of the latter were the bacilli easily seen in blood smears. With reference to the finding of the bacilli in the blood in cases of plague, the author says: "As regards the recognition of the plague bacilli in the finger blood, for some years I was very skeptical about the reports of certain medical men, and until within the past 18 months had been unable to detect the bacilli except on cultures. At the beginning of this year there was a particular type of septicemic plague, in which the bacilli were found in every case. Such patients, in my experience, always died. One seemed to be convalescent and had a normal temperature for three days, but suddenly died. Plague bacilli were found 11 days before death.

In looking over these statements (all that we can find in the literature at our disposal), one is certainly impressed with the fact that the finding of plague bacilli in confirmed cases of the disease, except very shortly before death, or in the rarer cases of plague septicemia, is the exception and not the rule. Indeed, we should be mindful of the fact that plague, as a rule, is not a true septicemic, but a bacterial infection localized in the lymphatic system. It is, therefore, from a purely theoretical standpoint, highly improbable that there should exist a dormant, latent clinical form of the disease, in which patients harbor the bacilli in the circulating blood.

Our investigations to determine whether such is the case or not were made on a number of native Filipinos and Chinese of this city. We attempted to get material which, if latent plague exists at all, would give us some evidence to this effect. We selected natives from houses in which plague cases had occurred, and examined a number of inmates of Bilibid prison, particularly such as were under the most unfavorable hygienic conditions, namely, insane prisoners, and prisoners of the third class, who were most crowded in their quarters. Since we could not always get natives of this description, we selected also a number who were not under particularly unfavorable hygienic conditions, such as native police officers and native members of the constabulary.

While plague has never at any time been as widespread here as it has been in Hongkong, we have had a sufficient number of cases to make it clear that the disease is endemic, though fortunately not markedly so.

5. Cairns: On the Agglutinating Property of Blood Serum in Cases of Plague. London Lancet, 1901, June 22, p. 1746.

6. Calvert: Plague Bacilli in the Blood. Centralb. f. Bakteriologie. I Abth. Originale, vol. xxxiii, No. 4, p. 247.

7. Jennings: Manual of Plague. London, 1903, p. 112.

8. Terni: Studien ueber die Pest. Zetschrift f. Hygiene u. Infektionskrankheiten, 1905, vol. xlv, p. 151.

9. Powell: The Blood Examination in 3,400 Cases of Febrile Diseases in Bombay. Indian Medical Gazette, Calcutta, February, 1904, vol. xxxix, No. 2, p. 41.

PREVALENCE OF THE PLAGUE IN MANILA FROM 1900 TO 1904.

According to the *Monthly Sanitary Reports* of the Board of Health, plague has prevailed in Manila since 1900 to the following extent:

1900.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of	
				Cases.	Deaths.
January	3	15	0	18	11
February	36	12	0	48	35
March	52	12	0	64	48
April	43	11	0	54	44
May	13	7	2	22	15
June	14	5	0	19	11
July	5	8	0	13	7
August	8	9	1	18	11
September	6	0	0	6	9
October	5	2	0	7	5
November	1	0	0	1	0
December	0	1	0	1	0
Total	186	82	3	271	199

1901.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of	
				Cases.	Deaths.
January	4	3	0	7	5
February	15	11	1	27	20
March	49	14	0	63	51
April	73	38	0	111	91
May	97	40	0	137	124
June	24	20	1	55	54
July	18	20	1	39	35
August	12	16	1	29	26
September	7	4	0	11	12
October	0	0	0	0	0
November	0	0	0	0	0
December	1	4	1	6	6
Total	300	180	5	485	427

1902.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of	
				Cases.	Deaths.
January	0	0	0	0	0
February	1	0	0	1	1
March	0	1	0	1	1
April	0	0	0	0	0
May	0	0	0	0	0
June	1	0	0	1	0
July	0	0	0	0	0
August	1	0	0	1	1
September	1	0	0	1	2
October	0	2	0	2	2
November	1	0	0	1	1
December	0	2	0	2	2
Total	5	5	0	10	10

1903.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of	
				Cases.	Deaths.
January	0	0	0	0	1
February	7	10	0	17	15
March	18	15	0	33	33
April	35	15	2	52	49
May	16	9	0	25	27
June	9	23	0	32	25
July	5	11	0	14	9
August	10	1	0	11	9
September	3	1	0	4	4
October	0	0	0	3	2
November	0	2	0	2	2
December	0	2	0	2	2
Totals	104	90	4	198	174

1904.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of	
				Cases.	Deaths.
January	4	6	0	10	7
February	0	6	1	7	6
March	3	12	0	15	14
April	8	7	0	15	15
May	9	8	0	17	16
Total for five months	24	39	1	64	58

SUMMARY.

Cases of plague reported in 1900.....271, of which 199 were fatal
 Cases of plague reported in 1901.....485, of which 427 were fatal
 Cases of plague reported in 1902.....10, of which 10 were fatal
 Cases of plague reported in 1903.....198, of which 174 were fatal
 Cases of plague reported in 1904.....64, of which 58 were fatal
 *January 1 to May 31.

It appears from these statistics that plague has been endemic in Manila during the last few years, though never attaining dangerous epidemic proportions. In 1902 the disease had almost completely died out, and during four of the months of this year not a single case came under observation. Since August, 1902, however, until the time of writing the present report, there has not been a month entirely free from plague, though the

figures have generally been low, the maximum during this period being reached in April, 1903, when 52 cases of the disease were reported.

The object in giving these figures in connection with our report is to show that plague has been sufficiently prevalent here for several years so that blood examinations should furnish evidence of latent plague, provided that such a form of the disease exists at all.

The figures of plague morbidity for Hongkong^o during the same years are as follows:

In 1900.....	1,086 cases
In 1901.....	1,637 cases
In 1902.....	540 cases
In 1903.....	1,135 cases

BLOOD EXAMINATIONS OF 245 APPARENTLY HEALTHY NATIVE FILIPINOS AND CHINESE.

The method employed to ascertain whether apparently healthy Filipinos or Chinese of Manila have any plague bacilli in their blood was as follows:

The bend of the elbow, generally of the left arm, was very thoroughly cleansed, first with strong alcohol and then with a strong solution of mercury bichlorid, and finally with alcohol or sterile distilled water. A rubber bandage was then placed around the arm above the elbow, and 1 c.c. of blood was drawn from one of the veins by the aid of a sterile hypodermic syringe. The blood so obtained was added to 50 c.c. of bouillon in a flask. The bouillon used was prepared as usual, and when neutral to litmus, .5 g. of bicarbonate of soda was added to each 1,000 c.c. of the bouillon, making it slightly but decidedly alkaline. The bouillon thus prepared forms a very excellent culture medium for plague bacilli. As a control experiment, in some of the cases twice the amount of blood was drawn from the vein, and the 2 or 3 c.c. so obtained was distributed in two flasks. One of the flasks was then immediately inoculated with a very small amount of material from a young plague culture. This was, of course, done to see whether plague bacilli, if present, would develop in the bouillon in the presence of a small amount of freshly drawn blood. It may be said that the control flasks always developed a typical plague growth. So there was evidently nothing in the arrangement of the experiment to prevent development of the plague bacilli, if present. The culture flasks to which blood had been added were kept either in a dark chest at room temperature or in a brood oven which was fairly constant at 25 C. The media were inspected daily and when a growth had developed it was examined in stained preparations and by culture on agar.

The native Filipinos whose blood was examined included 32 laborers from the Serum Institute and the morgue. The native servants of the latter, where all the plague postmortem examinations are made, are, of course, particularly exposed to infection, and would be especially prone to show latent plague, provided that such a condition exists. These 32 cases were kindly examined for us by Dr. E. H. Ruediger, bacteriologist in the Serum Institute, whose technic differed from the method generally used, only in that he employed a 5 per cent. carbolic acid solution to sterilize the elbow. Dr. Ruediger also examined all his 32 flasks by staining and by cultural methods, whether they showed any change in appearance or not.

The blood examinations in all of the 245 cases were made between March 4 and May 20, 1904, i. e., during a period in which from 35 to 40 cases of plague were reported in Manila.

The following is a summary of the blood examinations made:

On March 4 there were examined five native Filipinos from a house in Santa Cruz, in which an ambulatory case of plague terminating in embolism of the pulmonary artery had occurred. Ten native Filipino police officers were examined on April 6 and 7. Nine of these men lived in infected districts, i. e., districts in which cases of plague had recently occurred; one lived in a non-infected district. Ninety native Filipinos, members of the Philippine constabulary, were examined on April 13 to 30. These men live in barracks, but are often free to visit their families and friends. Thirty-two native Filipinos, laborers at the Serum Institute and the morgue, were examined during the first week of May. In the former place the various vaccines and sera, including plague vaccine and serum, are prepared, and in the latter are performed all the necropsies on plague cases. Fifty-eight native Filipinos, prisoners in Bilibid prison, were examined on May 12 and 13. There are confined in this place about 4,500 men. Last year a number of the inmates died from pneumonic plague. This year no case of plague has occurred there, although one of the prisoners died of pulmonary plague four days after his discharge. Of these 58 men, 16 were insane prisoners, all in advanced stages of mental disease, and the remainder were the so-called third class prisoners, who lived under the most unfavorable conditions to be found in the prison.

On May 16 to 20 there were examined 50 Chinese, small shop-keepers, clerks and coolies, either from houses in which plague cases (in one instance, two such cases) had occurred or from houses adjoining them.

RESULTS OF THE EXAMINATION.

Most of the flasks to which 1 c.c. of blood had been added remained sterile, although a few developed a growth, which, however, was clearly a contamination from the air, such as common molds or similar forms of life. One of the cases examined by Dr. Ruediger developed *Staphylococcus pyogenes aureus*; and those of two other natives examined developed a bacillus which, when examined in a stained cover-glass preparation, might possibly be mistaken for *Bacillus pestis*. One of these organisms, however, in culture looked very different from the bacillus of plague, and also kept Gram's stain. This bacillus developed in a flask to which had been added blood from one of the insane prisoners. The other growth occurred in a flask containing blood from a member of the constabulary. This organism greatly resembled the plague bacillus; but it kept Gram's stain, and when rubbed in large amounts on the shaved abdomen of a guinea-pig failed to produce any disease. In short, not in a single instance out of 245 examinations made on persons of whom a large percentage had certainly been greatly exposed to plague infection did we find a trace of evidence of the existence of plague bacilli in the blood.

From these investigations it may be safely concluded that a condition of latent or dormant plague does not exist in Manila, and there is scarcely any reasonable doubt that it does not exist in Hongkong. There certainly has not been furnished the slightest proof, of such a character as to stand the searchlight of exact methods of bacterial investigation, to indicate that there is such a thing as latent human plague, with the presence of plague bacilli in the circulating blood in the absence of clinical symptoms of the disease.

Why the Governor of Hongkong should have recourse to the untenable hypothesis of the existence of dormant

or latent plague, in order thereby to explain the failure to stamp out the pest in that city, is not at all obvious. Mr. Blake himself, in his memorandum, clearly sets forth some of the circumstances which unite to make it practically impossible completely to eradicate the disease in Victoria City.

In Hongkong it is the custom of the Chinese—if they can possibly do so—to throw human corpses, dead from plague, into the street, in order that they may not be found in the houses and thereby subject the inmates to quarantine, disinfection, etc. In spite of measures to prevent this procedure, the number of corpses dead from plague and so disposed of, has during the ten years preceding 1898 increased from 25.1 per cent. to 32.7 per cent.

The Chinese in Hongkong, according to the Governor's memorandum, offer passive resistance to the catching of rats in their house, being afraid that plague bacilli might be found in the rodents, as this would lead to measures of disinfection or to the requirement of repairs in the houses. The Chinese rat-catchers are said to be dishonest; they fail properly to label the rats, so that infected houses escape detection, and they import rats from the outside of Hongkong and label them at random. In general, they are very unreliable in their work and are actuated solely by the desire to secure from anywhere the largest number of rats in order to obtain the premium for them.

"To those who know how Chinese houses are constructed," says the Memorandum in paragraph 6, "it will be apparent that effective fumigation is practically unattainable; while even if the spraying process, scrubbing and disinfection of clothing reached externally everything in the room, it would not kill the vermin lying deep in the joints and cracks of the tables, chairs and settees or beds. Nor would it reach the vermin with which the heads of the poorer classes of coolies are infected. But apart from this, what took place in many cases when a case of plague was detected was that before the constable could arrive to take charge of the house goods liable to injury by disinfection were removed by the door, or if too late for this were taken on to the roof, always easily accessible, and deposited in some neighboring house."

In W. J. Simpson's report¹¹ "On the Causes and Continuance of the Plague in Hongkong, Etc.," which is quoted in the memorandum of the Governor, we find the following statements as to the sanitary condition in Chinese quarters in the city of Victoria:

When a case of plague has once occurred in a house there is a great tendency in subsequent years for the same house, or that adjoining, or that on the opposite side, or that close by, to be attacked with plague. When plotted out on a map, the distribution of plague appears to be closely connected with previous infection of the house or of a defined locality, the infection having been retained in an unrecognized form in the interval. The houses which suffer principally are, speaking generally, the most insanitary and the oldest. It has already been mentioned how closely packed the buildings are in the older portions of the town, narrow streets and high houses being the leading features, by which the admission of sunlight and fresh air is considerably obstructed. Narrow streets and high houses, however, are not peculiar to Hongkong; they are to be found in other towns, with their injurious effects on health; but in Hongkong there is, moreover, in the Chinese quarters a defect in the construction of houses which intensifies the obstruction of light. The rooms are long and narrow, with a window at

11. Simpson: Reports on the causes and continuance of plague in Hongkong and suggestions as to remedial measures. London: Waterlow & Sons, Limited, 1903.

each end, the front window looking into a wide and covered veranda, and the back window into a small open space at the back, which forms a sort of wall between the two houses. The lower floors of many of the houses are remarkable for their darkness, and this in a region not far from the tropics; they are also frequently damp.

Since the epidemic of 1894 many of the lower floors of the worst kind have been changed into store rooms to contain the goods and merchandise for which Hongkong is an *entrepôt*. These store rooms as a rule are infested with rats, which at times find their way up to the rooms on the higher floors. The basements are generally rat-infested, both floors and walls, and as the walls are often hollow it is easy for rats to reach the upper floors. The admission of sunlight into the dwelling rooms of Chinese tenement houses is still further obstructed by the subdivision into several cubicles or compartments, sometimes numbering up to six, which every room is subjected to. Each cabin is let out to a separate tenant, and not infrequently accommodates a separate family. These compartments or cubicles are windowless and are often so dark that it is impossible for anyone, coming directly from the light outside and opening the door of the cubicle, to see at once whether it is occupied or not. Some attempts have been made to improve this state of things by limiting the height of the subdividing walls to six feet. The condition which obtained before this improvement was made is somewhat difficult to realize, for what I am describing is that which now exists. Fresh air and sunlight never get into the cubicle, except, perhaps, the compartment at each end of the room opposite the window. The subdivision of a single room into a number of rooms called cubicles is an ingenious device for crowding together a large number of people into a small space and securing a correspondingly large rental, but it is an arrangement which engenders disease and favors its spread. There is no doubt whatever that every such windowless cubicle is unfit for human habitation and should not be permitted.

Probably another cause for the continuance of the plague, besides the insanitary condition of the houses referred to, is the very inadequate number of latrines and urinals with which Hongkong is provided. The number of public latrines appears to be 29, belonging to the government, and 17 to private owners. The total number of seats is 1,202. Most of them have urinals attached, and in addition there are three small public urinals in the town. Seeing that all the men and boys go to the public latrines, and there are no sanitary appliances in the houses except earthen pots, which are used exclusively by women and children, the total inadequacy of the latrine accommodation provided is obvious. It is not one seat to 100 of the male population. On the Kowloon side of the colony the latrine and urinal accommodation is still more deficient. Large blocks of houses have been built, and not a single latrine or urinal provided by the builder of the block. It is impossible under these conditions that the ground should escape being sewage polluted. . . . The existing latrines are far from being models of what they should be. They are, in fact, insanitary in structure and deficient in light and ventilation.

Quite recently Surgeon-General Evatt, P. M. Q. H. M.'s Troops, Hongkong, has been quoted by the daily papers in an interview in which he speaks in the strongest terms of the insanitary conditions, which he holds responsible for the continued prevalence of plague in Hongkong. He calls Victoria City the plague-distributing center of the world, a standing menace to the human race. So we have the most convincing evidence, both official and unofficial, as to the vicious sanitary conditions in Hongkong. They furnish the soil in which plague thrives, from which it can not be completely eradicated, and from which it breaks forth again and again in menacing epidemic form. There is not the least necessity for assuming the existence of dormant or latent plague, as the Governor of Hongkong has done on evidence most incompetent and irrelevant.

A CASE OF AMBULATORY PLAGUE TERMINATING IN EMBOLISM OF THE PULMONARY ARTERY.

While the investigation reported above shows clearly and beyond question that latent or dormant plague in the sense in which the Governor of Hongkong used the term does not exist, it has been known for many years that occasionally cases of ambulatory plague occur. Such cases, which may be free from any marked elevation of temperature and which may be compared to ambulatory typhus, had already been reported before the plague bacillus was found, as, for instance, by Griesinger, Liebermeister, Montague, Lubbock and others.⁴ Manson,¹² Scheube¹³ and others have called attention to the fact that these cases of ambulatory plague are liable to collapse, and that fatal termination may occur very suddenly. However, it must not be supposed that examples of this type are latent in the strict sense of the word, because postmortem examination shows changes which existed *inter vitam*, but escaped detection in the absence of urgent subjective symptoms.

A case illustrating these points came to postmortem examination on Feb. 27, 1904. The history and findings, which are somewhat complicated by a simultaneous, evi-

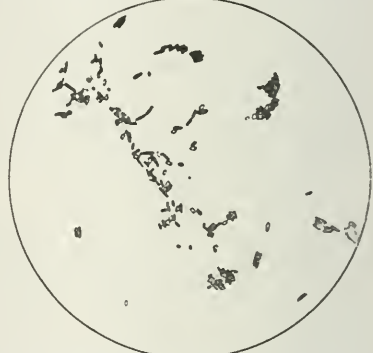


Fig. 1.—Cover-glass preparation from a two days' agar culture of plague inoculated from the liver and showing typical plague bacilli with polar staining and rounded ends, as well as early involution forms. Zeiss apochr. obj. 1/12; comp. occ. No. 6; length of bel-lows, 40 cm.

dently very recent, tuberculous infection, were as follows:

CASE.—The death of a Filipino lad, 17 years old, was reported to the Santa Cruz Board of Health Station, Manila, P. I., on Feb. 27, 1904, at 11 o'clock a. m. The body was found in a dimly lighted loft in the corner of a lower unparved room adjoining a soda water factory. On examination nothing worthy of note was found, except enlargement of the glands in the inguinal region and Scarpa's triangle on both sides, as well as a chronic skin infection of both legs. The position of the body had been changed since death.

History.—The boy had been employed about the place for general purposes for from four to five months and during that time had appeared to be in good health, except that for some weeks previous to his death his face was rather pale and he did not sleep well. He spent the evening of February 26 playing in the street with other boys until 11 o'clock, when he went to bed. About 12 o'clock he awoke, complaining of pain in the chest and difficulty in breathing. His condition soon became alarming, and a physician was sent for, who, however, was unable to do anything for him. At 2 o'clock he died.

12. Manson: Tropical Diseases, London, 1903, p. 249.

13. Scheube: Die Krankheiten der warmen Laender, Jena, 1903, p. 28.

The postmortem examination was made at the San Lazaro morgue on Saturday, Feb. 27, 1904, at 3 o'clock p. m., with the following results:

Autopsy.—The body of a Filipino boy, about 17 to 18 years of age and well developed. Postmortem rigidity was well marked. Postmortem lividity was prominent on dependent parts and extended over the sides of the trunk and neck, as well as over the anterior surface of the latter. A greenish-brown, foamy, ill-smelling fluid oozed from the anterior nares. The anterior surface of the lower extremities, from the ankles upward to about midway between the knees and Poupart's ligaments, were covered with a vesiculo-pustular eruption. The lowermost portion of this eruption consisted of shallow ulcerations covered with brownish, bloody scabs. The skin lesions higher up on the thigh were still purely vesicular, and the collapsed vesicles were covered with dry epidermal scales. The chain of lymph nodes below Poupart's ligaments on both sides was swollen, the most marked swelling being found in the lower glands on each side. The swollen region felt soft and doughy. No fluctuation, however, was noticeable. On incision of the skin the superficial veins discharged a rather small amount of dark fluid blood.

The pericardium was found to be smooth and normal. The visceral layer of this organ showed dilated and congested veins. On the posterior surface over the left auriculoventricular zone

lowish fluid. The upper lobes were dark grayish-pink in color and contained a considerable amount of air. The lower lobes, particularly the posterior surface of the right, were dark purplish-blue in color and contained very little air. On section the lower lobes were found to be quite edematous and filled with a very dark, purplish fluid blood, which oozed out freely from the larger and smaller vessels. The bronchi contained a small amount of foamy, grayish-white fluid. Their mucous membranes were injected and rather bright red in color. The trachea and the larynx likewise showed a swollen, injected mucosa.

The spleen was large and bluish-pink in color. Its capsule was smooth and shining. The cut surface was dark purplish-brown. The trabeculae and the Malpighian corpuscles were distinct. The pulp was fairly firm in consistency.

The kidneys were rather small, and their surface smooth and of a dark grayish-pink color. The capsules peeled off easily, and the denuded surface then showed the small vessels to be very much injected. They stood out plainly on a grayish-yellow background. On section the vasa recta and the glomeruli appeared quite strongly injected and intensely scarlet. The tubules were quite markedly yellowish-gray, the surface on the

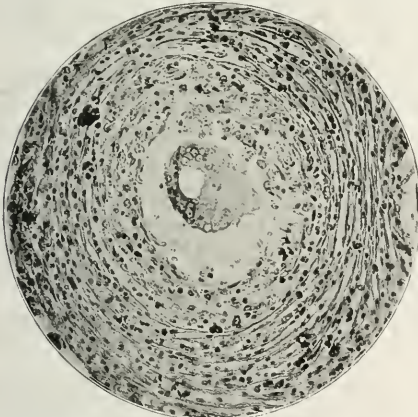


Fig. 2.—Section showing tubercle in the lung, with a giant cell in the center of the field. Zeiss obj. D. D., occ. No. 4.

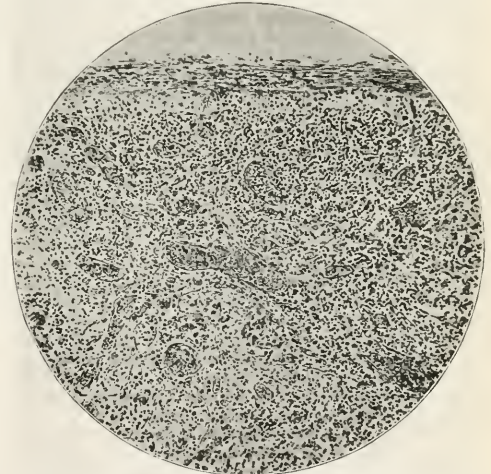


Fig. 3.—Section showing congested vessels in the inguinal lymph node. Zeiss obj. A. A., comp. occ. No. 6.

there were seen from two to three dozen hemorrhagic areas, varying in size from a pinhead to a millet-seed. Otherwise the visceral pericardium appeared normal. The myocardium was fairly firm and somewhat pale. The left ventricle was contracted and the right dilated. The latter contained a rather firm, though somewhat gelatinous, reddish-gray coagulum, which did not completely fill the ventricular cavity. The coagulum was continued into the pulmonary artery, which it filled completely. It was here firmer in consistency and decidedly more grayish in color. These changes from the consistency and color of the clot in the heart became greater the farther the distance from the entrance of the pulmonary artery to the interior of the ventricle. The thrombus extended into the main branches of the pulmonary artery; from there it could be followed into the lower, secondary branch of the right side, and was then lost in the highly congested lower lobe of the right lung. A distinctly hardened, infarcted area could not be found. The blood in the left ventricle and auricle was fluid and of a dark purple color.

The lungs were found to be quite firmly adherent to the parietal pleura. The lower lobe of the right lung was particularly firmly adherent to the diaphragm. The partly obliterated pleural sacs contained a small amount of slightly turbid, yellowish

whole being rather dull. The pyramids were purplish. The mucous membrane of the pelvis was smooth and somewhat congested.

Liver: The capsule was smooth, shining, transparent and pinkish-gray in color. Some areas were decidedly mottled. The cut surface showed the center of the lobules to be grayish-white. The lobules were rather distinct in outline. The surface as a whole was dull. The veins contained much dark fluid blood. The gall bladder contained some turbid, greenish-yellow bile. The mucous membrane was smooth. There were no stones. The ducts were normal.

The stomach and intestines appeared fairly normal. The suprarenals and the pancreas were normal.

The inguinal glands on both sides were enlarged, swollen, soft and rather dark bluish-pink in color. On section they showed injected vessels which stood out prominently on a grayish-yellow background. The substance of the glands was soft. No abscess formation had occurred. An abundant turbid, grayish-white fluid could be scraped from the cut surface. The lower glands of the chains on each side were the largest, showing quite markedly a central softening. There was, however, no abscess formation. These glands were about equal in size and measured 4.8x3.7x1.7 cm.

The mesenteric, the cervical and the other glands examined were all moderately enlarged and more or less congested. Marked congestion existed in the bronchial glands.

Smears were made during the postmortem examination from the liver, spleen and the glands. In the smears from the spleen and the glands only a very small number of bacilli were found. They were more numerous in the smears from the liver. Some of the bacilli found in the latter were quite typical in appearance, showing polar staining and rounded ends. Other bacilli were swollen and somewhat irregular, and approached in type the involution forms seen on artificial media. Still others were small and looked decidedly like diplococci. Others formed small chains, the individual members of which appeared to be in a state of partial dissolution. The culture tubes inoculated from the organs developed typical plague bacilli.

Histologic Findings.—Pieces of tissue were fixed in Zenker's solution and subsequently sectioned and stained with various dyes, including Weigert's stain for elastic fibers, Weigert's fibrin stain, Ziehl's carbol fuchsin, etc.

The microscopic examination showed the following tissue changes:

Liver: The liver showed extensive interlobular inflammatory foci, formed by a cellular exudate. The infiltrating cells were found around the interlobular arteries, veins and small bile ducts. The small interlobular vessels showed a marked thickening of the adventitia, and most of the lumina were found to be surrounded by a number of concentric rings, composed of delicate connective tissue fibers. Occasionally there was found a small vessel entirely occluded by an obliterating proliferation of the lining endothelium. The cellular exudate of the inflammatory foci consisted of lymphoid cells and a high percentage of eosinophilic polymorphs. In some places the latter cells formed one-fourth or one-fifth of the total number of infiltrating cells. Plasma cells were very sparingly represented. While this description conformed in general to most of the inflammatory foci in the liver, other areas presented a decidedly varied appearance. In these the more or less nearly oval or circular foci clearly showed a center consisting of epithelioid cells, with a vesicular nucleus and a large protoplasmic body. In some nodules among these cells multinuclear giant cells were found. The histology of these round or oval nodules was clearly that of the bacillar tubercle. The nodules also showed a fine, concentrically arranged fibrillar network of connective tissue fibers. Regressive changes were not seen. There was no caseation, nor did Weigert's stain show any fibrin.

The histology of the small tubercles in the liver, and it may here be added that of the similar structures found in the lungs, was identical with what has recently been again described by Baumgarten¹⁴ as the structure of the experimentally produced tubercle, about two to three weeks old, which has not yet undergone any regressive changes, but in which the appearance of the first giant-cells indicates that the proliferation of the tubercle bacillus, as well as that of the inflammatory cells, has come to a standstill. Baumgarten also describes the occlusion of small vessels by endothelial proliferation as a part of the general cellular proliferation brought about by the presence of the tubercle bacillus. The nodules in the liver as well as those in the lungs contained an element which is foreign to the typical uncomplicated tubercle, namely, numerous eosinophilic polymorphs. It was impossible to prove the presence of tubercle bacilli, but the tubercles were found to be infected with plague bacilli. The latter were seen here and there in both types of the inflammatory foci, in those which showed simply the structure of an ordinary inflammatory area and in those possessing the features of a bacillar tubercle. The parenchyma cells of the liver exhibited a moderate degree of fatty degeneration. The capillaries were well filled with blood.

Lungs: Pieces of tissue from the right lower lobe showed a great engorgement of the interalveolar capillaries; in fact, all the blood vessels were highly congested. The alveoli presented a varying picture. Some were open, having contained air only; others were filled with extravasated blood, which did not show

any degenerative changes. Desquamated alveolar epithelia, containing hematoïdin granules, were seen but occasionally. The unchanged character of the blood, the small amount of pigment containing alveolar epithelia, and the absence of areas of coagulation necrosis showed that the blood extravasation must be of a comparatively recent date. Quite a few of the air spaces were filled with a homogeneous coagulated material, staining deeply with eosin. Other alveoli contained a lighter staining granular material. Neither the homogeneous nor the granular material stained with Weigert's fibrin stain, nor did the capillaries contain any hyaline (fibrin) thrombi.

Here and there was found a small solid nodule, hardly larger than the larger alveoli themselves. These nodules were composed of epithelioid and lymphoid cells and a considerable number of eosinophilic polymorphs. Multinuclear giant cells were likewise found in or near the center of some of the nodules. In fact, the latter were absolutely identical in their make-up with the tubercles which may be seen in sections of the hepatic tissue. Both in the pulmonary and in the hepatic tissue were found neighboring nodules, the peripheries of which were in contact with one another. However, the individual nodules had not become confluent and their outlines were well preserved. It was impossible to demonstrate tubercle bacilli in these nodules; but they showed a small number of plague bacilli found scattered between the cells. In properly stained sections it was seen that some of the alveoli contained enormous numbers of plague bacilli. Such air spaces appeared almost filled with them. Small groups of scattered bacilli could be found all over the sections.

Inguinal lymph nodes: The inguinal lymph nodes showed numerous enlarged, dilated vessels, replete with blood corpuscles. Around the larger vessels, particularly the hilus vessels, there was a marked, even, powerful development of the connective tissue. The general fibrillar connective tissue reticulum was likewise everywhere much increased. The peripheral follicles generally showed a well differentiated proliferation center. The peripheral lymph sinus and its branches were dilated. Eosinophilic polymorphs were found throughout the tissues, though nowhere in so large numbers as in the lungs and liver. Bacilli were seen sparingly in the sections. The necrotic changes described by Albrecht and Gohn as occurring in the vessels of the lymph nodes in bubonic plague were not seen.¹⁵

Kidneys: Sections of renal tissue showed practically normal glomeruli, moderate parenchymatous changes in the tubular epithelium and highly congested vessels.

The interesting features of the case above described are its ambulatory nature, its sudden termination by embolism of the pulmonary artery, and its complication with what undoubtedly appears to be a very recent tuberculosis. It is useless to speculate on the question why no tubercle bacilli were found.

Clinical Reports.

A CASE OF DIPLEGIA BRACHIALIS TRAUMATICA DUE TO PRIMARY HEMATOMYELIA.

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Introduction.—Dr. Pearce Bailey, in his "Diseases Caused by Accident," says: "Traumatic hematomyelia is one of the most interesting of traumatic disorders of the nervous system. In severe general injuries when it occurs as a complicating factor, its individuality is usually lost in the general mutilation. But when it constitutes the chief lesion it very often has distinctive and recognizable symptoms. In its most characteristic

14. Baumgarten: Ueber die pathologisch histologische Wirkung dea Tuberkelbacillus. Berlin klin. Wochen., 1901, No. 44, p. 1101.

15. Quoted from a short notice in Muschold's "Die Pest." The original report of Albrecht and Gohn on this subject is not at present accessible.

form it occurs without any bone injury, being demonstrable during life, and many autopsies have proved that such a lesion in the spinal cord is possible without the integrity of the spinal column being interfered with. This variety, which I have called primary hematomyelia (the word primary indicating that the bleeding results directly from the violence without the intervention of crushing or pressure by bone), is found almost exclusively in the lower cervical and upper thoracic regions, and results from sudden forced flexion or extension of the neck, e. g., diving in shallow water; the symptoms come on immediately."

History of the Case.—A lad, aged 16, was caught in a drill machine at the A., T. & S. F. shops at Gallup, N. M., Dec. 24, 1903, and sustained severe wrenching of the neck and shoulders, as was indicated by numerous abrasions about the face, neck and chest. He was rendered unconscious, but quickly revived and described his sensations during the receipt of the injury to the effect that his head was forced forward on his chest and was somewhat twisted. On recovering consciousness within a few minutes he found himself unable to raise either arm from the shoulder, though the function of forearms and wrists was unimpaired. He experienced no pain further than that due to the superficial violence about his head and neck, which disappeared within a few days, there being also absent muscular tenderness about the neck. The young man was kept quiet in bed and under close observation. Sensation for heat and cold was normal; in fact, no sensory disturbance seemed present except the existence of numbness over the occipital region, diminishing downward toward the insertion of the ligamentum nuchae. About ten days later the temperature suddenly rose to 104, accompanied by a rapid and feeble pulse, nausea and general malaise. Bromids were administered in this attack, which passed without further symptoms.

Considerable atrophy of the suprascapular muscles and a general diminution in the size of the arms were apparent at the end of six weeks, though the patient had learned to use his upper extremities with much dexterity, finding a way to throw them up to his head and shoulders by the use of the pectoral muscles and the *litissimus dorsi*.

The general condition improved with increase of weight, and the patient was finally dismissed from the hospital and allowed to return to his home at a town a hundred miles distant, whence come reports of constant improvement in the tone and in the use of the members.

Comments.—The point of lesion in the cord in this case would seem to be easily defined by the clear limitation of the muscles involved; those supplied by the anterior thoracic, posterior thoracic, circumflex in part, suprascapular, and principally the musculo-cutaneous, that portion of the brachial plexus arising from the fifth, sixth and seventh cervical nerves (the outer and posterior cords), which undoubtedly represents within definite limits the portion of the cord which was the seat of hemorrhage, which would appear to have been confined to the gray matter. Examination of the case eleven months after the injury shows complete recovery with perfectly restored function.

A CASE OF HEMORRHAGIC TYPHOID.

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WARREN, PA.

History.—J. O., aged 28, single, occupation woodsman, was admitted to the hospital on the evening of Sept. 3, 1903, with a history of having been ill one week, and of coming from a camp where typhoid fever was present. Temperature, 104.6; pulse, 94; respiration, 34; urinary analysis negative.

Course of the Disease.—The next morning the temperature was 105; pulse, 100; respiration, 42; considerable bronchial cough, severe headache and delirium. The pulse becoming weaker, he was placed on strychnia, gr. 1/60 every four hours, while the nervous symptoms and pyrexia were treated by the icebag to the head and ice-water sponges every two hours.

September 5. Temperature ranged from 102 to 105; pulse from 90 to 100; respiration varied between 40 at 8 a. m., 22 at 2 p. m., and back to 40 at 6 p. m.; abdominal symptoms were now more pronounced, there being considerable tympanitis and diarrhea; for these turpentine stupes and turpentine injections were used, with salol and bismuth betanaphtholate internally and later turpentine emulsion; large quantities of gas were expelled. The next night showed no change in his condition except that there was circulatory depression during the sponges, for which he was given a half ounce of whisky before the treatment.

September 6. The temperature remained through the day at 105, pulse from 95 to 104 and weaker, respirations 28 to 36. Ice-water enemas were given every three hours, while strychnia was given hypodermically every four hours in dose of 1/40 grain; the rectal tube was also used with good results.

Between this date and September 10 the patient continued to be desperately ill; the heart showed some intermittence so nitroglycerin, gr. 1 200, was added to his strychnia; the other symptoms were the same.

September 11. Temperature from 102.2 to 104, pulse from 88 to 94, better quality; respirations from 22 to 32; cold packs were used at this point, being better borne by the patient. There was considerable cough and some congestion of the bases of the lungs.

September 13. Temperature falling very slightly, the pulse lower and of fair quality; respirations still from 28 to 36.

September 14. Temperature from 101.8 to 103.6, pulse from 92 to 94, respirations from 28 to 44. This was the eighteenth day of the disease. Hemorrhages from the gums and mucous membrane of the mouth now made their appearance, and also under the skin wherever the hypodermic needle was used.

September 15. There was a continuous hemorrhage from the rectum, the urine also being quite red; a slight oozing of the blood was next noticed from the skin of the nose; ergotol in 10 minim doses was given hypodermically every four hours and 15-grain doses of calcium chlorid by the mouth every five hours. Besides this, a mouth wash of adrenalin chlorid 1 to 4,000 was used and with good effect.

September 17. The temperature ranged from 100 to 101.6, respirations from 22 to 30, pulse from 98 to 106; after an enema at 2 p. m., he expelled a great deal of gas and dark blood, while the urine was almost black. Protein, gr. 15 every three hours, was added to the treatment at this point.

September 18. Temperature, 100 to 103.6; respirations from 22 to 28. The bleeding from the mouth was much better, but a severe hemorrhage from the bowels occurred at 5 a. m., there being three pints of fresh blood expelled; bladder hemorrhage same. Morphine, gr. 1/4, was given at once, as well as ergot, m. x, and the administration subcutaneously of 700 c.c. of normal salt solution. After the use of the morphia the respiration dropped as low as from 14 to 18 a minute and no fresh hemorrhages appeared.

September 20. Urine began to clear up; pulse became as low as 78; temperature, 99.8; respirations from 15 to 18. About this time two superficial abscesses appeared on the nates, but with antiseptic dressings they soon healed.

Between September 21 and October 4 the patient made steady progress, his bedside record being discontinued on the latter date. He was discharged from the institution October 21, after having been under treatment for 55 days. His convalescence was marked by a bradycardia, the pulse running as low as 45 beats per minute. The diet throughout consisted of broths, peptonized preparations and malted milk.

Remarks.—The symptoms which required the closest scrutiny were the diarrhea and tympanitis, the heart's action and the hemorrhages; the character of the latter making it an unusual clinical feature.

This patient lost in all about six pints of blood, which illustrates the point to which attention has been called by other clinicians, that a surprising amount of blood may be lost and yet recovery follow.

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PROGRESS IN CHILD LABOR LAWS.

One hundred and twenty years ago Dr. Percival, of Manchester, England, was asked by the justices of the peace of that city, to inquire into the causes of a serious epidemic among the factory employes. After personal investigation of the conditions, Dr. Percival reported in favor of placing the mills under legislative control, especially as regarded hours of work, which, in his opinion, were so long as to be a contributory cause of disease through confinement and exhaustion. In consequence of his representations the magistrates passed a resolution that they would not allow parish apprentices to be bound to owners of mills in which children were obliged to work in the night or more than ten hours in the day. This resolution is said to be the earliest recorded attempt of any public body to limit the hours of children's labor. The earliest child labor legislation, therefore, owed its origin to the spirit of scientific inquiry into questions of public health, and it seems proper that this same spirit should still take the initiative whenever public health is menaced through lack of proper legislation.

The condition of the factory population of northern England during the early part of the last century was pitiable. We are told of children of six and seven years working fourteen or fifteen hours a day; of pauper children from London workhouses, sent in hordes to mill owners, who were allowed to work them without inspection or control. We are also told of the condition of these children in later life: "Feeble in frame, their intellect shrunk up and dry like a tree. Their children are feebler still." England reaped a bitter harvest from the unrestricted greed of the early years of her industrial development, but she has learned her lesson and a century of factory legislation has changed the world for the English working child.

Our own country is far in advance of England, so far as our public school system is concerned, but there are few of our states which can boast of child labor laws as good as hers. Child labor means two evils, physical underdevelopment and illiteracy. There are 66,000 illiterate children between the ages of ten and fourteen years in Alabama, 63,000 in Georgia, 55,000 in Louisiana. Even in our northern states the showing is bad. Pennsylvania has 6,300, Missouri 11,600. In all of these states the laws regarding child labor are utterly inadequate.

In places where child labor is allowed, the wages of adults are lowered and parents are sometimes compelled to send their children to work. We must reckon, also, with the greed and ignorance of the foreign immigrant, whose one thought in coming to this country is to make money and to whom education seems a needless luxury. Some employers are benevolent and some are not, and the stern laws of competition force the benevolent to adopt the methods of the non-benevolent, if these methods are unrestricted by state control.

In an interesting reference hand-book¹ on "Child Labor Legislation" in the United States, recently issued, the statistics as to illiteracy in the different states are given, and the laws concerning the age below which children may not work, concerning compulsory school attendance, the educational test for children seeking employment and the restriction of night work for children. The widest differences are found to exist between the different states. In some instances the differences can be explained by the absence of certain industries, but in others one is forced to believe that in some states a few powerful industries have been able to influence legislation in their own favor. Thus the glass industry in New Jersey has been able to obtain special privileges whereby children under sixteen may work all night in its factories, an exemption which the glass-workers of Illinois fought hard to obtain, but could not. The canneries of Maryland and New Jersey enjoy special privileges in the employment of children which are denied in other states. Children of fourteen years in the latter and children of any age in the former may work in canneries night or day for a number of hours, determined only by the will of the employer and their own physical endurance. The textile mills of Pennsylvania may work girls of thirteen all night, those of Massachusetts may not. It is well to note that these three states stand far down in the list of states placed in the order of the literacy of their children. The textile industry of the southern states is the most notorious offender in the matter of immature labor. Of twelve southern states only two make the age limit for employment in factories fourteen years, five make it twelve years, one eleven years, and the remaining have no restrictions, or only such as are easily evaded, "consent of guardian," "poverty necessitating employment." In Missouri, Kentucky, Tennessee and Georgia, children of any age may be employed at night, and in three other states the age limit for night work is only 12, 13 and 14 years.

Certain of the newer western states have surprisingly defective legislation in this respect. Thus in Washington a girl of 12 years "necessarily employed" may not only work ten hours at night, but may do so seven nights in the week, and a boy of the same age is not even restricted to ten hours. Nebraska, Idaho, Colorado, Nevada, Wyoming and New Mexico have no restrictions at all for night work, and only one, Colorado, makes up

1. The National Consumers' League, 105 E. 22d St., New York City.

for this in part by a really excellent compulsory education law. It is urged in excuse that in these new states the evil of child labor has not yet attained such proportions as to require legislative control, but surely it is easier to strangle the monster in his cradle than to wait until he is full-grown.

Delaware enjoys the distinction of being at the very bottom of the list, for she has no age limit for employment, no compulsory education and no restriction of night work.

In Massachusetts, Illinois and New York, in spite of the continual influx of foreign illiteracy, the number of illiterates is kept amazingly low through the working of excellent compulsory education laws. New York state has less than 300 more illiterate children than has New Mexico. Illinois has 300 fewer than the latter, yet New York City and Chicago are the two principal Meccas of our foreign immigrants. The usual arguments in favor of child labor can not appeal to a physician.

The plea that children are better off in the factory than in the street, "that they learn habits of industry," etc., is readily met by the retort that nothing in street life is so detrimental to health as is the confinement and strain of factory life, and that the monotony and long hours stunt a child's intelligence instead of developing it. Even less does the sentimental plea appeal to the physician. That children should be sacrificed for the support of adults, no matter how indigent, is a reversal of the law of nature. The higher the species the longer is the period of immaturity and to cut short that period and force a premature activity is to invite physical and mental degeneracy. Child labor is the truest form of race suicide.

The National Consumers' League has framed a standard child labor law which embodies the best features of the Massachusetts, the Illinois and the New York laws. Briefly stated, it would prohibit the employment for wages of any child under fourteen years during school hours or after 7 p. m., and also the employment of any child under sixteen years for more than eight hours a day or after 7 p. m. An educational test would be required for children under sixteen years. It should be a matter of personal interest to every public-spirited physician to work for the passage of such a law in the states which are as yet without adequate legislation.

THE MEANING OF THE QUALITATIVE SUGAR-REACTIONS IN URINE.

In a preceding issue we discussed briefly and in an elementary manner the use of various tests for albumin in the urine as they concern the general practitioner; a similar summary critic of the qualitative reactions for sugar will, it is believed, be welcomed by some of our readers.

Certain precautions should always be taken before examining the urine of a patient for sugar. The physician should, for example, know what drugs, if any, have recently been administered, since rhubarb, cascara sa-

grada, salicylic acid preparations, morphin, various coal-tar products and other medicaments may give rise to substances in the urine which lead to confusion in the application of the various sugar tests. Again, if albumin or sulphuretted hydrogen be present in the urine they must be removed before testing for sugar. Finally, fresh urine, rather than that kept from decomposition by preservatives, should be employed, for formalin and chloroform, sometimes added to urine to keep it, will yield some of the so-called sugar reactions; if any preservative has to be used, the addition of a little copper sulphate (1 per cent.) is least objectionable.

The reducing property of sugar is that most commonly utilized in the detection of the substance in the urine. Glucose, or grape sugar, the form most often present, reduces, by virtue of its aldehyd group, alkaline solutions of cupric salts to red cuprous oxid (Cu_2O): Fehling's or Haines' solutions are the best to use. The exact chemistry of the process is rather complicated, since the copper of cupric salts, in the presence of tartaric acid or glycerin, enters into the formation of complex ions, the composition of which need not be discussed here. In the case of both fluids the complex organic copper ion, which has a dark blue color, is changed by various reducing agents, of which grape-sugar is one, in such a manner that it deposits a red precipitate of cuprous oxid. Unfortunately urine may contain substances other than grape-sugar which reduce these copper solutions; thus milk-sugar (lactose) and less often fruit-sugar (fructose or levulose) may be present in urine and reduce the copper salt, or uric acid or kreatinin if present in excess will cause reduction, as will also glycuronic acid compounds and certain other reducing agents, especially after the ingestion of drugs like turpentine, chloral hydrate, salicylic acid, copaiba and cubeba.

The bismuth tests, like the copper tests, depend on the reducing property of sugar and if employed in the form of Nylander's reagent afford a convenient and sharp method for the detection of sugar by the practitioner. The reduction of the alkaline bismuth solutions can, however, be effected also by glycuronic acid, by excess of indican, and especially by reducing substances present in the urine after the ingestion of various drugs, particularly rhubarb, senna, and antipyrin. A positive reaction does not, therefore, any more than with Fehling's or Haines' solutions, indicate necessarily the presence of sugar; control tests which exclude other substances must accordingly be made.

The safest test for the presence of sugar in the urine, the one, which when applied as directed below, we unhesitatingly recommend to practicing physicians as the most reliable of all, is the fermentation test. To apply it, one needs three fermentation tubes and some good compressed yeast. A lump of yeast the size of a hazelnut (0.5 to 1 gram) is rubbed up in a small mortar with one or two cubic centimeters of water, and this suspension is mixed with about 25 c.c. of urine (acidified

with a few drops of a solution of tartaric acid). An Einhorn fermentation tube or some similar apparatus is carefully filled with the mixture and the whole set aside in a warm place for from 12 to 24 hours; if sugar is present it will be converted into alcohol and carbonic acid gas and the latter will accumulate in the upper part of the fermentation tube. To make sure that the yeast itself does not contain starch or sugar, a second fermentation tube is filled with water (acidified with tartaric acid) and yeast and, to prove further that the yeast is active, a third tube is filled with an acidified 1 per cent. solution of grape-sugar and yeast. No gas (or only a minimal amount) should appear in the second tube at the end of 12 hours, while the third tube should contain an abundance of CO₂. By means of this simple test all the members of the group of reducing substances other than sugar are excluded, for they do not ferment with yeast. Levulose and maltose do ferment with yeast, it is true, but they are only very rarely present in urine, while glucose is very often present. Glucose is, moreover, strongly dextrorotatory to polarized light, while levulose is strongly levorotary; and, again, if levulose is present the urine should yield Seliwanoff's reaction for ketoses (test with resorcin and hydrochloric acid). If the fermentation test, carried out as above recommended, be positive, then the practitioner may be reasonably sure that he is dealing with glycosuria, and, if he wish to make assurance doubly sure, he may exclude the presence of levulose by the methods mentioned.

An excellent confirmatory test for the presence of sugar, delicate enough to detect quantities as small as 0.03 gram in 100 c.c., is the phenylhydrazin reaction of E. Fischer as applied to urine by v. Jaksch and Jolles. The reaction may be positive with glucose, lactose, levulose, maltose or pentoses; even unpaired glyconic acid may yield a crystalline osazone. Solutions of the various osazones behave somewhat differently to polarized light (P. Mayer) and the purified crystals have different melting points: these differential methods are, however, altogether too complex to be used by the average busy practitioner; moreover, they are rendered superfluous for ordinary purposes, as we have shown above, by the simple fermentation test.

The quantitative estimation of sugar is another matter, which we may discuss later. We dismiss it at present with the simple statement that, for practical clinical purposes, we advise the use of any one of three methods: (a) titration with Haines' solution; (b) polarization with the half-shadow apparatus; and (c) fermentation in Lohnstein's saccharometer.

THE OCCURRENCE OF PEPTIC ULCERS IN THE JEJUNUM AFTER GASTROENTEROSTOMY.

In 1891 the *Wiener medicinische Wochenschrift* published an anniversary number, in which a number of prominent physicians contributed a series of aphorisms. Among these was one from Anton von Frisch, which

read as follows: "Antisepsis is the triumph of modern surgery, but perhaps also the ruin of the old surgical skill, for to-day, under its protecting wing, children and fools operate unpunished." Like most aphorisms, this presents rather a one-sided view of the truth, but that it contains truth can not be denied. Perhaps it would be fairer to say that on account of the relative safety to life conferred by asepsis, operations are performed, often with the best motives, which would not have been performed if more thought had been given to the case. Within the last few years the surgery of the stomach has held a prominent place, and the beneficial results of stomach operations have been widely published in the literature; that very unpleasant results may follow in certain cases, and those the ones with non-malignant affections, has not been prominently discussed.

Tiegel¹ has drawn attention recently to the frequency with which gastroenterostomy for non-malignant diseases of the stomach is followed by peptic ulcers in the jejunum. The jejunal ulcers have mostly developed in male subjects past the age of 30, and have in all instances occurred in cases in which the original operation was performed for a non-malignant affection, generally a stenosed pylorus resulting from gastric ulcer. The particular form of operation which was performed seems to have no influence on the development of the ulcers. The ulcers developed at varying intervals after the primary operation, some appearing as early as ten days after, and some not until eight years after.

So far as clinical symptoms are concerned, two great groups of cases are to be recognized. In one group the patient presents absolutely no premonitory symptoms, the illness coming like a thunderclap out of a clear sky. There is very sudden onset with severe abdominal pain, vomiting, and the rapid development of the signs of acute peritonitis. Operation or autopsy in these cases shows an acute perforation of the ulcer into the peritoneal cavity. In the second group of cases the onset is gradual, and the symptoms are similar to those of round ulcer of the stomach. There is pain sometimes constant, sometimes intermittent, which may be increased by taking food or may be most marked an hour or two after taking food. The pain may be in the epigastric or umbilical region, or may occur either to the right or left of the median line. Usually as the case progresses, there develops an infiltration of the abdominal wall, or at any rate an area of localized resistance. In some cases there is an actual inflammatory tumor; in some there are signs of gastric stasis, and in a few there may be the passage of blood by the stomach or rectum. These differ from the preceding cases in that they almost never perforate into the general peritoneal cavity.

The condition of the gastric secretion before and after the original operation in these cases is of impor-

¹ Mitteilungen aus den Grenzgebieten der Med. und Chir., vol. xlii, Nos. 5 and 6, 1904. THE JOURNAL, page 1732.

tance; it has been determined in relatively few of the cases, and, as far as one can judge from these, is inconstant. In some a definite hyperacidity of the gastric juice is present, but in others this is not the case, either before the original operation or before the development of the jejunal ulceration. Pathologically, the jejunal ulcers are just like the gastric peptic ulcer. They are usually single, and are generally situated in the wall of the jejunum opposite or near to the gastrointestinal opening; rarely where an enteroenteric anastomosis has also been made they are situated near this.

The diagnosis of jejunal ulcer following gastroenterostomy is not always easy. The acute cases have been taken for appendicitis and other acute abdominal inflammations, but the absolute lack of premonitory symptoms in the jejunal ulcer is very suggestive. The chronic cases are very easily confused with recurring gastric ulcer, and operation may be necessary to decide the point. The presence of tenderness or infiltration lower down and further to the left than is usual with gastric ulcer would be in favor of the jejunal form.

The treatment of these cases, and particularly of the chronic form, is mainly medical and along the lines of the usual treatment of gastric ulcer. Surgical intervention is, of course, demanded in the cases with acute perforation, but the chronic cases do badly under surgical intervention. The results of Tiegel's investigation suggest to him that in certain forms of gastric disease too much surgery has been done, and strangely enough, it is in the non-malignant cases that intervention has been practiced too much. In view of this work, it would seem best to avoid surgical interference in benign gastric affections unless it is absolutely necessary, and in those cases where a gastroenterostomy must be done, a postoperative treatment in the form of alkalies and a strict diet should be adhered to for a long time.

A SUCCESSFUL COUNTY MEDICAL SOCIETY.

One of the most successful local organizations in the United States is the Chicago Medical Society, the medical society for Cook County, and its working methods and accomplishments may be cited as examples that should be followed in other large cities. Among its good features is the weekly *Bulletin* which it publishes. This contains the programs of the weekly meetings of the central body and of the monthly meetings of its branches and affiliated societies, as well as much other matter of interest. It is issued as second class matter, and so can be published at less expense per member than could a simple postal card. The last issue is a special number, most of which has been prepared by the organization committee to call attention to those who are not members to the work the society is doing and to the advantages of membership. Two years after the reorganization of the state society, the Chicago Medical Society also reorganized, so that its constitution and by-laws conform to that of the general plan. In doing

so, however, the needs of those living in the suburbs were considered, and the county, which practically means the city, was divided into eleven districts. In each of these has been organized a local branch, composed of all the members of the society who reside in the district, on the plan long prevailing in Massachusetts.

Each of these local branches meets monthly, and some of them combine science and good fellowship at each meeting by having a smoker or lunch. An annual banquet to which the members' wives are invited is also held by all the branches. In fact, one of the main ideas of each district branch is to bring together physicians living in its territory, making it as much a social body as a scientific one. It is recognized that to bring together men who live in the same community, thus making them acquainted, will do away with most of the petty jealousies which are found in a community where physicians do not really know each other. These branches are supported by the central society, and are forbidden by the constitution to levy any tax on their members. The members are elected by the central body, and, of course, are members of the central body as well as of the branches. Membership carries with it membership in the Illinois State Medical Society, and each member receives the benefits of that membership, as well as a copy of the excellent journal that is published monthly by that organization. Beside these branches, there are the scientific sections—called "affiliated societies"—and including the surgical, laryngological, pathological, ophthalmological and otological, orthopedic, gynecological, and pediatric societies. Each of these is more or less independent of the main body, but its membership is limited to those who belong to the Chicago Medical Society. The members are supplied also with a medical directory of Cook County, and—to some the most important point of all—have a medical defense organization of their own, managed by a medical defense committee. For all this each member pays an annual due of \$5, \$1 of which goes to the medical defense and \$1.50 for state society dues.

The society is also doing good work in carrying on a series of free public lectures. The membership has reached nearly 1,600, and is steadily growing, the bulletin before us indicating that there are fifty applicants awaiting action. Only seven state societies now have a larger membership. The central body meets weekly, and it is not unusual to have an attendance of 300 or 400.

It thus seems to us worth emphasizing that the Chicago Medical Society is an example for other large cities to follow. Philadelphia is doing something in the way of branch societies, but it has not taken up the work systematically as has Chicago. Pittsburg, if we may judge from a recent letter from the secretary of the Alleghany Medical Society, has also considered the advisability of adopting some such plan. What a magnificent thing it would be for New York, for instance, if the members there would come together and organize as have the physicians of Chicago.

THE ACTION OF RADIUM ON CANCER.

Whatever the clinical results from the use of radium rays in the treatment of cancer may be, there is no question that they are able to produce a greater or less amount of retrogressive change in living tissues, both cancerous and non-cancerous. As is the case with the Roentgen rays, however, the means by which these changes are brought about is quite unknown. Experimental work with Roentgen rays has failed to show conclusively in what manner the "x-ray burns" are produced. Vascular changes, although sometimes conspicuous, can not explain all the changes of this white gangrene, and hence the unsatisfactory conclusion generally reached has been that the loss of vitality of the cells is due to some mysterious alteration in their metabolic properties. Cell life being the outcome of cell chemistry, an explanation may be found by a study of chemical changes that occur within the cell, so far as such study is possible by the means at present available. In this line of investigation is the work of Schwarz,¹ who considers that the radium rays decompose the lecithin of the cells, and as lecithin is an important if not essential constituent of all cells, particularly those that are rapidly growing, he looks on this as an explanation of the death of cells exposed to the action of radium rays. Unfortunately, the destructive effect of radium on lecithin has failed of confirmation, and this theory is not accepted by other investigators.

More promising are the results obtained by Neuberger,² who studied the effects of radium rays on the self-digestion of cancer cells. We have frequently referred to the importance of this self-digestion of cells, autolysis, by the trypsin-like ferments which every cell contains. It would seem that in every cell there are continually occurring processes of synthesis and of autolysis, and as soon as the cell is separated from its sources of nourishment the autolytic processes alone occur, and hence the cell is rapidly broken down and absorbed, as in the case of infarcts, for example. Cancer cells, like all other actively growing cells, possess this autolytic property to a high degree; hence the rapid softening of necrotic areas in tumors. Neuberger found that if two specimens of tissue from the same cancer were allowed to undergo autolysis, one exposed to radium rays and the other not, the exposed specimen at the end of four days would show nearly twice as much autolysis as the other, and at the end of eight days four times as much. In other words, cancer cells exposed to radium rays undergo self-digestion at a much more rapid rate than do similar cells without the influence of these rays. French and Scandinavian experimenters have shown, on the other hand, that most enzymes, e. g., trypsin, pepsin, and coagulating ferments, are very susceptible to the action of radium rays, being soon rendered inactive. The autolytic ferment is, therefore, an exception, and in this Neuberger believes the explanation of the biological effects

of radium to lie. If the radium kills the enzymes that have to do with cell life, such as oxidizing ferments, reducing ferments, and ferments that have to do with cell synthesis, but leaves unimpaired the autolytic ferment, the cell will be killed and its destruction and absorption will be exceptionally rapid, because the autolytic process will not be opposed by synthetic processes. This explanation agrees well with the facts observed in practical application of radium, and has the advantage of being capable of further investigation since it places the action definitely in the cell enzymes, about which we are just beginning to get a working knowledge.

From time to time reports have appeared indicating that x-rays have a considerable influence on growths of lymphoid tissue, particularly leukemia and Hodgkin's disease. According to the experimental results obtained by Heineke,³ it may be found that radium rays are also very active in such conditions, for he found that radium rays seemed to have a particularly marked influence on lymphoid tissue. Extensive retrogressive changes occur after exposure, followed by absorption, and so susceptible are lymphoid tissues to these rays that extensive alterations may occur in subcutaneous lymph glands, when the skin overlying them is unaffected by the rays that pass through it before reaching the glands. As lymphoid tissue has considerable autolytic activity, much more than the skin, this susceptibility may be considered as in corroboration of Neuberger's theory.

DEMENTIA PRECOX.

While the term dementia precox was first used by Pick in 1891, to designate a group of cases of the juvenile insanities characterized by progressive mental deterioration, Kraepelin's name is chiefly associated with the modern clinical acceptance of the term. Dementia precox stands in some danger of losing its philologic significance through frequent reports of cases in adult life, and even in extreme old age. There are few physicians in or outside of asylum practice to-day who do not see frequent illustrations of the more or less classic types of Kraepelin's description. Indeed, about a fifth of all the insane admitted to asylum care are of dementia precox, hence the importance of knowing the nature and cause of this deteriorating mental disorder. Nor is science unaware of the pressing importance of the solution of this problem. Nearly every psychiatric journal contains researches into the etiopathology of dementia precox. Notwithstanding that the clinical foundation of dementia precox appears firmly established, there are a few who deny that Kraepelin's clinical description of this psychosis signifies any real advance in our knowledge of psychiatry. The great value of Kraepelin's work along this line, however, is shown by the rapid adoption of dementia precox as a clinical entity in asylum practice here and abroad. It stands

1. Pfäfer's Archiv, vol. c, 1903, p. 533.

2. Zeitschr. für Krebsforschung, 1904, vol. 11, p. 171.

3. Münch. med. Woch., 1904, No. 31 THE JOURNAL, page 847.

the proof of clinical needs. Sachs¹ very properly raises the question whether all the insanities of the juvenile period are to be classed with dementia precox. He presents cases which he believes are non-dementing psychoses occurring in this period. In rare instances, simple melancholias may begin at this period, and, of course, in such dementia does not appreciably enter. It is true Kraepelin maintains that the great majority of the juvenile insane deteriorate, but he expressly states that a small per cent. do not; they may not require asylum care, but may remain at home and finally be able to take up their life work in their chosen narrow field.

To detect the presence or absence of slight grades of mental deterioration in any given case is often difficult under ideal conditions; thus in asylum records, which are based on the severer grades of dementia precox and in which a certain uniformity of deterioration ought to be recorded, the degree of deterioration varies somewhat with the personal equation of the different staff physicians who make the notes. One needs to live in more or less constant contact with the insane to properly appreciate many of the difficulties of the problem. Certainly the routine office consultation of private practice is often a very inaccurate method in deciding these delicate points. The statistics of asylums Sachs believes to be insufficient to determine the dementing or non-dementing character of these psychoses, as only the worst mental cases go there; consequently, the invariable mental deterioration noted in cases sent there is vitiated. Unfortunately the inclusion of outside data often must be misleading and inaccurate. If some mental deterioration is invariably present in dementia precox, then Sachs believes his cases are exceptional and form a new type in the adolescent insanities. The subdivision of dementia precox as made by Kraepelin is only tentative; many atypical cases are certain of occurrence the more intently the types are studied. Kraepelin was the first to recognize this himself. A desire for simplicity in classification of the juvenile insanities, however, will demand much proof of those who attempt to establish new types of the adolescent period.

One of the strongest arguments for the dementing character of this psychosis must be based on the fact that it almost invariably develops in a soil of family and personal degeneracy. We would expect that the deterioration would be accompanied by a degenerative lesion either in the cortical neuron or its association processes. Researches are slowly accumulating which seem to support this view. There are but few who still believe in an auto-intoxication pathology for dementia precox, the origin of which must have been largely fanciful.

There are reasons to believe that the early death of imperfectly developed association tracts in the cerebral cortex may explain much in the pathology of this condition. We would urge a reapplication of Gower's abio-

trophy hypothesis for the early deterioration of certain brain tracts in dementia precox. It is at present the best explanation at hand for the early death of nerve systems in juvenile cord diseases, as shown in hereditary ataxy for example.

THE RIGHT TO GIVE AND TO TAKE DISEASE.

The latest development of anti-vaccination is the plea raised by Massachusetts anti-vaccinationists that the compulsory vaccination regulations conflict with the fourteenth amendment of the Constitution of the United States. To have smallpox is evidently in their opinion one of the privileges of citizens of the United States. We had supposed that compulsory vaccination laws were for the protection of the citizen, but these people wish the public to be denied such protection. A case of smallpox is a peril to everyone who comes in contact with it unless protected by vaccination or previous attack, and the fourteenth amendment might as well be pleaded against the non-enforcement of laws requiring vaccination. There is evidently here a good chance for lawyers to quibble, but the outcome of the suit ought not to be doubtful.

THE INSANE AS PUZZLE SOLVERS AND SHORT-STORY WRITERS.

Occasionally the Associated Press serves us up an excellent breakfast jest, while endeavoring to be serious. On November 29 our morning papers soberly informed us that a female inmate of a Minnesota insane asylum had won first prize in a magazine puzzle and "short-essay" contest! The humor of the occurrence seems to have passed unnoticed. The alienist will find in this incident some light on the psychologic status of the designers of magazine puzzles. The publicist will grasp at a new and promising method for agreeably occupying the time of the inmates of asylums and penitentiaries. Asylum superintendents will rejoice at the advent of a new amusement for their charges. Magazine publishers (those who promote circulation by guess) will immediately experience a forward jump in subscriptions. The physician may be perturbed over the probable fate of some of his, at present, sane patients. The possibilities of the situation are inexhaustible. It will be interesting to know the subsequent effect of the experience on the mental state of the successful solver.

INTERNATIONAL UNIFICATION OF MEDICAL STATISTICS.

There is published this year from the office of the Surgeon-General of the Army, for the first time in separate form, the complete series of the tables of "International Military Medical Statistics." These are the tables agreed on at the meeting of the International Commission for the Unification of the Medical Statistics of Armies, held at Budapest in 1894, and modified by the last meeting held at Madrid in 1903. Of the twelve countries which were a party to the agreement only one other than the United States has published all of the ten tables, and in no other "Supplement" are they so complete and detailed. These tables show the

1. Proceedings Amer. Neurolog. Assn., September, 1904; Proceedings N. Y. Neurolog. Soc., October, 1904.

total movement of sickness and mortality in absolute and proportional numbers by departments, by the larger garrisons, by months, and by arms of service; the same data for thirty-five of the most important diseases or disease groups; also the influence of rank, length of service and age on deaths and discharges for disability. Thus for the first time the most important medical statistics of the United States Army become available for comparison with those of foreign services, and much interesting and valuable information will no doubt be obtained.

THE PHYSIOLOGIC EFFECTS OF DIGITALIS.

The view has been put forward that under normal conditions digitalis strengthens the left heart by causing maximum dilatation of the left coronary artery and at the same time enfeebles the activity of the right heart by causing contraction of the right coronary artery. Accordingly, it is suggested that a deviation from such conditions may be considered as indicative of the existence of some disorder causing increased activity on the part of the right ventricle as a result of diminished contractility of the right coronary artery. This, it is pointed out, may be brought about by the administration of digitalis in the presence of disease of the right coronary artery, of which therefore the phenomena described may be considered as diagnostic. A case illustrative of this relation was recently reported by Prof. T. von Openchowsky¹ to the Society for Internal Medicine at Berlin. The patient was a man with a previous history of articular rheumatism and disease of the heart, who presented symptoms of failing compensation, in association with mitral stenosis and insufficiency and aortic insufficiency, together with diffuse arterial sclerosis. One grain each of calomel and powdered digitalis was prescribed, but on account of the development of alarming general symptoms the digitalis was withdrawn. Some improvement followed, but the symptoms became once more aggravated when digitalis was subsequently again administered. After each administration of digitalis increased activity of the right heart was observed, as indicated in cardiograms and tracings of the venous pulse, while at the same time diminution in the activity of the left ventricle was noted. Death resulted and on postmortem examination the diameter of the right coronary artery was found to be larger than that of the left, namely, 14 mm. as compared with 8 mm. The anterior branch of the right coronary artery was the seat of sclerosis in slight degree and the trunk of the vessel in lesser degree. The explanation offered for the phenomena observed is that as a result of the abnormal dilatation of the right coronary artery and its failure to contract under the influence of digitalis the work of the right ventricle was needlessly increased, while the left ventricle was unable to propel the larger amount of blood sent to it. The case illustrates among other things the pharmacologic and dynamic dissociation in the activity of the two ventricles and also the danger that may attend the indiscriminate administration of digitalis, especially in the presence of disease of the right coronary artery, and particularly arteriosclerosis.

1. Berliner klin. Woch. No. 40. THE JOURNAL, page 1424.

Medical News.

ARKANSAS.

Smallpox in Pulaski County.—On November 29 and 30, 13 new cases of smallpox were reported to the county health officer. All the patients were negroes and live near Argenta. In all 24 cases have been discovered.

Accredited List for Hot Springs.—Nearly 150 physicians have applied to the federal medical board to have their names placed on the accredited list, which is intended to do away with the "drumming" nuisance at Hot Springs.

New Railway Hospital.—The new hospital for the Cotton Belt System at Texarkana is now in operation. The surgeons, nurses, servants and 35 patients arrived by a special hospital train, November 22, and were at once installed in their new quarters.

ILLINOIS.

Diphtheria is said to be epidemic in Pike County, where five cases and one death have been reported.

New Hospital Opened.—The new hospital for contagious diseases connected with Cook County Hospital, which has been erected at a cost of \$122,000 and will accommodate 175 patients, was inspected by the advisory committee of the county board, November 30, and is ready to receive patients. The committee also inspected the new hospital for children, which will be completed early in next year.

Personal.—Dr. Joseph E. Lowery, Homer, was run over by a train in Peoria, November 22, and his left foot was so crushed that amputation may be necessary.—Dr. Henry G. W. Reinhardt, Chicago, has been appointed assistant coroner's physician of Cook County; Dr. Haim I. Davis, Chicago, county physician, and Dr. Vaclav H. Podstata has been reappointed superintendent of the county institutions at Dunning.

Chicago.

Homeopathic Colleges Consolidate.—It is announced that Hahnemann and the Chicago Homeopathic colleges have consolidated under the name of the former, and that this consolidation is preliminary to a merger with the University of Illinois.

New Michael Reese Hospital.—The competition of architects for plans for the new Michael Reese Hospital has resulted in the acceptance of the design of Richard E. Schmidt. The new building will be a six-story fireproof structure and will cost about \$400,000.

Personal.—Dr. Henry Gradle has resumed practice after recovery from a severe illness.—Dr. Henry William Howard has been appointed secretary to the surgeon general, with rank of first lieutenant and assistant surgeon.—Dr. Alfred De Roulet suffered the loss of \$100 worth of jewelry as the result of a burglar's visit, November 28.

Deaths of the Week.—The total deaths for the week ended December 3 were 450, 25 more than for the preceding week and 28 less than for the corresponding week of last year. The respective annual death rates per 1,000 were 12.44, 11.49 and 13.30. Pneumonia caused 64 deaths; consumption, 54; heart diseases, 49; violence, 41; Bright's disease, 35, and cancer, 30.

Pneumonia Less Virulent and Less Prevalent.—Pneumonia is much less prevalent and less fatal this year than usual. During the first eleven months of 1903 there were 4,133 deaths from the disease. During the similar period this year only 3,690 pneumonia deaths occurred. In November, 1903, there were 333 deaths and last month only 260 from pneumonia. The present Chicago proportion of pneumonia deaths to deaths from all causes is 13.6 per cent.; from consumption it is 11.3 per cent.

IOWA.

District Society to Meet.—The Central District Medical Association of Iowa will meet at Ames, December 20.

Did Not Report.—Dr. George G. Bickley, Waterloo, was fined \$10 for failure to report contagious diseases to the health department.

A Warning.—Dr. R. J. Ludlow, Mechanicsville, asks us to warn physicians of Iowa and the west regarding a traveling man who is selling surgical instruments and appliances, claiming to represent a Chicago firm, and carrying various side lines. He succeeded in getting \$8 from Dr. Ludlow by offering to send him a special attachment to some instrument, which was con-

sidered a very excellent offer. It is the old story, the traveling man made a good appearance, what he said was very plausible and the doctor was "worked."

Upholds State Board.—The Supreme Court, on November 17, greatly strengthened the State Board of Medical Examiners by deciding two important cases in its favor. In Wright County, J. W. Edmunds had been unsuccessfully prosecuted because he as an itinerant oculist had professed to heal everything. The court held that he should have paid a license fee as an itinerant doctor. In Boone County a magnetic healer, G. H. Heath, had escaped because no proof could be given that he had actually tried to heal anybody and he claimed also that as he administered no drugs he was not under the law. The court held to the contrary and that he was amenable to the law.

LOUISIANA.

Student Dies.—Mr. P. Lestang Sarpy, a member of the class of 1906 at Tulane University Medical Department, died November 22 from tuberculosis at his home in New Orleans, aged 22.

Aged Physician Beaten and Robbed.—Dr. Waldemar Bille, an aged practitioner of New Orleans, was assaulted in his office by an unknown miscreant, November 14, who, after beating Dr. Bille into unconsciousness, robbed him of \$10 in cash and a number of checks, and escaped.

Sues Picayune.—Dr. J. Denegre Martin, New Orleans, has sued the Nicholson Publishing Company of that city, claiming damages of \$10,000 alleged to be due for injuries sustained by the publication in the *Picayune* of the report of an operation performed by Dr. Martin, said publication being unauthorized and not desired by him.

Indictment Quashed.—The indictments against Dr. George A. B. Hays, superintendent of the Insane Asylum of the State of Louisiana, Jackson, for alleged violation of the law relative to postal rights of inmates of the institution, was ordered quashed, on account of the unconstitutionality of the act under which the indictments were returned.

MARYLAND.

Baltimore Deaths.—The deaths for the week ended December 3 numbered 167, a general annual rate per 1,000 of 15.12; colored, 29.14, and white, 12.19.

Will Build Isolation Hospital.—The Baltimore Municipal Hospital Commission has decided to locate the infectious diseases hospital on 20 acres of land in the eastern suburbs, recently purchased by the city.

Personal.—Dr. Jane E. Robbins of New York, head resident of Normal College Alumnae House, is to be head resident at the Locust Point Social Settlement. —Dr. James S. Woodward, Sparrow's Point, has gone on a trip to Pensacola, Fla. —Dr. Samuel G. Fisher, Chestertown, has had a stroke of paralysis.

New Society.—A society to be known as "The Library and Historical Society," and designed to promote literary and historical research, will be founded December 20 at the University of Maryland, Baltimore. At the opening meeting papers will be read by Dr. William Osler, Prof. Henry E. Shepherd and Dr. Eugene F. Cordell.

One Nurse's Work.—Last March Mrs. Osler started a fund to support a visiting nurse for tuberculous cases under the supervision of the Visiting Nurses' Association of Baltimore. She has cared for 132 cases, has paid 778 visits, in all instances with assistance and instructive advice, and has distributed 364 tickets for milk and eggs. Care-takers were provided in urgent cases and many were referred to dispensaries and hospitals.

Cocain Habit Alarming.—The cocain habit has grown to an alarming extent, chiefly among the negroes and the inmates of houses of ill repute. At the last session of the legislature a law was passed forbidding its sale except on a physician's prescription, on penalty of a fine, doubled for each conviction and accompanied by six months' imprisonment on the third offense. A number of druggists have been arrested for violating this law.

MASSACHUSETTS.

Physician Gains Verdict.—In the damage suit of Mrs. Horace Chouinard against Dr. Pierre Brunelle, Lowell, in which she claimed malpractice to have caused the death of her husband, the jury, after short deliberation, found for the defendant.

Changes in Medical Examiners.—The governor has appointed Dr. Clifford S. Chapin, Great Barrington, associate medical ex-

aminer in the fourth Berkshire district, vice Dr. John B. Beebe, Great Barrington, promoted to be medical examiner.

Osteopath Not a Doctor.—H. Wilmot Johnson, an osteopath of Worcester, was arraigned before Judge Utley, November 21, on the charge of violating the registry of medicine laws, and was fined \$100. He appealed. His contention was that he had the right to call himself "Dr." provided he did not prescribe medicine.

School Inspection.—There was appropriated this year by Boston for the medical inspection of its schools \$47,000; 50 physicians are employed and they visit daily schools where there are 2,000 pupils. Their purpose is to advise the teacher what to do when a child is ill. If an infectious disease is detected, they have the authority to remove patients to the hospital or to institute strict quarantine in the home. Whether first seen by the inspector or not, quarantine is not removed from any child in his district without his written approval.

New Anti-Spitting Ordinance.—The new anti-spitting ordinance adopted by the Springfield Board of Health, November 18, is more comprehensive than the previous ordinances. It provides:

Spitting is prohibited either on the sidewalk, crosswalk or footway of any public street, way, park or square, or on the floor of any hall or office in any hotel, apartment house, tenement or lodging house which is used in common by the guests or tenants thereof, or on the floor, platform, steps or stairs of any public building, hall, church, theater, railway station, store or factory, street car or other public conveyance.

September Health.—The Boston Board of Health reports for September shows 888 deaths, or an annual rate of 17.34 per 1,000. Chief among death causes were: Typhoid fever, 17; diphtheria, 14; tuberculosis, 103; cancer, 51; meningitis, 20; apoplexy, 32; heart disease, 65; pneumonia, 60; diarrhea, 111; intestinal obstruction, 12; acute nephritis, 38; chronic Bright's disease, 17, and congenital debility, 84. Unusual causes noted were: Cholera nostras, 2; whooping cough, 6; saturnism, 1; tetanus, 1; epilepsy, 1; thyroid disease, 1; appendicitis, 4, and puerperal septicemia, 2.

MISSOURI.

Diphtheria Closes Schools.—On account of the prevalence of diphtheria at Ludlow, schools and churches have been closed and public meetings prohibited.

Hospital Saturday.—The collections made December 3 in St. Louis to the Hospital Saturday and Sunday Association amounted to \$15,546.46, or \$4,141.54 more than in 1903.

Personal.—Dr. George B. Thompson, Kansas City, the new coroner of Jackson County, entered on his duties December 1. —Dr. Walter M. Cross began his work as city chemist of Kansas City November 15.

Requests to Hospitals.—By the will of Mrs. Agnes Kennett, St. Louis, \$5,000 is bequeathed to St. Luke's Hospital and \$2,500 to the Mullanphy Hospital Association in memory of her son, the late Dr. William C. Kennett.

To Organize a Medicolegal Society.—About fifty physicians and lawyers of Kansas City took the initial steps, November 15, toward organizing a medicolegal society to study medical jurisprudence. Dr. John Puntin presided. A committee was appointed with instructions to form definite plans.

Imprisoned and Fined.—Dr. Caleb E. Mathis, Kansas City, who pleaded guilty November 18 to the charge of sending through the mails matter prohibited by law, was fined \$500 and sentenced to imprisonment for one year. This sentence was afterward modified to six months' imprisonment and a fine of \$750, and he commenced his term at Clinton prison November 29.

NEW YORK.

Crusade Against Tuberculosis.—The Charity Organization Society of Buffalo, through its committee on tenements and tuberculosis, has undertaken a crusade against tuberculosis. An effort is being made to tell the poor how they can resist this disease, and cards and leaflets of instruction have been issued to be distributed widely through physicians for the education of those suffering from this disease and their friends.

Swindler in the Toils.—F. W. Kingland, who is wanted by the Rochester police, was arrested at Niagara Falls on a charge of swindling a number of physicians in that city. He represented himself as an agent of the United States Health and Accident Company of Saginaw, Mich., and victimized physicians by offering them positions as medical examiner in the place they were located, provided they took out policies with the company. In most cases he would demand a deposit on

the policy. He was arrested and confessed, saying his downfall was caused by drink. He was sentenced to four months in the Niagara County jail. He is known to have operated in Waterloo, Albion and Rochester.

New York City.

Verdict in Favor of Doctor's Widow.—The jury has awarded the widow \$40,000 in her suit against Richmond Light and Power Company on account of the death of Dr. Francis Morhard, who was killed in his home by a heavy electric current which entered the house because of the failure of the transformer to perform its work.

Rockefeller Laboratory Begun.—The corner-stone of the first building of the Rockefeller Institute was laid December 3 by Dr. Simon Flexner, chairman of the governing board of the institution. This building will have a frontage of 100 feet and will be five stories high. The estimated cost is \$325,000. A small hospital will be built near it within the next two years.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended November 26, 376 cases of diphtheria, with 40 deaths; 324 cases of tuberculosis, with 166 deaths; 184 cases of scarlet fever, with 9 deaths; 136 cases of varicella; 98 cases of measles, with 9 deaths; 89 cases of typhoid fever, with 12 deaths; 3 cases of smallpox, and 14 deaths from cerebrospinal meningitis.

To Inspect Dairies.—The health department in continuing its crusade for pure milk has appointed several special inspectors, who have started on a round of inspection to include all the dairies that supply New York City with milk. The health department is gratified with the improvement in the milk supply and the assistant corporation counsel has expressed the determination to send future offenders to jail whenever possible.

Hospitals Still Need Money.—The annual report of the Society of the Lying-in Hospital shows that the scope and extent of its work have greatly increased during the past year. The excess of expenditures over receipts for the year ended September 30 was \$87,357.—The annual report of the Presbyterian Hospital shows that it has wards vacant because of lack of public support. The deficit for this institution for the past year was \$72,936.—The Society of St. Vincent de Paul is in need of \$12,000 in order to complete its fresh-air home for convalescent women in the Ramapo Hills. This institution will be opened to all regardless of creed.—At the annual meeting of the directors of the New York Skin and Cancer Hospital it was reported that about 5,000 patients had been treated in the different departments during the past year and that its resources had been greatly taxed.

OHIO.

Personal.—Dr. R. C. Longfellow has been made associate editor of the *Toledo Medical and Surgical Reporter*.

Ricketts Recovered.—Dr. Edwin Ricketts, Cincinnati, who was successfully operated on a short time ago at the Good Samaritan Amex by Dr. Charles A. L. Reed for umbilical hernia, has again resumed his professional work.

Regret Buechner's Death.—The medical and surgical staff of the Youngstown Hospital, at a meeting held November 10, adopted resolutions setting forth the work done for that institution by the late Dr. William H. Buechner and expressing their sorrow at his death.

Academy of Medicine Meets.—Dr. G. W. Crile, Cleveland, was the guest of the Academy of Medicine of Toledo and Lucas County November 25, and presented a paper on "The Prevention of Shock and Hemorrhage in Surgery." Dr. Crile was elected an honorary member of the academy. After the meeting a five-course supper was served, at which the academy and visiting practitioners met to honor their guest.

District Society to Meet.—There will be a meeting of the physicians of the Sixth Councilor district at Canton, December 19. The sixth district is composed of the counties of Mahoning, Portage, Summit, Stark, Wayne, Holmes, Ashland and Richland. A large representation of the physicians of each of these counties is expected at the meeting. The committee on arrangements and program is composed of Drs. Jacob F. Marchand, Odo E. Portmann, James Frankefelter, Austin C. Brant, all of Canton, and Dr. T. Clark Miller, Massillon, the councilor for the sixth district. Dr. J. N. McCormack, the organizer of the American Medical Association, will attend the meeting in the interest of more perfect organization of the physicians of the state.

PENNSYLVANIA.

Personal.—Drs. John and James H. Montgomery, Chambersburg, are spending the winter at Buena Vista, Fla.—Dr. Shoemaker of Oklahoma has been appointed physician at the Indian Training School, Carlisle.

Nurses' Home.—The new Nurses' Home of the Good Samaritan Hospital, Lebanon, was dedicated December 1. The home was the gift of Mr. and Mrs. Horace Brock and was erected and furnished at a cost of \$7,500.

Smallpox at League Island.—One case of smallpox was discovered among the marines on the United States ship *Prairie*, which recently arrived at the navy yard. The presence of contagious disease on the ship was reported in the lay press as diphtheria.

Philadelphia.

Bequests.—By the will of Charles Scott, the Methodist Hospital receives \$5,000 for a free bed, and the Methodist Home for the Aged \$1,000.

Carlsbad Physicians in Philadelphia.—Drs. Isadore Muller, Gustave Toepfer and Tyrnauer of Carlsbad, visited Philadelphia and its hospitals, December 2. They were the guests of Dr. Lewis W. Steinbach.

More Food Indictments.—The grand jury has indicted 47 persons on charges of violating the pure food law. All but one of the accused were dealers in fruit syrups or extracts, or proprietors of cheap soda water fountains.

Personal.—Dr. C. Edwin Verdier and Dr. Walter E. Fine have resigned from the resident staff of St. Luke's Hospital.—Dr. Charles Crosby has been appointed pathologist to the State Hospital for Insane, to succeed Dr. Edith Barker, deceased.

Dinner to Dr. Chapin.—A dinner was given in honor of Dr. John B. Chapin, superintendent and chief physician of the Pennsylvania Hospital for the Insane, in this city, December 1. The dinner was given in commemoration of the completion of Dr. Chapin's fiftieth year in serving the insane. He was presented by the members of the staff and the board of trustees with an oil portrait of himself. He has been superintendent of the hospital for more than 21 years.

Health Report.—Diphtheria is still prevalent throughout the city, 125 cases being reported for the week, an increase of one over the previous week. In all there were 255 cases of contagious disease reported, with 18 deaths, as compared with 296 cases and 20 deaths for the preceding week. Deaths from all causes numbered 426. This is an increase over last week, and a decrease of 25 from those of the corresponding period of last year. Of the deaths 51 resulted from pulmonary tuberculosis, 13 from cancer, 18 from apoplexy, 39 from cardiac disease, 33 from pneumonia, 36 from Bright's disease, and 8 from typhoid fever.

White Haven Exhibit.—A free exhibition of the work and results of the White Haven Sanitarium for Poor Consumptives was recently held in Philadelphia. The methods of outdoor treatment were demonstrated and the general plan of treatment employed in the institution was shown. Free lectures were delivered by members of the staff of the Henry Phipps Institute and men interested in the affairs of the sanitarium each night during the week. The lectures delivered were as follows: Monday, Dr. H. R. M. Landis, "History of Sanitarium Treatment in America"; Tuesday, Dr. Joseph Walsh, "Fresh Air"; Wednesday, Dr. W. H. Stanton, "Rest and Exercise"; Thursday, Dr. O. J. McCarthy, "Discipline and Personal Control of Patient"; Friday, Dr. H. M. Neal, "Nourishment"; Saturday, "Methods of Prevention."

GENERAL.

Northern Tri-State Medical Association.—This body of physicians of northwestern Ohio, southern Michigan and Indiana will meet in Toledo, Ohio, Jan. 10, 1905. Dr. G. W. Spohn, Elkhart, Ind., is president.

Increased Consumption of Hair Dyes.—The prejudice against elderly men in business is said to have resulted in a large number of men with gray hair resorting to hair dyes to make them look younger. The increased demand for hair dyes is almost simultaneous in this country, in England and on the continent. Inquiry at Liverpool showed that the recent enactment of more stringent regulations in regard to age in connection with industrial insurance was followed by a great demand for hair dyes.

Mosquitoes Increasing Near Laredo.—Since the withdrawal of the United States Public Health and Marine-Hospital sanitary forces on the Tean border, to which reference was made in THE JOURNAL, Oct. 29, 1904, page 1318, an increase has been noticed in the number of mosquitoes. The adult mosquito of the stegomyia variety is found everywhere and, while not in large numbers, shows that many breeding places must still exist.

Health Report of the Philippine Islands.—The report of the Board of Health for the Philippine Islands for July, 1904, shows that in the city of Manila there were, during the month, 563 births reported and 866 deaths of residents of the city and 57 deaths of transients, making a total of 922 deaths for July, as compared with 847 in June. Forty-eight per cent. of all deaths in the city of Manila, including transients but excluding stillbirths, occurred among children under one year of age. There were 11 cases of plague, with 10 deaths. Three cases of smallpox occurred in Manila; two of the patients were natives, the other was a European. One of the Filipinos died and the other two patients recovered.

Pan-American Congress and Public-Health Meeting.—The special sleeper, referred to December 3, page 1710, in the announcement of the Havana meeting, January 9-13, of the American Public Health Association, will leave Washington, January 4, instead of 5 as stated. The final announcement has been issued by the secretary, Dr. C. O. Probst, Columbus, Ohio, and may be had by those interested. The excursion route out of Virginia, District of Columbia and the Carolinas to Havana and return, as published in THE JOURNAL, December 3, page 1710, has been reduced from \$52 to \$48 for the round trip. Other conditions remain the same. Rates to Panama: in the South-eastern Passenger territory a rate of one fare plus \$1 will be granted to New Orleans, plus the ship rate, \$50, for the round trip to Panama. Date of sale of tickets, December 26 and 27. Connecting with United Fruit ship sailing December 28, 10 a. m., with final limit of thirty days from date of sale.

Bill to Increase the Medical Department of the Army.—The Secretary of War in his annual report, just issued, speaks in terms of approval and advocacy of this bill. He says:

It is evident that a staff department which has a personnel insufficient to perform the duties required of it in time of peace can not be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the medical department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the department.

A bill to increase the efficiency of the medical department was sent to Congress at its last session with my approval, it having also received the favorable indorsement of my predecessor, Mr. Root. It provides for an increase in the medical department from 320 to 450, so as to do away with most of these contract surgeons. It also provides, approximately, the same proportion in each grade as is now given to the medical department of the Navy, and which the medical department of the Army enjoyed prior to the reorganization of Feb. 2, 1901. While this bill will only slightly increase the cost of the medical department, it will very greatly increase its efficiency.

FOREIGN.

First International Congress for Education and Protection of the Child in the Family.—The organizers of this congress announce that it will be held at Liege in September, 1905, and that the committees of propaganda in each country are composed of philanthropists, physicians, educators and philosophers of all kinds, as the subjects to be treated interest every one. Circulars will be sent on demand by addressing the Bureau du Congrès, rue Rubens 44, Brussels, Belgium.

Prizes for Pharmacy Students.—A scholarship of \$250 and four consolation prizes of \$25 each are offered by the firm of Fairchild Bros. & Foster, New York, for annual award to students of pharmacy in the United Kingdom. Examinations will be held in July and the winner of the scholarship may select any well-known school or college of pharmacy in Great Britain at which to study. Further particulars may be had of Mr. A. E. Holden, Bath House, 57, Holborn Viaduct, London, E. C.

A Medical Sketch Book.—A group of 13 well-known artists in Paris has founded a so-called medical journal to contain nothing but sketches, no reading matter except the titles underneath and the advertisements. A portrait sketch of Professor Hayem fills the first page of the second number of the new periodical, which bears the name of *Medica*. It is announced as an illustrated and humorous medical journal destined to fill a long-felt want and rest eyes weary of so much reading matter.

Medical Care on the Easy Payment Plan.—The *Gazette Méd. Belge* reproduces an advertisement now appearing in certain European journals. It announces the incorporation of a society which assumes the charges of medical attendance, medicines, operations, deformity apparatus, etc., the expenses to be repaid by the patient on the easy payment plan. "The patient can thus obtain the care and aid hitherto available only for the rich, and can complete the course of treatment now too often interrupted from reasons of economy. The charges are the same as when cash is paid, there being no expense or interest."

The Langenbeck Army Surgery Fund.—The family of the Berlin surgeon, von Langenbeck, founded in 1897 an endowment of about \$12,500, the income of which was to be devoted to sending some medical man to the seat of any war in progress in which the German Empire is not participating. The stipend was awarded this year for the first time, Dr. Schäfer of Berlin being given funds for a trip to Manchuria, and he has just left for the seat of war. The trustees of the fund are the surgeon general of the German army, the president of the German Surgical Association, and the successor of von Langenbeck in the chair of surgery at Berlin. The income can be devoted to any phase of military surgery in case no war is in progress.

Prophylaxis of Cancer.—The efforts of Winter to teach the public the danger of delay when cancer is suspected have been chronicled recently in these columns. The great increase in the proportion of operable cases testifies to the great benefit realized from this crusade. The obstetric and gynecologic societies of Leipsic and Dresden are sending duplicates of Winter's circulars to all the physicians in Saxony. The *Berliner klin. Wochenschrift* remarks, however, that the chief obstacle to the proper prophylaxis of inoperable cancer is the activity of the irregular practitioners and "herb women," who promise a cure by internal or local measures until the opportunity for an operation is lost. Unless such practices are regulated by law the efforts of medical men toward prophylaxis of inoperable cancer will be more or less futile in certain regions.

Electro-Vigor Before the Courts of Germany.—The dealer handling the apparatus called electro-vigor was sued recently at Hamburg and Breslau for advertising extravagant statements in regard to its therapeutic efficiency. The medical authorities asserted that it was a very defective apparatus and contained nothing to justify the high price charged for it, nor the assertions as to its curative powers in certain diseases. The majority of the cases reported as cures were fraudulent. The Hamburg court imposed a fine of \$37.50, and the Breslau court a fine of \$7.50. The defendants in the suit at Hamburg were the dealer, a merchant and the advertising department of seven journals. The suit against all but the first was dismissed. At Breslau he was the sole defendant. The details of all these suits brought against irregular practitioners and methods are given weekly in the *Allg. med. Ct.-Ztg.* of Berlin, from which the above is quoted.

Organization of the Profession in Germany.—The enormous growth of the *Leipziger Verband*, the German society founded a few years ago to protect the economic interests of physicians in Germany, especially in the matter of contract practice, has necessitated its reorganization on a somewhat different basis. This was accomplished at the representative meeting, held at Leipsic, November 6. It was learned that with a few exceptions the matter of contract practice had been satisfactorily adjusted, the sickness insurance societies—the *Krankenkassen*—no longer trying to grind down their medical officers to the extent that had prevailed previously. In many instances they had forestalled the demands, learning from the experiences in other places that the demands of a solidly organized profession could not be treated lightly. Those interested in this organization will find the details in THE JOURNAL of May 28, 1904, page 1435.

French Congress of Surgery in 1905.—The congress will convene at Paris the first Monday in October. The questions appointed for discussion are "Surgery of the Pancreas," "Restorative Surgery of the Face," and "Conservative Surgery in Trauma of the Limbs." It was decreed that suggestions for a subject to be inscribed on the order of the day at these congresses must be signed by at least twenty members to receive consideration. Before the recent congress adjourned it passed a resolution in regard to the Doyen cancer serum to the effect that the Pasteur Institute should be asked to repeat and control Doyen's researches, and that the Society of Surgery should admit Doyen—at his request—to present cancer sub-

jects before treatment and at every third month thereafter to note the progress of treatment. The appointment of a permanent committee had been suggested, but was outside the powers of the congress. The matter was thus left to the Pasteur Institute and the Société de Chirurgie to confer with Doyen and agree on the mode of investigation. The conference has been held and the Doyen serum is now being studied by eminent authorities.

Multiple Arsenic Poisonings by a Hysteric.—A woman at Bordeaux, belonging to the upper classes, has been convicted of theft, arson and of the poisoning of several members of her family. In the expert testimony, Anglade stated that she presented all the symptoms of the hysteric neurosis. She should be placed under restraint, he said, but not in an insane asylum. She belongs in the institution which all the congresses on mental disease have been clamoring for, a place where the dangerous incomplete, imperfect and semiresponsible should be kept under restraint. Pitres of Bordeaux compared the serenity of the prisoner, her lack of fear and of remorse, to the anesthesia of her integument and organs. He considered her responsible for her acts. They showed a logical sequence and love of crime. She voluntarily plans deeds, but she would never carry them into execution if she were not a victim of hysteria.

Isolation of the Tuberculous.—The Paris Société des Hôpitaux was requested by the authorities to suggest the best means for prompt, practicable isolation of the tuberculous in the hospitals. The committee in charge recommended that certain quarters in the hospitals should be set apart for tuberculous subjects. They should be in a separate pavilion, if possible, or, at least, it should have a separate entrance. The dishes, etc., should be numbered for individual use of the patients, and sterilizing apparatus should be provided for the linen and spittoons. Subjects with recognized tuberculosis should not have access to the other wards. Each ward should have several beds isolated from the rest of the room for provisional isolation of the dubious cases. There should be some establishment to serve as a home for the surplus tuberculous, and the number in the hospitals should always be kept down by evacuating the surplus, without further formality than a line from the physician in charge certifying to the diagnosis and demanding the admission of the patient on account of the crowded condition of the hospital quarters.

The Statue to Ollier.—On November 13 the colossal bronze statue of Prof. L. Ollier was unveiled at Lyons with appropriate ceremonies. Contributions for the statue had been received from physicians and surgeons the world around; some of the surgical societies made a special corporate contribution and sent a delegate to the ceremonies. Oscar Lassar of Berlin thus represented the German Surgical Association, and Lambotte of Brussels, van Stockum of Rotterdam and many other prominent surgeons were there in a similar capacity. The statue is the work of A. Boucher, one of the foremost sculptors of France, and represents Ollier standing, scalpel in hand. It is not far from the statue of Claude Bernard, another of Lyons' famous sons. In the addresses, Ollier's great work in promoting conservative surgery based on physiologic laws was duly emphasized. It was recalled that at the surgical congress held at Lyons in 1894 he exhibited 58 patients operated on according to these principles from ten to twenty-five years before, showing the fine functional results obtained in the new articulations resulting from his surgical intervention. On a table before him lay the bones resected from these patients, and those present could see for themselves the physiologic repair of the missing parts, and compare the bones with their regenerated substitutes.

Physician as Mayor.—Lyons is the second city in France, and for several years it has had a physician for mayor, Dr. V. Augagneur, who has recently been elected deputy to the national legislature, receiving 4,237 votes out of a possible 4,668. Dr. Augagneur is 49 years of age and is professor of pathology. He founded and edited for 15 years the *Province Médicale*, but relinquished this task when he became mayor. His stringent regulations in regard to posters, etc., have already been mentioned in THE JOURNAL, as also his nickname of "the emperor." His specialty is syphilography, and his address at the Brussels Preventive Congress led to the organization of the French extra-parliamentary preventive commission, of which he is one of the most active members, as also of the supreme board of the *Assistance Publique*—the administration of the hospitals, etc. He was a member of the city council for years before he succeeded Dr. Gaillon as mayor, and writes frequently for the local *Republican* on subjects of social

economics and hygiene, popularizing the latter in a series of papers entitled "Chats with the Doctor," signed with a nom de plume. The *Gazette Médicale de Paris* gives the platform on which he was elected deputy. We notice that it includes the assumption by the national government of all railroads, mines, insurance, banks, monopoly of alcohol and sugar refining. Further planks in this medical platform are child labor, the eight-hour day and the entire responsibility of the proprietors in industrial accidents, surveillance of factories by inspectors and limitation of inheritance of property to the direct line, outside of the direct line fortunes to be taxed by a progressive assessment.

From the Seat of War.—The *St. Petersburg med. Wochenschrift* has been publishing extracts from the letters home of physicians at the seat of war. The issue for November 12 contains a long letter from Dr. O. Hohlbeck, dated September 24. He describes the first weeks in August as passed in tents watching the pouring rain, with very little to do in the hospital in his charge just outside of Liaoyang. Then the Japanese advanced on the town and the great battle was fought, the Russians firing 104,000 grape shells and the Japanese many more. The hospital, with accommodations for 400, was soon overcrowded, and every day detachments of the wounded were forwarded by train to hospitals farther inland, to make room for the new hundreds and thousands constantly arriving. The wounded seemed to do well at first; if they could have been tended further without removal all would have been well, but the necessary evacuation and railroad trip brought on complications in many cases. The station was close to the hospital quarters and the reserve troops helped to carry the wounded to the cars. The system and order displayed seem to have been remarkable under the circumstances. The hospital force worked night and day and gradually grew so accustomed to the infernal din that they almost ceased to notice it. The thought of personal danger amid the shrapnel shells bursting around them does not seem to have occurred to them. The evening of the second day the commanding officer came that way and was amazed to find the hospital still there. He ordered them to clear out at once and move to a safer place up the railroad. So the tents were taken down and all the hospital paraphernalia put on the train and the hospital established again at a point farther north. Hohlbeck remarks that he did not have much linen to pack, as he had given away all of his to the wounded. Just before the hospital was evacuated several hundreds of the wounded were taken to the train, and as the soldiers were all engaged in the battle, the hospital force had to manage as best they could alone. He draws a graphic picture of the waiting for the trains, after nightfall, hundreds of wounded lying in tents or on the ground, in an agony of dread lest they be left behind, no lights allowed, and the cannonading and firing keeping up incessantly. The day had been the mikado's birthday and the Japanese were making superhuman efforts to complete their work on that anniversary. These letters are all in German, and are most interesting from every point of view. As they were not written for publication, the simple, homely style is all the more forcible. The surgeons found it necessary to operate at once in cases of injury of the blood vessels or of the bladder and in wounds of the skull, especially those with splinters and those in which the bullet took a tangential course. All other injuries were merely dressed and further surgical intervention postponed. The *Russkii Vrach* of November 6, No. 45, contains an article in Russian on the "Evacuation of the Wounded," read before the Charbin "Temporary" Medical Society in September. The physicians at the front are anxious to know if any means are known for restoring to consciousness persons overcome by the fumes of lyddite.

LONDON LETTER.

Presentation to the University of Cambridge of Dr. Ole Bull's Drawings.

The University of Cambridge has recently been placed under considerable obligation to Dr. Ole Bull, the eminent ophthalmic surgeon of Christiania, by his gift of 372 highly finished drawings in water color, illustrating diseases of the eye and ear. These drawings were exhibited at the museum of the recent meeting of the British Medical Association. They are portraits taken from typical and rare cases met with in hospital and private practice during the last thirty-six years, and show a minute accuracy and realism which have seldom been equaled. An important feature is that the collection is purely clinical, without any attempt at diagrammatic representation, and without exclusion of cases

which slightly differ from the usual type. Thus each disease is illustrated by drawings (with brief clinical notes) of a series of cases which should convey to the student a clear idea of its most common forms and variations. In his work, Dr. Ole Bull displays a high degree of technical excellence and the advantages of the surgeon being his own draughtsman; for only the trained observer can delineate the finer points of morbid changes with a correct appreciation of their meaning and importance. The thanks of the university have been given to Dr. Bull by a special act of the senate, which is accorded only to donors of gifts of recognized value.

The Conveyance of Smallpox by Vagrants.

The conference of sanitary authorities of England and Wales, to decide on a remedy for the tramp nuisance, referred to in THE JOURNAL, November 5, was held in London November 10, under the auspices of the London County Council. Many motions were adopted, and a committee was appointed to bring the views of the conference to the notice of the local government board and also to obtain parliamentary support. The members of the conference seemed to be of the opinion that the rights of the vagrant to personal liberty should be set aside where questions of public health are concerned. They considered that powers should be conferred on local sanitary officials to detain him if he is suspected of liability to convey infectious diseases, and to vaccinate or to revaccinate him and to disinfect his clothing. The conference also requested an investigation of the causes of vagrancy in Great Britain, and of the best methods for its repression.

The Infants' Health Society.

This society, formed last spring to spread the knowledge of the best way to combat the factors prejudicial to the health of infants, desires to maintain an infants' hospital; to encourage the formation of dispensaries and milk depots to supply with or without payment food adequate for the infant; and generally to further the work by means of pamphlets, leaflets, lectures, etc. A special committee, including Mr. Mayo Robson and Sir A. D. Frripp, will carry on a special hospital at Hampstead under the name of the Infants' Hospital. Sir Lauder Brunton, Dr. T. M. Rotch and Dr. Henry Ashby have been appointed consulting physicians and Dr. R. R. Vincent, physician. The society takes as its postulate that the public are lamentably deficient of the knowledge of the right manner to succor their children and that the medical profession does not realize that fact. The society has just published a pamphlet stating that one-fourth of the deaths in the United Kingdom occur in children under the age of one year and that a large proportion of those which survive develop rickets. Attention is called to the almost complete failure of the present method of rearing infants of the working class. The remedy proposed is the encouragement of maternal nursing under proper conditions and the insuring of adequate substitute food when this is impracticable. It is proposed to establish the following organization: 1. A milk depot or out-patient department where babies can be seen at regular intervals by a physician, who will prescribe suitable food; 2. a trained nurse resident in the district, with special experience in regard to infants, and 3, the co-operation of coroners so that inquests may be held on all infants whose deaths are *prima facie* due to improper feeding.

Arsenic in the Urine.

Mr. William Thomson, F.I.C., of Manchester has proved by an interesting investigation that arsenic may occur in the urine as a result of the environment of the individual. He found arsenic in the urine of some people living in that city and the question arose as to its source. In the urine of inhabitants of Manchester convalescing at the seaside, arsenic was only exceptionally found. The urine of persons engaged in glass manufacture in which arsenic was used was found to contain the drug in considerable quantities. Similar results were obtained with the urine of persons engaged at Swansea in metallurgical work in which the presence of arsenic may reasonably be presumed. It was also found in the urine of those not engaged in the operations, but living near the works. Laborers in nickel and cobalt works, copper smelters, colliers, pearl grinders and spelter furnace-men all excreted arsenic in the urine. On the other hand, the urine of people living in districts where only peat is burned was free from arsenic. Milk taken from cows in the neighborhood of Manchester contained minute quantities of arsenic, while samples taken from cows in the Hebrides showed no trace. Mr. Thomson also examined grilled meat for arsenic, as it was considered probable

that arsenic from the coal or coke used in grilling might contaminate it. This was found not to be the case, probably owing to the rapid current of air between the fire and the meat, which carries away any arsenic that may exist in the fuel. In cigarette papers only an inappreciable amount of arsenic was found. In the thyroid gland Mr. Thomson found a very minute quantity of arsenic, so minute that he thought it could hardly be regarded as a normal constituent, as Gautier had stated. The heart, spleen, liver, kidney and rib bones were found free from arsenic, but the lung contained considerably more arsenic than the thyroid gland and the hair a great deal more than either. In the brain a minute quantity was found.

The Royal College of Surgeons of England.

The annual meeting of the fellows and members of the Royal College of Surgeons of England was held with the president, Mr. Tweedy, in the chair. He placed before the meeting a report dealing with a large number of matters affecting the profession. Amongst these was the question of instituting a diploma in tropical medicine and hygiene. The attention of the council of the college was first called to the subject by the colonial secretary, who wrote referring to the decision of the University of Cambridge to establish such a diploma (as previously announced in THE JOURNAL) and suggesting the desirability of similar encouragement being given by the college to the study of tropical medicine. The Royal College of Physicians received a similar communication and the question was referred to the joint committees of management of the two colleges who, while expressing an opinion in many respects adverse to the proposal, nevertheless recommended that after a sufficient period of observation of such tropical diseases candidates should be admitted to an examination held by the royal colleges and, on passing, receive a diploma. After further opposition from the College of Physicians, who would not adopt the recommendation, holding (with their usual conservatism) that as tropical medicine is only a part of general medicine, such a diploma is unnecessary, a conference was held between representatives of the two colleges, and the following recommendations were adopted: 1. That visitors be appointed to attend the examinations of the School of Tropical Medicine and to report on the scope and study and on the examination, and that a request be addressed to the naval, military and colonial authorities to allow visitors to attend their examinations in tropical medicine for a similar purpose. 2. That at the end of a year a report be made by these visitors on the whole subject of tropical medicine. 3. That in the event of the colleges adopting these recommendations a communication be sent to the colonial secretary.

Another subject of the report was the communication received by the council from the Spectacle Makers' Company asking for the views of the college on a proposal to include sight testing in the examination held by the company and to extend their diploma by certification of efficiency therein (a proposal previously condemned by the British Medical Association at the last annual meeting, and by the Ophthalmological Society, as previously reported in THE JOURNAL). In replying, the council said that "considering the hidden dangers and the untoward possibilities that may attend almost any morbid state of the body, it is against public safety and welfare that any one should be deemed competent to prescribe any remedy or appliance who has not had an efficient medical and surgical training. In the interest of the public no countenance should be given to any proposal likely to foster the belief that tradesmen, whatever be their technical skill, are safe guides in the treatment of diseased conditions." The usual resolution, which has been passed for the last 20 years, condemning the refusal of the council to accede to the demand of the members for representation on that body was passed.

The New Buildings of the Liverpool University.

The foundation and development of universities in the provinces on the basis of the local medical schools is a phenomenon of quite recent years. New buildings of the medical school and a new physics laboratory have been opened at Liverpool by the chancellor (the earl of Derby) and Lord Kelvin respectively. A new anatomic museum 60x40 feet, lighted on both sides and surrounded by a gallery, and a dissecting room 70x40 feet, lighted on both sides as well as from the roof, have been built. Between the medical school and the physics laboratory are the laboratories of physiology and pathology named after the late Rev. Thompson Yates, who munificently provided the cost, and the Johnston laboratories of biochemistry, tropical medicine and comparative pathology. The physics laboratory covers 9,600 square feet and has an average height

of 55 feet. The foundation is on solid rock and every precaution has been taken to provide the solidity and rigidity required for the department. The buildings are heated by low-pressure hot water, ventilated by an exhaust fan in the roof and supplied with electricity for lighting and other purposes. In fact, they are replete with every modern apparatus and improvement. The cost is \$500,000.

Correspondence.

The Crusade Against Tuberculosis in St. Louis.

ST. LOUIS, Dec. 1, 1904.

To the Editor:—St. Louis is keeping pace with other cities in this work. Following the presentation of the subject of the limitation of tuberculosis in the conference of charities last spring, a committee on organization was appointed resulting in the formation of the St. Louis Society for the Prevention of Tuberculosis. The plan adopted was to make each branch as representative as possible and yet to some extent interdependent. The chairmen of the different special committees constitute the executive committee, which in turn is made the special committee on tuberculosis of the Civic League, which has over 3,000 members. In this way the society has the indorsement and sanction of the league without being limited in its work. The advisory committee consists of the president or manager of each large charity association, viz., the Provident Association, the Jewish Charities, the St. Vincent de Paul, the Salvation Army, and a member of the St. Louis Board of Health. The publicity committee includes the editor of each of the large dailies and the editors of medical journals. Beside these there are the committees on legislation, inspection, ways and means and the medical committee.

The plan of work has been somewhat delayed by the exposition, it being thought unwise to attempt public action until after December 1, but the measures proposed are as follows:

1. A statement to the public of the prevalence and danger of tubercular infection and an appeal for active, personal co-operation.
2. The distribution of leaflets in different languages with instructions for the hygienic care of the sick, the disposal of the sputum etc.
3. The inspection of the tenement parts of the city and the classifying of reported cases and the preparation of statistics as to places of greatest house infection.
4. Public lectures and school instruction.
5. Appointing of physicians in each ward who will give an hour in their office two or three times a week to the consumptive poor who come with an inspector's card.
6. The enforcement of the antispitting law in public places.

The question of a central dispensary and city sanatorium will come up later. Meanwhile a bill is pending in the city council giving the health commissioner specific power in dealing with tuberculosis in the crowded parts of the city. The new city hospital almost completed, will have a special pavilion for the consumptives, and it will not be long till we will have a city sanatorium outside the city limits for the convalescent and those in early stages.

The work at Mt. St. Rose, under the care of the Sisters of St. Mary, has been most gratifying. While the percentage of cures has not been great, possibly because cases in all stages are admitted, there certainly is a great opportunity for study in the care of these cases and of the methods for prevention and limitation. Plans for additional buildings are now completed which will double the present capacity.

Active effort in the work of the Society for the Prevention of Tuberculosis has been delayed because of the fact that the attention of all St. Louisans has been more or less given to the World's Fair, but with the happy termination of that enterprise we propose a more aggressive campaign. With an excellent organization and thorough indorsement by our great charities and health department, we hope to at least keep pace with other cities.

There is no doubt but that the limitation of tuberculosis is the question of greatest interest just now not only to the medical profession, but also to the public. It is largely a matter of education, for, while we do not know all about it by any means, if we only intelligently apply what we do know the disease will be largely controlled.

WILLIAM PORTER.

Travel Notes on Ceylon and the Singhalese.

CHICAGO, Nov. 23, 1904.

To the Editor:—I have read with much interest the "Travel Notes" on Ceylon by your able correspondent, Dr. Nicholas Senn. The statements of Dr. Senn apparently seek to give the impression that the Singhalese are the aborigines of Ceylon and are savages. The doctor says that "Ceylon was called Singhala by the natives of the island." It is not so. Originally Ceylon was known as Lanka or Lanka Dwipe (meaning the resplendent island). The word Singhalese was not derived from the name of the island, and the Singhalese are not the aborigines of Ceylon. Singhala (Sanskrit) means, literally, lion-killer—Singha, lion; hala, to fell. And the story is this: Wangu Desa, northeastern part of India, was the original abode of the ancestors of the present Singhalese race. A lion that devastated a part of that country, defying the prowess of many warriors, was killed by Prince Singhabahu, who was from that time known as the lion-killer. The band of warriors of the Rajput caste who came over to Ceylon under the leadership of Prince Wijaya, the son of Prince Singhabahu, called themselves Singhalese or lion-killers.

The Singhalese are the descendants of the Aryans of Central Asia and are members of the Indo-European or Caucasian race (see reports of John Bartholomew, F.R.G.S. Edinburgh).

"The rapid increase of the population of Ceylon," says Dr. Senn, "is not in accord with the fate of our Indians and Polynesians, whose rapid decimation and eventual extermination followed so promptly the footsteps of civilization." Allow me to say that the Singhalese have been a highly civilized and enlightened people for many centuries. Surely, however, the students of history are aware that the civilization of the world originated in north India, the original abode of the Singhalese race. Permit me to say that when I speak of world civilization I mean it in its spiritual as well as in its material sense. When the ancient Britons were in the wildest confusion on the banks of the Thames, having only leaves to cover their backs, we lived in substantial palaces built of stone, in the midst of luxurious surroundings. The ruins of palaces, temples, etc., which can be seen in the different parts of the island, eloquently testify to the fact of my statements. . . . The Singhalese should not be judged by the street beggars. The better classes of Singhalese have never been satisfied with the loin cloth alone. We have always robed ourselves in costly garments made of the finest textures of cotton and silk. . . .

I can not help but say that some of the results of the intercourse with Europeans are the introduction of abominable intoxicants, licensed prostitution and sensualistic habits, etc., and it is no wonder that the weaker races that were willing to ape the Europeans disappeared altogether. I am not blind to the many excellent qualities the Europeans possess, but I am forced to make the statement that those bad qualities counterbalance the others.

V. WIJETUNGE, M.D.

365 East Superior Street.

Discussion on Proprietary Remedies.

PHILADELPHIA, Dec. 5, 1904.

To the Editor:—On page 1680 of THE JOURNAL of the American Medical Association I am quoted as stating that eucain "is probably not worth anything." I trust that you will publish the statement that I had no intention whatever of singling out in the discussion eucain, and of stating that "it is probably not worth anything," for I have never believed this.

JOSEPH P. REMINGTON.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

INTERNAL VACCINATION.

EAST ORANGE, N. J., Nov. 28, 1904.

To the Editor:—In THE JOURNAL, November 26, you state that, so far as known, antitoxin, when administered by the mouth instead of by hypodermic injection, is powerless, because the digestive juices destroy the antitoxin before it can be absorbed by the system. You refer him also to an editorial in the same number, condemning the practice of certain homeopaths in Indiana [Iowa is evidently meant.—EDITOR] who are giving vaccine internally as a prophylactic against smallpox, and you say: "When taken internally, antitoxin and vaccine are easily [Our editorial said "usually," not "easily."—EDITOR] digested, and thus destroyed." It is with diffidence one questions editorial pronouncements, but there is much to be said against the view here expressed. During the last few years several communications from physicians have appeared in the columns of the *London Lancet*, and very probably elsewhere, concerning the administration of antitoxin by the mouth, and all speak very favorably of it, as it is a much less troublesome method with children, and the remedy loses nothing of its efficacy. The diagnosis had been confirmed in many cases by bacteriologic examination. My own experience in undoubted cases of diphtheria is similar. Further, in a doubtful case recently, where antitoxin was given by the mouth before the report from the board of health had been received, a few days later after the subsidence of all symptoms, there suddenly appeared on the body of the patient, an extensive erythematous rash, not resembling the characteristic eruptions of the infective fevers, and unaccompanied by any of their symptoms, that was evidently due to the action of the antitoxin. Why should antitoxin be destroyed or rendered inert in the stomach more so than other toxic substances? As to the particular prophylactic method mentioned against smallpox. I am not a homeopath, and am not greatly concerned to defend the practice. Indeed, I frankly confess that I never heard of it before. But during a residence abroad, I have known patients—children and others—to have been deliberately inoculated with smallpox by inserting in the nostril the crust of a pustule from a patient suffering with the disease, this being the primitive custom of the country. But why should this homeopathic practice be thought unreasonable? The specific action of vaccine is due to certain micro-organisms. Do not the germs of many diseases survive contact with the gastric juices, or has Koch's dictum as to the difficulty or impossibility of conveying tuberculosis by means of contaminated food and drink been so stretched as to cover all communicable diseases? The germs of typhoid fever certainly survive such contact, and as if to place the matter beyond all doubt, a nurse in a French hospital who wished to commit suicide, swallowed the contents of two tubes of a pure culture of typhoid germs. She did not die, but she had a very severe attack of typhoid fever, which seems to show that the germs did not die either, at least not for many days, and not until they had done their work. So with protozoan germs of malaria, Ronald Ross, who has done so much original investigation in this field, speaks of having seen cases of malaria arise in persons who had drunk water containing mosquitoes and their larvae. These germs, therefore, escaped digestion, first in the stomach of the mosquito, and later in that of the human being. Will you not favor us with a little further light on this whole subject, as, if we are sure of the efficacy of the method, it is certainly a great advantage to be able to give a crying, struggling child the serum by the mouth, instead of by hypodermic injection.

E. M. M.

ANSWER.—We do not find the clinical evidence cited by our correspondent sufficient to show that diphtheria antitoxin has any effect when given by mouth. His observations are too few, and which is more important, they lack altogether adequate control observations. The results of observations of such character do not at all satisfy scientific requirements. The fact that an erythematous rash appeared on the body of a patient who had received diphtheria serum by mouth proves absolutely nothing as to absorption of antitoxin, even though we may grant that the serum caused the eruption, because we know that it is not the antitoxin and other substances that give rise to the eruptions that sometimes follow injections of antitoxic serums. The following extract from Oppenheimer's "Toxin and Antitoxin" will give a good idea of what we really know concerning the possible fate of diphtheria antitoxin in the digestive tract: "In the digestive canal it (antitoxin) appears to be destroyed. Dzierzgowski found that immunization could not be accomplished by ingestion of antitoxin by mouth. Only in rabbits is it possible to demonstrate a slight

resorption after pouring antitoxin into the empty stomach. Hydrochloric acid is especially injurious, but neutral pepsin, pancreas and bile are fairly harmless. Nevertheless, it is not absorbed from the intestines." Carrière (*Ann. d'Inst. Pasteur*, 1899, xiii, 435) found that digestive ferments and intestinal organisms destroy antitoxins. Hence we see that experimental studies afford no support for the internal administration of diphtheria antitoxin. As to our correspondent's statements anent "internal vaccination," we would refer to our comments on Dr. Conner's letter. Nasal inoculation with the crusts of smallpox is a far different thing from "internal vaccination." In the further interest of greater discrimination in the use of the results of observations, we would ask whether other sources of malarial infection were wholly excluded in the case of the persons alleged to have acquired malaria after drinking water containing mosquitoes and their larvae. Finally, granting that such water may convey malaria, it nevertheless must be insisted that as yet we are not in position to draw many analogies between malaria, smallpox and "internal vaccination."

PASA, ILL., Nov. 30, 1904.

To the Editor:—I note your editorial on "Internal Vaccination," page 1636, and the answer to the question asked about the internal administration of antitoxin, page 1647, in which you say: "We do not know how universal in that school (homeopathic) is the faith in this method, but we can hardly believe that an educated homeopath would advocate it. . . . When taken internally, antitoxin and vaccine are usually digested and thus destroyed." Formerly I thought there could not be any other sensible way of looking at the question, and Feb. 4, 1902, I wrote an article for publication in the public press, at the request of a member of the State Board of Health, on "The Proper vs. Internal Vaccination," in which I denounced as silly and worse than useless the so-called "internal method" of vaccination. Since that date I have hunted up the authorities on the subject, and find in an accepted work on veterinary medicine, viz., "The Pathology and Therapeutics of the Domestic Animals," by Dr. Friedberger, professor of veterinary medicine in the Royal Veterinary School at Munich, and Dr. Fröhner, professor of veterinary medicine in the Royal Veterinary School at Berlin, translated by Prof. W. L. Zullif, M.D., D.V.S., late professor of surgery and obstetrics in the veterinary department of the University of Pennsylvania, the following words on the subject: "Very rarely is variola in the horse generalized. Chauveau has produced this form by inoculating the virus into the veins under the skin, and by causing it to enter the organism by inhalation or by insection. Warlomont and Pfeiffer have obtained similar results." Volume 2, page 629. I am not arguing for the method; I merely point to the curious statement, and shall let it go for what it is worth.

J. J. CONNER, M.D.

ANSWER.—Before long we may find it advisable to discuss more fully in our editorial columns some of the questions raised by the proposition to introduce "internal vaccination." At this time it may be well to point out for emphasis the general fact that vaccination and antitoxic treatment of diseases, such as diphtheria and tetanus, are fundamentally different and wholly distinct procedures. Antitoxin and vaccine are radically different substances. For the sake of clearness in discussion, these facts must be definitely recognized. The quotation cited by Dr. Conner certainly can have little or no value in deciding the real merits of the proposed internal vaccination in man. In the first place, the passage quoted is translated somewhat differently in Hayes' rendition of the same work into English: "Horse-pox rarely becomes general, a fact which Chauveau observed when he made his inoculation experiments with vaccine, intravenously and subcutaneously, by inhalation and by feeding. Warlomont and Pfeiffer obtained similar results." There is nothing in this statement to show that the virus of horse-pox is absorbed from the equine stomach. Unfortunately, we are not in position to consult the original to form some idea as to which translation is the more correct. The practical disadvantages of "internal vaccination," even if it were possible in this way to immunize susceptible individuals, are so obvious that the method will not receive serious consideration from the practical point of view. How would we know whether the vaccination had taken or not? And would there fore vaccine vesicles on the mucous membrane of the stomach or some other part of the digestive tract? To seriously propose "internal vaccination" in the present state of our knowledge bespeaks a condition of mind which we are loathe to believe exists in any "school."

INTERNAL DISINFECTANT IN INFECTIOUS CONDITIONS.

ATLANTA, GA., Dec. 5, 1904.

To the Editor:—Please tell me where I can obtain lortin, the drug mentioned in the abstract of Dr. Konrad Küster's article on page 1667 of THE JOURNAL. Do you know anything of its merits? J. E. A.

ANSWER.—The preparation in question may be obtained from Victor Koechl & Co., 122 Hudson St., New York City. We know nothing about its merits.

APPOINTMENT OF PANAMA HEALTH OFFICERS.

To the Editor:—Will you be so kind as to tell me how the medical corps of the health department of the Panama Canal is appointed? A. B. C.

ANSWER.—Through the Civil Service Commission, which should be addressed at Washington, D. C., for further particulars.

Marriages.

WALTER MILES, M.D., to Miss Zina Collins, both of Viola, Ill., November 9.

LINCOLN M. BOWMAN, M.D., to Mrs. Tillie Herzog, both of Alton, Ill., November 24.

JAMES E. BODEN, M.D., Milwaukee, Wis., to Miss Blanche L. Griffith of Chicago, November 1.

EDWIN WARREN RYERSON, M.D., to Miss Adelaide K. Hamilton, both of Chicago, December 6.

CLIFFORD BAILEY FARR, M.D., to Miss Katharine Elliott, both of Philadelphia, November 22.

EDWARD GUSTAVE BURGMAN, M.D., to Miss Winifred La Velle, both of Chicago, November 16.

CHARLES SAUR, M.D., Cincinnati, Ohio, to Miss Georgia E. Hayes of Cleves, Ohio, November 17.

WILLIAM J. HOSFORD, M.D., to Miss Nellie Elizabeth Benson, both of Alameda, Cal., November 23.

SUMNER M. MILLER, M.D., Peoria, Ill., to Miss Sarah C. French of Evansville, Ind., November 16.

W. TURNER WOOTTON, M.D., to Miss Emma Wilson Whittington, both of Hot Springs, Ark., October 5.

JAMES H. MONTGOMERY, M.D., Chambersburg, Pa., to Miss Nell Singleton Jackson at Miami, Fla., November 24.

EDWARD L. H. BARRY, M.D., Jerseyville, Ill., to Mrs. Anna R. Hayes of Wilksburg, Pa., at Alton, Ill., November 22.

REN A. SCHLAG, M.D., Monroe, Iowa, to Miss Emma A. Swanson of Cambridge, Neb., at Des Moines, Iowa, November 16.

Deaths.

William Robert Hutchinson, M.D. Castleton (Vt.) Medical College, 1849, delegate from Vermont to the American Medical Association in 1877 and 1892, member of the Vermont State Medical Society, thrice president of the Franklin County Medical Society, state senator in 1869 and 1870, died at his home in Enosburg Falls Vt., November 26, from cancer, aged 79.

William L. Newell, M.D. Jefferson Medical College, Philadelphia, 1859, a member of the American Medical Association, one of the ablest practitioners of southern New Jersey; a surgeon during the Civil War, and for many years local surgeon of the Pennsylvania system, died at his home in Millville, N. J., after a prolonged illness, November 27, aged 73.

William McGillivray, M.D. Toronto (Ont.) University Medical Faculty, 1890, a member of the College of Physicians and Surgeons of Ontario, the Minnesota State Medical Society and the Southwestern Minnesota Medical Society, died at his home in Pipestone from septicemia following an operation wound, after a short illness, November 28, aged 36.

James Newton McCandless, M.D. Jefferson Medical College, Philadelphia, 1863, of Prescott, Ariz., surgeon during the Civil War, for 35 years a resident of Arizona, died at Mercy Hospital, Prescott, November 25, aged 67. At a meeting of the Ypapai County Medical Society resolutions laudatory of its late member were unanimously adopted.

William Brooks Gray, M.D. Jefferson Medical College, Philadelphia, 1852, some time vice-president of the Medical Society of Virginia, of the Richmond Medical and Surgical Society and of the Richmond Microscopical Society, died at his home in Richmond, Va., November 24, aged 71.

John P. Ralls, M.D. Medical College of Georgia, Augusta, 1845, a member of the Alabama State Constitutional Convention of 1861, and a year later a member of the Confederate Congress, died at his home in Gadsden, Ala., November 23, after a long invalidism, aged 85.

William L. Coleman, M.D. Medical College of Georgia, Augusta, 1857, an authority on yellow fever and sent by the

United States government to Cuba in 1898 as an expert to study fever conditions there, died at his home in Houston, Texas, November 27, aged 70.

Alexander Rudolph Becker, M.D. New York Medical College, New York City, 1862, of Seattle, Wash., surgeon in the Civil War, who established a pathologic laboratory in Seattle in 1900, died in Victoria, B. C., from peritonitis following dysentery, September 2, aged 62.

James E. Gildersleeve, M.D. New York University, New York City, 1853, for many years health officer of Brookhaven, N. Y., died at his home in Port Jefferson, Long Island, November 25, nine days after an accident in which he had been thrown from his carriage, aged 78.

William E. Palmer, M.D. University of Buffalo (N. Y.) Medical Department, 1897, of Spokane, Wash., died at Sacred Heart Hospital, in that city, November 21, from acute nephritis, two days after an operation for appendicitis, aged 32.

James M. Brown, M.D. University of Louisville, 1882, chief medical examiner of the Pennsylvania Railroad Relief Association, died at his home in Spruce Creek, Pa., November 28, from paralysis, after an illness of sixteen days, aged 56.

James E. Booth, M.D. Medical College of Virginia, Richmond, 1894, of Petersburg, Va., died at the Memorial Hospital, Richmond, November 17, five days after an operation for appendicitis, which was followed by peritonitis.

William R. Newsome, M.D. University of Nashville Medical Department, 1860, the oldest practitioner in Carroll County, Tennessee, died at his home in McLemoresville November 17, after a short illness, aged 73.

William Osborn Taylor, M.D. Bellevue Hospital Medical College, New York City, 1866, of San Francisco, Cal., died in Alameda Hospital, November 11, from chronic leptomeningitis, after a long illness, aged 64.

William F. Cushman, M.D. College of Physicians and Surgeons in the City of New York, 1862, a retired physician of Chelsea Village, Manhattan, died at his home in Ridgefield, Conn., December 1, aged 66.

Leonard F. Pitkin, M.D. New York University, New York City, 1879, surgeon for the Interborough Company, died at his home in New York City, December 2, from kidney disease after a long illness, aged 46.

Phoebe A. Sprague, M.D. Northwestern University Woman's Medical School, Chicago, 1873, formerly of Springfield, Mass., died suddenly at her home in Albion, N. Y., November 28, aged 56.

Eli Griffin, M.D. Atlanta (Ga.) Medical College, 1856, one of the oldest physicians of Fulton County, Georgia, died at his home on the Brown Mill road near Atlanta, November 30, aged 75.

Edward F. Stevens, M.D. University of Maryland School of Medicine, Baltimore, 1853, some time coroner of Baltimore, died at his home in that city, November 19, from apoplexy, aged 77.

Abraham H. Shiveley, M.D. University of Louisville Medical Department, 1852, of Pleasant Hill, Mo., died at the home of his daughter in Kansas City, Kan., November 11, from dropsy, aged 76.

Thomas M. Edwards, M.D. Bellevue Hospital Medical College, New York City, 1874, of Dunlap, Iowa, died at the Woman's Christian Association Hospital, Council Bluffs, Iowa, November 18.

C. T. Taggart, M.D. Central College of Physicians of Indianapolis, 1856, a member of the Twenty-sixth General Assembly, died at his rooms in Sullivan, Ill., October 28, from pneumonia, after a brief illness, aged 57.

William H. Hill, M.D. Tulane University of Louisiana, New Orleans, 1869, health officer of Smith County, Mississippi, and once state senator, died at his home in Sylvanena, November 27.

Henry Cornelius Comegys, M.D. University of Maryland School of Medicine, Baltimore, 1854, died November 29 at his home in Scranton, Pa., after an illness of five days, aged 71.

Robert G. Wiley, M.D. Dartmouth Medical School, Hanover, N. H., 1836, died at his home in Bethel, Maine, where he had practiced for more than 67 years, November 22, aged 97.

Lorenzo M. Johnson, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, died at his home in Charleston, Ohio, November 13, from paralysis, aged 86.

Robert E. Dennis, M.D. Medical College of the State of South Carolina, Charleston, 1858, died suddenly from acute gastritis at his home in Bishopville, S. C., November 28.

Charles A. Foster, M.D. Ohio, 1848, died at the Thompson Memorial Hospital, Canandaigua, N. Y., November 25, from apoplexy, after a prolonged illness, aged 89.

David G. Hartzell, M.D. Jefferson Medical College, Philadelphia, 1858, surgeon during the Civil War, died at his home in West Philadelphia, October 25, aged 68.

William A. Lindsay, M.D. Medical Department University of Cincinnati, 1866, formerly of Louisville, died recently from pneumonia, at his home in English, Ky.

William J. Tripp, M.D. New York, 1881, died at his home in New York City, November 22, from cancer of the liver, after an illness of several months, aged 60.

J. N. Iliff, M.D. College of Physicians and Surgeons of Kansas City, Kan., 1895, died at his home in Welch, Cherokee Nation, I. T., August 23, from typhoid fever.

Austin S. Moak, M.D. Pennsylvania, 1872, of Helmer, Ind., died at St. Joseph's Hospital, Fort Wayne, after an operation for cancer, November 19, aged 55.

Charles Manville Downs, M.D. Yale University Medical Department, New Haven, Conn., 1883, died suddenly at his home in Chicago, November 24, aged 44.

Josephine Briggs, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, died at her home in Pasadena, Cal., September 8, aged 56.

Robert W. Eddleman, M.D., one of the first settlers of Pilot Point, Texas, died at the home of his son in that city, November 13, from pneumonia, aged 81.

Charles S. Durand, M.D. Medical College of Ohio, Cincinnati, 1889, of Chattanooga, Tenn., died at San Antonio, Texas, after a long illness, November 23.

William S. Hunt, M.D. Cincinnati College of Medicine and Surgery, 1870, died at his home in Springfield, Ohio, November 21, from apoplexy, aged 58.

Eugene Edward Martin, M.D. Niagara University Medical Department, Buffalo, N. Y., 1883, died at his home in Buffalo, November 23, aged 37.

A. G. L. Van Lear, M.D. Portland (Maine) School for Medical Instruction, 1867, died at his home in Long Glade, Va., September 8, aged 71.

Larkin L. Clark, M.D., formerly representative from Elbert County in the Georgia legislature, died recently at his home in Elberton, aged 85.

Alexis I. Dupont, M.D., but never a practitioner, died at his home near Greenville, Del., November 26, after an illness of one year, aged 61.

Pleasant T. Mask, M.D. University of Louisville, Ky., 1857, died at his home in Fourche Dam, Ark., November 27, after a lingering illness.

David E. Strain, M.D. Jefferson Medical College, Philadelphia, 1854, died at his home near Brownsburg, Va., November 26, aged 75.

John J. Diehl, M.D. University of Giessen, Germany, 1865, a pioneer physician of Centralia, Ill., died recently at his home in that city.

J. H. Alexander, M.D., for more than 50 years a practitioner of Hermon, N. Y., died at his home in that village, November 12, aged 80.

Jacob A. Bixler, M.D. Jefferson Medical College, Philadelphia, 1866, died at his home in Carlisle, Pa., of apoplexy, December 3, aged 65.

Sherburne L. Wiswell, M.D. Vermont Medical College, Woodstock, 1853, died at his home in Cabot, Vt., November 26, aged 79.

John H. Ruppert, M.D. Medico-Chirurgical College of Philadelphia, Pa., 1896, died at his home in Paterson, N. J., November 28.

Wilford L. Dunkeson, M.D. Kansas City (Mo.) Medical College, 1888, died recently at his home in Sprague, Mo., aged 41.

Marvin G. Hart, M.D. Illinois, 1883, of Chicago, died from apoplexy at St. Luke's Hospital, Chicago, November 26.

David W. Birge, M.D. Cleveland Medical College, 1848, died at his home in Hector, N. Y., November 24, aged 82.

Ascher S. Parker, M.D. Ohio, died at his home in Kendallville, Ind., November 16.

Book Notices.

THE ART OF CROSS-EXAMINATION. By Francis L. Wellman, of the New York Bar. With the Cross-examinations of Important Witnesses in Some Celebrated Cases. New and Enlarged Edition. Cloth. Pp. 404. Price, \$2.50 net. New York: The Macmillan Co., 1904.

This book, while primarily written for the lawyer, will be found both interesting and instructive by physicians. It is well in battle to know how the enemy looks on things and how he has entrenched himself, for then it will be more easy to meet his attacks. Physicians go on the witness stand more than any other class, and those who have had experience know to their sorrow what it is to go through the ordeal of a rigid cross-examination. Mr. Wellman has presented the matter in a very interesting way, and has mixed his suggestions with illustrative examples of cross-examinations, and not a few of these are examinations in which the witnesses were medical men.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY for Students of Medicine. By Winfield S. Hall, Ph.D., M.D. (Leipzig), Professor of Physiology, Northwestern University Medical School. With 39 illustrations and a Colored Plate. Cloth. Pp. 245. Price, \$2.75. Philadelphia and New York: Lea Brothers & Co., 1904.

This manual appears to meet its purpose very satisfactorily. The experiments designed to illustrate special physiology seem to be wisely selected, well arranged and clearly described. It may be permitted to suggest that one or two simple experiments might be introduced with advantage to illustrate the bactericidal and hemolytic qualities of normal blood. Phagocytosis by leucocytes also merits an experimental demonstration in the course of physiology. In general physiology muscle-nerve experiments are described with great detail from the electrical point of view. Unfortunately, there is not a single experiment to illustrate the rôle of ions in physiologic processes. In future editions it is hoped that this serious defect will be fully remedied.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY. For Students and Practitioners of Medicine. By Clowes M. E. Simon, M.D., the Resident Physician Johns Hopkins Hospital. New (2d) Edition. Revised and Enlarged. Cloth. Pp. 500. Price, \$3.25 net. Philadelphia and New York: Lea Brothers & Co.

The exhaustion of the first edition of this text-book in the comparatively short time of three years speaks well for its popularity and usefulness. The present edition has received many important additions, including an appendix of laboratory exercises which increases the usefulness of the book very much for the student and his instructor. Some chapters have been wholly rewritten, to-wit, those on digestion and the albumins. Simon's Physiological Chemistry may be recommended as a reliable and up-to-date text-book. Its arrangement is logical and the subject matter presented in a clear way.

THE OPTICAL DICTIONARY. An Optical and Ophthalmological Glossary of English Terms, Symbols and Abbreviations, Together with the English Equivalents of some French and German Terms Relating to Physical, Physiological and Pathological Optics, Optical and Other Instruments of Precision, and Terms Descriptive of Color and Photo-chemistry, to Which Are Added a Number of General and Mathematical Expressions. Edited by Charles Hyatt-Wood, F.R.P.S. Cloth. Pp. 196. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co., 1904.

This book gives a little more fully than the average dictionary the meaning of words and phrases used in ophthalmology. The list of symbols and abbreviations with their meanings, as employed by various authors, is also given. For the benefit of those who do not know Greek the author has added the Greek alphabet, which is frequently used in expressing optical and other mathematical data. The pronunciation of the letters is also given. This work should be of especial value to medical men who have not had ophthalmologic training as well as to specialists in ophthalmology.

THE URINE and Clinical Chemistry of the Gastric Contents, the Common Poisons and Milk. By J. W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Forty-one Illustrations. Seventh Edition. Revised and Enlarged. Cloth. Pp. 172. Price, \$1.00 net. Philadelphia: P. Blakiston's Son & Co., 1904.

When a handbook of this character has reached its seventh edition little need be said in its praise. Suffice it to say that the subjects of normal and morbid urine, gastric contents, poisons and milk are succinctly treated and the methods of analysis and examination well described.

State Boards of Registration.

COMING EXAMINATIONS.

Ohio State Board of Medical Registration and Examination, Columbus, December 13-15. Secretary, Frank Winders, M.D., Columbus.

State Medical Examining Boards of Delaware, Wilmington and Dover, December 13-15. Secretary, P. W. Tomlinson, M.D., Wilmington.

The Medical Examining Board of Virginia, Richmond, December 13-16. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, December 14-17. Secretary, J. M. Scott, M.D., Hagerstown.

Missouri State Board of Health, St. Louis University, St. Louis, December 19-21. Secretary, W. T. Morrow, M.D., Kansas City.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, December 21-22. Secretary, J. F. Kennedy, M.D., Des Moines.

Oklahoma Medical Examining Board, Guthrie, December 28. Secretary, E. E. Cowdric, M.D., Euld.

New Hampshire State Board of Medical Examiners, State House, Concord, December 28 and 29. Regent, Henry C. Morrison, Concord.

Utah State Board of Medical Examiners, Salt Lake City, January 2. Secretary, R. W. Flesher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, January 2-3. Secretary, Ancil Martin, M.D., Phoenix.

Board of Medical Examiners of the State of Oregon, Portland, January 3. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Minnesota State Board of Examiners, State Capitol Building, St. Paul, January 3. Secretary, C. J. Ringell, M.D., Minneapolis.

North Dakota State Examining Board, Grand Forks, January 3. Secretary, H. M. Wheeler, M.D., Grand Forks.

Rhode Island State Board of Health, Providence, January 5-6. Secretary, Gardner T. Swarts, M.D., State House, Providence.

Wisconsin Board of Medical Examiners, Hotel Pfister, Milwaukee, January 9-11. Secretary, Philip A. Forsbeck, M.D., Milwaukee.

State Medical Board of the Arkansas Medical Society, Little Rock, January 10. Secretary, J. R. Runyan, M.D., Little Rock.

Indiana State Board of Medical Registration and Examination, State House, Indianapolis, January 10-12. Secretary, W. T. Gott, M.D., Crawfordsville.

Vermont State Board of Medical Censors, Y. M. C. A. Building, Burlington, January 11-12. Secretary, S. W. Hammond, M.D., Rutland.

Board of Medical Supervisors of the District of Columbia, Washington, January 12. Secretary, Wm. C. Woodward, M.D., Washington, D. C.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

British Columbia Medical Board.—The examining board of the British Columbia Medical Council recently examined thirteen candidates for admission to practice in that province, nine of whom received licenses. The board for the current year consists of Dr. J. C. Fagan, Victoria; Dr. W. J. McGuigan, Vancouver; Dr. R. E. Walker, New Westminster; Dr. A. P. Proctor, Kamloops; Dr. J. M. Lefevre, Vancouver; Dr. J. C. Davie and Dr. O. M. Jones, Victoria.

Florida Report.—Dr. Louis de M. Blocker, secretary of the Medical Board of Examiners of the First Judicial District of Florida, reports the written examinations held at Pensacola during 1904. At each examination the number of subjects examined in was 7; number of questions asked, 70; percentage required to pass, 75. Five persons were examined, all of whom passed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Maryland Medical College.	(1904)	78, 80
Med. Dept. Univ. of Tennessee.	(1883)	76
Coll. of P. and S., Baltimore.	(1897)	84
Meharry Medical College, Tennessee.	(1904)	80

Georgia April Report.—Dr. W. V. Robertson, president of the Georgia State Board of Medical Examiners (Eclectic), reports the written examination held at Atlanta, April 1, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 80. Fifteen persons were examined, all of whom passed. All the candidates were graduates of the Georgia College of Eclectic Medicine and Surgery. The grade of 80 was reached by two, 82 by one, 84 by two, 85, 86 and 87 by one each, 89 by two, 90 by two, 93, 96 and 99 by one each. The general average attained was 87.6.

Georgia Homeopathic Report for 1904.—Dr. R. E. Hinman, secretary of the Homeopathic Board of Medical Examiners of the state of Georgia, reports the written examinations held at Atlanta during 1904. The number of subjects examined in was 10; total questions asked, 100; percentage required to

pass, 75. Only two persons were examined and both passed. Both were graduates of the University of Michigan Homeopathic Medical College. One (1903) reached the grade of 77.1; the other (1886) reached the grade of 75.

Kentucky Regulations.—Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, has notified medical students that the new rule requiring applicants for admission to medical colleges to pass an examination will be enforced. Dr. McCormack emphasizes the importance to the students of attending a college which complies with the requirements of the Kentucky State Board of Health.

Michigan October Report.—Dr. W. D. Harrison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 11-14, 1904. The number of subjects examined in was 19; total number of questions asked, 94; percentage required to pass, 75. The total number examined was 8, of whom 7 passed and one failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
University of Michigan	(1904)	84.52
Coll. of P. and S., Chicago	(1896)	80.21
Univ. of Helsinki, Finland	(1903)	83.57
Western University, London, Ont.	(1891)	80.68
McGill Univ., Montreal, Quebec	(1903)	90.53
Med. Coll. of Indiana, Indianapolis	(1904)	89.21

FAILED.

Mich. Coll. of Med. and Surg. (1899) 66.52

New Hampshire April Report.—Dr. James T. Greeley, secretary of the New Hampshire State Board of Medical Examiners, reports written examination held at Concord, Sept. 8-9, 1904. The number of subjects examined in was 7, and total number of questions asked, 70. The total number examined was 24, of whom 20 passed and 4 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Roston Univ. School of Medicine	(1899) 88,	(1896) 88
Baltimore Medical College	(1904)	77, 78, 75
Harvard Univ. Med. School	(1900) 77,	(1903) 75,
Univ. of Vermont Med. School	(1904)	85, 85, 75,
Puffs College Med. School	(1901)	82, 80, 75,
Dartmouth College Med. School	(1903)	79, 80
Medical School of Maine	(1904)	76
McGill University	(1904)	78

College.	PASSED.	Year Grad.	Per Cent.
Laval University	(1902)	45,
Coll. of P. and S., N. Y.	(1902)	71
Univ. of Bishop's College	(1904)	69

New Jersey October Report.—Dr. E. L. B. Godfrey, secretary of the State Board of Medical Examiners of New Jersey, reports the written examination held at Trenton, Oct. 18-19, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 44, of whom 33 passed and 11, 25 per cent., failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
University of Maryland	(1904)	84.1,
Columbia University, N. Y.	(1904)	80.8,
(1903) 85.1,	86.2,	94.9;	(1890) 87,
College of F. and S., Boston	(1904)	79.1
Harvard University, Texas	(1904)	75.3
Baltimore Med. Coll.	(1904)	87.5,
Baltimore Univ. School of Med.	(1904)	77.7,
College of P. and S., Baltimore	(1903)	80.1,
Georgetown Univ., Washington, D. C.	(1903)	81.9
Jefferson Med. Coll., (1902) 85,	83.5*;	(1903) 77.7,	(1904) 79.6*
81.7,			
Woman's Med. Coll., Penn.	(1901)	79.7,
Hahnemann Med. Coll. and Hosp., Penn.	(1904)	80.6,
Medico-Chirurgical Coll., Penn.	(1904)	75.8,
Johns Hopkins University	(1902)	90.7
Chicago Med. Coll.	(1879)	77.1

College.	PASSED.	Year Grad.	Per Cent.
Baltimore Univ. School of Med.	(1904)	62.5*,
Albany Med. Coll.	(1902)	62.7
Illinois Med. Coll.	(1902)	70.5
University of Naples, Italy,	(1888) 65.6,	(1898) 71.7*,
(1900) 71.2*,			
College of P. and S., Boston	(1904)	70.1
Medico-Chirurgical Coll., Penn.	(1903)	71.1
Columbia University, N. Y.	(1904)	73.6

*Second examination. †Third examination.

Oregon April and July Reports.—Dr. Byron E. Miller, secretary of the Oregon State Board of Medical Examiners, reports the examinations held at Portland, April 22 and July 14, 1904. The number of subjects examined in at each examination was 15; total questions asked, 100; percentage required to pass, 75.

At the April examination the total number examined was 32, all of whom passed. The following colleges were represented:

	PASSED.	Year Grad.	Per Cent.
Imperial Alexander Univ.	(1896)	80, (1901)	80
Willamette University, (1904)	the grade of 80 was reached by five and the grades of 81, 82 and 83 by one each.		
University of Oregon, (1904)	the grade of 79 and 80 were reached by one each, 81 was reached by five, 82 by four, 83 by four, and 84 by one.		
American Medical College	(1897)		79
Ohio Medical College	(1881)		80
Rush Medical College	(1903)		80
University of Michigan	(1901)		79
College of P. and S., Chicago	(1895)		80
College of P. and S., San Francisco	(1902)		83

The general average for all representatives of Willamette University at this examination was 80.7; for all representatives of the University of Oregon, 76.75.

At the July examination the total number examined was 27, of whom 21 passed and 6 failed. The following colleges were represented:

	PASSED.	Year Grad.	Per Cent.
Dunham Med. Coll., Chicago	(1901)		78
Crelighton Med. Coll., Omaha	(1902)		87
Hahnemann Med. Coll., Chicago	(1904)		79
College P. and S., Keokuk	(1895)		75
University of Michigan	(1904)		86
University of Minnesota	(1892)		82
Jefferson Med. Coll., Philadelphia	(1904)		84
Western Univ. Med. Dept., London, Ont.	(1904)		82
Northwestern University, Chicago	(1890)	84, (1904)	75
University of Iowa	(1901)	78, (1904)	76
Medical College of Ohio	(1893)		83
Harvey Med. Coll., Chicago	(1904)		83
Detroit Medical College	(1897)	87, (1903)	83
Miligan College of Medicine	(1895)		78
Kansas Medical College	(1900)		79
Rush Medical College	(1902)		90
Univ. and Bellevue Hosp. Med. Coll.	(1899)		86
Cooper Medical College, California	(1904)		86

	FAILED.	Year Grad.	Per Cent.
Starling Medical College, Ohio	(1895)		74
Ohio Medical University	(1895)		71
Western Reserve Med. Coll.	(1878)		59
St. Louis Coll. of P. and S.	(1904)		61
Two non-graduates.			

Pennsylvania June Report.—We quote here a further analysis which has been made of the June examination which we summarized in THE JOURNAL, August 27, page 623. Thirty-eight colleges were represented, among them colleges in Canada and Italy, the total number of candidates being 378, of which 2 failed to appear, 1 candidate withdrew and 1 was expelled. The number of failures was 72, making a percentage of 19 per cent. Among the Pennsylvania schools the Women's College of Pennsylvania leads with a percentage of 100, there being 13 candidates and no failures. The University of Pennsylvania presented 71 candidates, of whom 5 failed, being 7 per cent. failures. Jefferson Medical College is third, 12 out of 93 applicants failing, making a percentage of 13. Medico-Chirurgical College had 57 candidates, of which number 15 failed, giving 26.33 percentage of failures. The West Penn Medical College was represented by 51 candidates, with 8 failures, showing a percentage of 15.7. The Temple Medical College had 1 candidate and no failures. The highest individual average was obtained by Martha Tracy, Women's Medical College, 91.07. The relative grand averages obtained by the candidates of each institution show the following results:

Women's Medical College of Pennsylvania	83.57
University of Pennsylvania	73.39
Temple College (one candidate)	79.50
Jefferson Medical College	77.54
Medico-Chirurgical College	77.46

Association News.

The American Medical Association and the 1905 Fair.

The American Medical Association is going to find itself in excellent company at Portland next year, remarks the *Medical Sentinel*. Stimulated by the brilliant success achieved by the International Congress of Arts and Science at St. Louis, the directors of the Lewis and Clark Fair have made the broad and statesmanlike decision to arrange for a series of literary, scientific and sociologic conferences or institutes, of which the great national meetings shall form a harmonious part. For instance, the meeting of the National Association of Charities and Corrections, which is to be held here in June, 1905, will be made the center for an institute or conference on sociologic and penologic subjects. Similarly, the Association of American Libraries, whose annual meeting has just been secured for Portland, will be utilized for a series of conferences on lit-

erary topics, attended by the distinguished men of letters and literary experience who will be drawn by the national association. It is also proposed to utilize the American Medical Association in the same manner, by following or preceding it with conferences on scientific subjects whose chief attractions will be furnished by the eminent physicians and scientists who will be in attendance at the sessions. The attempt, of course, will necessarily be on a far more modest scale than that of the Congress of Arts and Science at St. Louis, but it will form an admirable feature of the fair, and will show that Portland is fully capable of appreciating and utilizing in a marked degree not merely the commercial and economic advantages of her fair, and of the great national sessions which will meet at that time, but also the literary and scientific. The plan adopted will be somewhat similar to that carried out so successfully at St. Louis, only probably limiting itself to American leaders, instead of including those of the world. Prominent workers and thinkers in the lines of literature, sociology, education and science will be selected and formally invited by the president and directors of the fair to attend and address the conferences held on their respective subjects. . . . Coming as it does during vacation time of the greater part of them, there is little doubt that many of them will consider the invitation favorably. If this admirable move meets with the success which it deserves, and can be followed by the erection of a fireproof art building, so that the loan of valuable pictures can be secured and the building retained as a permanent art gallery for Oregon, it will give a stamp to the fair which, together with its beautiful and picturesque natural surroundings, will render it unique and peculiarly attractive, in spite of its comparatively modest size. The profession of Oregon, together with the board of the Portland City Library Association and the State Association of Charities and Corrections, can rightfully be proud of their share in making a start toward this feature of the fair and toward rendering its further development possible.

NEW MEMBERS.

New members for the month of November, 1904:

ARKANSAS.	COLORADO.
Autrey, J. R., Columbus.	Allen, E. D., Telluride.
Atkinson, H. H., Furdoyce.	Anderson, Andrew, Boulder.
Bennett, Alfred, Limestone.	Cattermole, G. H., Boulder.
Carichael, A. L., Little Rock.	Cunningham, A. A., Denver.
Dorr, J. P., Do.	Martin, E. E., Denver.
Floyd, J. H., Western Grove.	McFadden, J., Del Norte.
Huddleston, G. D., Lamar.	South, John, Ouray.
Lindsay, Jas. H., Bentonville.	
Morgan, R. S., Do.	
Mackey, E. W., McMurrain.	
Poynor, Geo. V., Green Forest.	
Rhea, B. S., Hope.	
Thompson, J. S., Stephens.	
Westerfield, J. S., Conway.	
Webster, H. R., Texarkana.	
Younfner, F. W., Lewisville.	
CALIFORNIA.	CONNECTICUT.
Armstrong, Robt., Ramona.	Bassett, C. W., Sharon.
Armstrong, J. M., Los Angeles.	Bradeen, F. E., Essex.
Adams, L. P., Oakland.	Faine, R. C., Thompson.
Abbott, G. E., Pasadena.	
Bogle, S. S., Santa Rosa.	
Barney, H. N., Pt. Richmond.	
Crosby, D., Fruitvale.	
Curdiss, C. E., Oakland.	
Dunstmoor, J. M., Los Angeles.	
Murphy, W. M., Los Angeles.	
Bowers, T. M., Los Angeles.	
de Vecchi, Pavlo, San Francisco.	
Gibbs, Alex. S., San Francisco.	
Gibbs, Roy S., San Bernardino.	
Hopkins, S. W., Lodi.	
Ivanovich, Geo., Petaluma.	
Jellinek, E. O., San Francisco.	
Kier, Henry M., Woodland.	
Leimbach, J. H., Inleton.	
Lucas, Wm. Pt., Richmond.	
McConnell, A. P., San Francisco.	
Mehring, J. S., Oakland.	
Morris, C. A., San Francisco.	
Nichols, W. van D., Oceanside.	
Peck, Geo. W., Sawtelle.	
Plits, E. H., Knob.	
Reiz, Carr, San Francisco.	
Rumsey, W. W., Napa.	
Simmons, S. E., Sacramento.	
Smith, W. H., Los Angeles.	
Sunmeyer, John C., Santa Cruz.	
Titschworth, J. C., San Francisco.	
Walrath, G. B., Los Angeles.	
	DELAWARE.
	Burr, W. H., Wilmington.
	Cann, W. E., Kirkwood.
	Haines, W. F., Seaford.
	Stanton, J. G., Milford.
	DISTRICT OF COLUMBIA.
	Barker, W. H., Washington.
	Ball, C. A., Washington.
	Johnson, W. H., Washington.
	Morhart, F. H., Washington.
	Masteron, W. L., Washington.
	Mink, O. J., U. S. N., Washington.
	Richardson, J. J., Washington.
	Stene, C. N., Washington.
	FLORIDA.
	Baltzell, N. A., Marianna.
	Freeman, A. H., Starke.
	Michell, W. F., St. Andrew.
	Stukes, J. T., Lloyd.
	GEORGIA.
	Belt, I. J., Millen.
	Burdett, R., Tennville.
	Daves, J. M., Blue Ridge.
	Doster, W. H., Rocky Ford.
	Edge, J. T., Toceca.
	Eldrod, J. O., Forsythe.
	Ellis, L. M., Monticello.
	Gammage, J. T., Pine View.
	Jernigan, C. S., Sparta.
	Jones, L. H., Atlanta.
	Lamar, Lucius, Dawson.
	Lunsford, J. E., Preston.
	Mathews, A. E., Elberton.

Nippe, R. J., Cartersville.
Patterson, J. H., Cuthbert.
Walls, J. R., Stone Mountain.

IDAHO

Woodward, J. C., Payette.

ILLINOIS

Aderhold, T. H., Zeigler.
Anker, I. C., Chicago.
Aitch, D. W., Galesburg.
Beiz, H. E., Chicago.
Butler, W. J., Chicago.
Brown, E. M., Chicago.
Buck, J. E. P., Potomac.
Brody, W. O. R., Galesburg.
Brown, G. B., Watska.
Buttman, F. P., Chicago.
Barat, S. S., Chicago.
Caldwell, C. P., Chicago.
Carter, W. A., Trenton.
Carson, G. T., Chatsworth.
Carr, F. M., Chicago.
Clampit, I. H., Jacksonville.
Cossalt, W. S., Potomac.
Coe, T. D., Keithsburg.
Cuthworth, C., Decatur.
Caulkins, Nellie M., Manito.
Cooper, S. R. M., Rossville.
Daly, J. Nellis, Orangeville.
De Fries, A. C., Thawville.
Doyle, L. M., Chicago.
Eldred, C. C., Joliet.
Ehrlich, M. E., Chicago.
Engelst, G. P., Chicago.
Fisher, F. A., Chicago.
Gordon, J. H., Peachontas.
Godfrey, F. H., Bloomington.
Graham, J. M., Chicago.
Garm, R. H., Beardstown.
Hackett, Emma C., Chicago.
Huntington, E. O., Chicago.
Hubbard, C. M., Virginia.
Hancock, C. J., Greenwood.
Hall, Omar O., Millford.
Houston, S. D., Polo.
Hurrey, S. N., Chicago.
Holton, H. C., Sibley.
Ikanyau, N. E. C., Charleston.
Jones, Thos. W., Cornell.
Kewett, D. L., Watska.
Johnson, Levi O., Chicago.
Knob, T. B., Quincy.
Kenyon, E. L., Chicago.
Kee, P. M., Litchfield.
Kontz, C. J., Beardstown.
Kuehn, Otto, Burksville.
Linder, A. W., Oak Park.
Millum, S. J., Chicago.
McCall, F. H., Franklin.
Mitchell, L., Chicago.
McCleary, W. W., Chicago.
Nagar, J. S., Watska.
Nienrath, W. W., Chicago.
Nowlen, J. A., Morrison.
Ozden, E. R., Chicago.
Ollis, H. G., Odell.
Parsons, W. C., Chicago.
Phifer, J. N., Shumway.
Potts, H. A., Jacksville.
Quirk, J. P., Chicago.
Rosenthal, G. E., Quincy.
Rowers, B. S., Chicago.
Redshaw, B. F., Curran.
Redlich, H., Chicago.
Reynolds, J. B., Assumption.
Roberts, H. B., Highland Park.
Rensh, C., Lincoln.
Rensmeier, R. E., Chicago.
Rehr, C. G., Chicago.
Salsburg, S. S., Polono.
Soper, A. C., Chicago.
Sweeney, J. S., Chicago.
Stoes, J. P., Chicago.
Strangue, T., Sheffield.
Steady, G. W., Louisville.
Smith, W. K., La Harpe.
Sloerz, H. E., Champaign.
Szwajkart, A., Chicago.
Sancerman, J. W., Winslow.
Schniragel, C., Chicago.
Seiner, L. G., Walnut.
Stamm, J. C., Chicago.
Stults, B. F., New Holland.
Taylor, W. S., Tallula.
Thorsgaard, K. L., Chicago.
Tobler, J. L., Libertyville.
Torrison, G. A., Chicago.
Todd, J. E., Chicago.
Tieken, T., Chicago.
Tolner, J. W., Atlin.
Vorheis, C. H., Hutsonville.
Weis, J. W., Manchester.
Wood, W. C., Decatur.
Williams, A. W., Chicago.
Weatherford, F. A., Chicago.
Wagoner, L. T., Jerseyville.
Wild, T. Jr., Chicago.
Williams, W. B., Rockana Park.
Wright, E. A., Lake Forest.

INDIAN TERRITORY

McMillan, C. W., Ada.

INDIANA

Angel, C. K., Richmond.
Blomberg, J. L., Elkhart.
Clifford, A. W., Elfton.
Knoel, A. F., Floyd.
Hadley, J. W., Hoosville.
Haug, W. W., Indianapolis.
Hodges, F., Indianapolis.
Howard, J. L., West Baden.
Hollis, E. A., Hartford City.
Kearney, J. G., Greensburg.
Lukemeyer, L. C., Huntingburg.
McBeth, W., Burnetts Creek.
Meyers, J., Alton.
Mason, C. H., Tipton City.
Morris, W. F., Fort Branch.
Nesbitt, W. S., La Fayette.
Nusbaum, C. E., Bremen.
Rowe, L. M., Indianapolis.
Rutherford, F. S., New Albany.
Schiller, F. W., Evansville.
Sherwood, E. T., Linton.
Stottemeyer, C. I., Hagerstown.
Short, L. W., Elkhart.
Smoat, D. B., Washington.
Taylor, T. H., Evansville.
Teeters, B. F., Middlebury.
Van Swinger, J. C., Fort Wayne.
Wilking, S. V., Roanoke.

IOWA

Bilby, A. M., Galva.
Bare, E. A., Superior.
Bell, E. P., Pleasanton.
Brewer, L. S., Quincy.
Bassler, B. G., St. Charles Ferry.
Brown, S. J., Fanora.
Cross, G. B., Plainfield.
Carlisle, A. W., Manning.
Flitz, G. T., Spring Lake.
Gasson, J. H., Blossum Valley.
Grigsby, A. G., Humboldt.
Hine, C. W., Stanton.
Jewell, R. T., Urhanna.
Kelloge, C. F., Ashboro.
Lee, G. M., Thompson.
Matthews, R. J., Clarinda.
O'Brien, T. A., Emmetsburg.
Pray, G. L., Lake City.
Shining, A., Bennett.
Shideler, A. B., Adair.
Thompson, J. W., U. S. Navy.
Wall, T. M., Osceola.

KANSAS

Beach, W. B., Clyde.
Fee, W. F., Meade.
McClintock, J. C., Toneka.
Murdock, S., Sabatha.
Robinson, P., Hays.
Rankin, E. C., McLauris.
Scott, A., Breckenridge, Jemore.
Arnett, B. T., Anton.
And, C. Z., Ceclian.
Bortis, J. W., Owenite.
Burt, W. T., Hill.
Cowan, J. R., Danville.
Davis, J. S., Lovelaceville.
Harris, J. W., Richmond.
Hussey, J. H.,erville.
Lone, W. H., Louisville.
Montgomery, E. W., Ceclia.
Neler, S. C., Bardstown.
Nusz, H. R., Ceclian.
Simmons, M. J., Lexington.
Smith, C. R., Millersburg.
Vaucht, C. H., Richmond.
Wathen, J. R., Lovellville.
Walker, F. M., Fair Lick.

LOUISIANA

Calvert, F. H., West Monroe.
de Monsabert, A. M. G., Covington.
Daniel, J. M., Star Hill.
Gallion, Z. T., Natchitoches.
Hearn, N. M., Metairie.
Kearor, J. I., Bermuda.
Lockett, E. F., Loyd.
Martin, J. G., Lake Charles.
Mills, T. T., Zachary.
Perkins, T. J., Red Fish.
Parker, O. E., Sibley.
Schilling, C. A., Abbeville.
Slyman, J. C., Haynesville.
Trotter, W. Larose.
Viallon, L. H., Bayou Genla.

MAINE

Bowes, J. W., Portland.
Hagerby, G. R., Bar Harbor.
Madden, M. C., Old Town.
Sturtevant, J. S., Dixfield.

MARYLAND

Adler, Harry, Baltimore.
Billingsley, J. H., Vestalmaster.
Browne, J. N., Baltimore.
Briscoe, Philip, Mutual.
Carmenter, F. A., Baltimore.
Dickerson, J. D., Stockton.

Deets, J. E., Clarkburg.
Elienne, A. O., Berwyn.
Gaver, W. E., Mt. Airy.
Hall, Lee, Pocomoke City.
Keown, F. W., Baltimore.
Loudenbaugh, F. B., Grantsville.
Lewis, W. L., Kensington.
Miller, W. P., Hagerstown.
Owings, E. E., Baltimore.
Petekran, H., Sparrows Point.
Richardson, H., Baltimore.
Wilson, J. H., Fowlesville.

MASSACHUSETTS

Abbott, E. S., Waverly.
Ahearn, C. A., Salem.
Abhoff, P. H., Taunton.
Bowditch, H. P., Boston.
Blair, A. W., Dorchester.
Blalsdell, G. W., Manchester.
Bigelow, F. H., Framingham.
Bancroft, E. E., Wellesley.
Craigin, G. A., Boston.
Cheney, F. E., Boston.
Cheever, David, Boston.
Cousens, N. W., Waltham.
Collins, L., Waltham.
Dutton, Richard, Wakefield.
Dennet, A. G., Lowell.
Donaldson, J. P., Salem.
Foster, E. E., New Bedford.
Foley, T. J., Worcester.
Golden, M. C., Taunton.
Goulden, F. L., Cambridge.
Gronard, J. S., Nantucket.
Houghton, S. A., Brookline.
Hall, H. J., Marblehead.
Johnson, W. L., Exbridge.
Lane, W. A., Milton.
Mayberry, E. N., So. Weymouth.
Mansur, L. W., Boston.
Marvell, M. W., Fall River.
Odiorane, W. C., Taunton.
Richardson, W. S., Marlborough.
Robinson, T. J., Taunton.
Symonds, B. R., Salem.
Sheehan, J. D., Quincy.
Sanborn, F. J., Worcester.
Thompson, C. E., Gardner.
Tracy, E. A., S. Boston.
Urquhart, J. E., Ashfield.
Welch, J. F., Quincy.
White, J. C., Boston.
Williams, F. P., Boston.
West, G. I., New Center.
Wood, N. K., Sumnerville.
Wilkin, A. M., So. Framingham.
Woodward, J. R., Oxford.
Yousuf, A. K., Worcester.

MICHIGAN

Clark, C. A., Harbor Springs.
Landon, H. B., Bay City.
Lyons, W. S., Lake Lake.
Taylor, E. C., Jackson.
Traphagen, C. A., Armada.
Watson, W. C., Pontiac.
West, A. E., Berne Rapids.
Wiley, H. H., Utica.
Zudzense, B. J., Sparta.

MINNESOTA

Bartelson, O. L., Crookston.
Cirkler, A. A., Minneapolis.
Clement, J. B., Lester Prairie.
Cummings, J. C., St. Haire.
Clark, C. L., White Bear.
Danielson, K. A., Twin Valley.
Darrow, D. C., Moorhead.
Davis, H. S., Duluth.
Gandy, F., Harmony.
Haversa, T. W., Silver Lake.
Helmark, K. O. E., Hawley.
Jones, H. W., Minneapolis.
Mossa, F. R., Rochester.
Mslchow, C. W., Minneapolis.
McCloud, C. N., St. Paul.
McGuigan, H., Mazepa.
Newman, G. N., LeGordon.
Spring, W. P., Minneapolis.
Schneider, H. A., Jordan.
Slippers, Halfdan, Fosston.
Soderlund, A. M., Minneapolis.
Vollmer, Josef, Hutchinson.
Weiser, F. K., Windom.
Warne, E. G., St. Paul.

MISSISSIPPI

Anderson, J. B., Choat.
Bryan, G. S., Amory.
Basham, J. W., Hamilton.
Bridges, Chas., Phebe.
Bramlitt, A. C., Oxford.
Casey, J. P., Woodville.
Colman, R. C., D. Margary.
Ewin, J. S., Vicksburg.
Eley, W. W., Merrill.
Gunter, J. T., Hollandale.
Hayes, C. L., J. H. Gallia.
Hubbard, J. H., Cliftonville.
Hunter, Thos., Biloxi.
McKlanon, H. L., Carriere.
McLeod, N. J., Millip.
Norman, C. R., D'Ilo.

Pierce, L. E., Friars Point.
Poik, L. L., Furvis.
Quin, R. A., Vicksburg.
Stanley, J. S., Brookville.
Sexton, F. B., Vicksburg.
Simmons, J. T., St. Amantville.
Williams, J. E., Benoit.

MISSOURI

Brosius, W. L., Gallatin.
Dickson, L. M., Revere.
Engman, M. E., St. Louis.
Montgomery, E. S., Kansas City.
McQuade, H. D., Kansas City.
Smith, J. W., Richmond.
Stackwell, B. E., St. Louis.
Shapleigh, J. B., St. Louis.
Walls, F. C., Maryville.

MONTANA

Dye, W. G., Deer Lodge.
Sweeney, C. G., Great Falls.

NEBRASKA

Brown, I. C., Ft. Niobrara.
Bartholomew, W., Gothenburg.
Braut, F. E., Omaha.
Dodson, P. F., Wilber.
Dunham, F. S., Cozad.
Kley, J. D., York.
Kirkpatrick, C. F., Ashland.
Line, T. H., Marquette.
Purdin, Cyril, Lexington.
Tatlow, W., Hartsville.
Troster, L. S., Niobrara.

NEW JERSEY

Carrigan, E. S., Ft. Pleasant.
Deegan, C. E., Sparta.
Forman, D. McL., Freehold.
Hecht, Max, West Hoboken.
Janeway, H. H., New Brunswick.
Kinmonth, W., Farmingdale.
Knight, S. R., Spring Lake.
Newton, Anne B., So. Orange.
Pierson, S., Morrisstown.
Reid, J. D., Kenilworth.
Shaw, H. E., Long Branch.
Wallhauser, H. J. F., Newark.
Wilson, W. S., Newark.

NEW HAMPSHIRE

Mitchell, A. W., Epping.
Sikovsky, V. H., Salem.
Thompson, E. B., Farmington.
Walker, W. D., Portsmouth.

NEW MEXICO

Masie, J. A., Santa Fe.

NEW YORK

Adams, C. T., New York City.
Beaman, C. P., Ithaca.
Besmer, H. B., Ithaca.
Beach, B. S., New York City.
Campbell, C. E., Niagara Falls.
Douglass, C. E., Louisville.
Gottschalk, W., Buffalo.
Lappens, J. C. S., Binghamton.
Loughlon, E. J., Andover.
Pheps, H. E., Carthage.
Ross, J. L., Socon.
Sprague, W. G., Barton.
Stella, Antonio, New York City.
Storer, F. B., Holley.
Sutton, J. E., Albion.
Tanner, J. S., New York City.

NORTH DAKOTA

Bartley, W. M., Sheyenne.
Leslie, A. C., Hannaford.
Ramstad, N. O., Bismarck.
Rasmussen, Fred P., Kathryn.

OHIO

Arndt, G. D., Mt. Vernon.
Bowen, C. F., Columbus.
Eaton, G. N., LeGordon.
Garus, Giovanni, Cleveland.
Clark, A. T., Vinton.
Calvin, H. M., Salineville.
Dunlap, C. O., Minneapolis.
Greaves, J. L., Andrews.
Greive, J. E., Cincinnati.
Illner, S. E., Lima.
Howell, W. R., Rio Grande.
Johnson, K. M., Wooster.
Kattenhorn, H. F., Cincinnati.
Lamb, F. L., Glendale.
Lehman, H. F., Home City.
Greaves, J. H., Andrews.
Mitchell, A. W., Georgetown.
Mundlich, G. C., Brookville.
Minch, G. E., Farmingham.
Mills, R. C., D. Margary.
Pope, Carlyle, Cleveland.
Parker, C. G., Gallipolis.
Richard, W. H., Gallipolis.
Ridder, C. O., John, Glendale.
Rhodes, O. A., Salem.
Stein, Geo. S., Columbus.
Symons, J. P., Rockford.
Sherry, W. D., Millip.
Sprucey, A. B., Cleveland.

Russia: Oct. 23-Nov. 5, Moscow, 8 cases, 3 deaths; St. Petersburg, 11 cases, 4 deaths; Oct. 2-15, Warsaw, 24 deaths.
Spain: Barcelona, Nov. 1-10, 13 deaths.
Turkey: Oct. 29-Nov. 5, Beirut, present; Nov. 7-13, Constantinople, 15 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Oct. 31-Nov. 6, 2 cases, 2 deaths.
Mexico: Nov. 13-19, Coatzacoalcas, 1 case, 4 deaths; Merida, 1 case, 1 death; Tuxtitepec, 30 cases, 3 deaths; Vera Cruz, 3 cases, 1 death.
Panama: Colon, Nov. 20, 1 case.
Venezuela: Lagunaira, Nov. 12, present.

CHOLERA.

India: Oct. 26-Nov. 1, Bombay, 1 death; Oct. 23-29, Calcutta, 8 deaths.
Russian Empire: Oct. 10-25, Baku, 26 cases, 9 deaths; Oct. 17-24, Kilsit-Arwat, 1 case; Merv, 1 case; Serachs, 1 case.

PLAGUE.

Brazil: Rio de Janeiro, Oct. 23-Nov. 6, 62 cases, 28 deaths.
British South Africa: Durban, Oct. 1, 1 case.
Egypt: Alexandria, Oct. 22-28, 1 death.
Formosa: Talhoku, Sept. 3-10, 1 case, 1 death.
India: Oct. 26-Nov. 1, Bombay, 60 deaths; Oct. 23-29, Calcutta, 4 deaths; Oct. 17-23, Karachi, 9 cases, 8 deaths.

Medical Organization.

Delaware.

KENT COUNTY MEDICAL SOCIETY.—Drs. George W. Marshall, Milford; Ezekiel W. Cooper, Camden, and other physicians met at Dover, November 17, and organized this society on the standard plan. Dr. James Wilson was elected president and Dr. L. August H. Bishop, secretary and treasurer, both of Dover.

Indiana.

FAYETTE COUNTY MEDICAL SOCIETY.—With the aid of Dr. David W. Stevenson, Richmond, counselor for the Sixth District, this society was organized at Connersville, October 13, on the standard plan, the following officers being elected: Dr. George F. Van Pelt, president; Dr. Frank J. Spilman, vice-president, and Dr. E. Everett Hamilton, secretary, all of Connersville.

THIRTEENTH DISTRICT MEDICAL SOCIETY.—Physicians of this councilor district met at South Bend, October 20. Dr. Charles A. Daugherty, counselor for the district, presided. Dr. J. N. McCormack, national organizer, made an address, and the society organized with the following officers: Dr. G. W. Thompson, Winamac, president; Dr. Irvin J. Beeknell, Goshen, vice-president, and Dr. John B. Berteling, South Bend, secretary.

Iowa.

SEVENTH DISTRICT MEDICAL SOCIETY.—At the first annual meeting of this society held in Des Moines, October 27, organization was perfected and the following officers were elected: Dr. Edward E. Dorr, Des Moines, president; the presidents of the component county societies, vice-president, and Dr. C. A. Ayres, Des Moines, secretary and treasurer.

Kansas.

ANDERSON COUNTY MEDICAL SOCIETY.—The physicians of the county met at Garnett November 30, to discuss the advisability of reorganizing their county society, which has had only a nominal existence. After the plan of work had been explained by Dr. J. N. McCormack and thoroughly discussed, the standard constitution and by-laws were adopted and the present officers continued until the annual meeting to be held in December. These officers are: Dr. George Schoonover, Garnett, president; Dr. David O. Taylor, Greeley, vice-president; Dr. John R. Scott, Garnett, secretary, and Dr. J. B. Jones, Garnett, treasurer.

BOURBON COUNTY MEDICAL SOCIETY.—The physicians of the county met at Fort Scott December 1, with a representative attendance from several adjoining counties. After an explanation of the plan and purposes of organization by Dr. J. N. McCormack and a free discussion, the standard constitution and by-laws were adopted and the following officers were elected: President, Dr. Millard F. Jarrett; vice-president, Dr. Robert Aikman; secretary and treasurer, Dr. Joseph B. Carver; censors, Drs. Charles A. Van Velzer, E. P. Payne and William S. McDonald, all of Fort Scott. There are over sixty physicians in this county. Weekly meetings will be held and the prospects for an excellent society are promising.

SEDGWICK COUNTY MEDICAL SOCIETY.—The physicians of the county met at Wichita November 29, and after a full discussion of the matter, adopted the standard constitution and by-laws, decided to hold weekly meetings and elected the fol-

lowing officers: President, Dr. J. Franklin Gaell; vice-president, Dr. James W. Cave; secretary, Dr. H. S. Hickok; treasurer, Dr. John C. Brown; censors, Drs. John D. Clark, George C. Purdue and James W. Kirkwood, all of Wichita. The physicians of Wichita have been organized for some years as the Academy of Medicine, and this body has met weekly and done much valuable work. The question of merging the two bodies was discussed and left open for future consideration.

FORD COUNTY MEDICAL SOCIETY.—The physicians of Ford county met at Dodge City November 26, and after addresses by Drs. Horace G. Welch of Hutchison and J. N. McCormack of Bowling Green organized a county society, adopting the standard constitution and by-laws. Dr. W. H. Graves was elected president; Dr. Herbert Whitworth, vice-president; Dr. Claude E. McCarty, secretary; Dr. Harvey W. Garrett, treasurer, and Drs. Charles A. Milton, James Hawkins and Thomas L. McCarty, censors, all of Dodge City.

RENO COUNTY MEDICAL SOCIETY.—The physicians of Reno County met at Hutchison, November 25, and after explanations by Drs. Oliver J. Furst, Peabody, counselor for the district, and J. N. McCormack, chairman of the Committee on Organization, formed a new county society on the standard plan. Dr. Hunter J. Duval, Hutchison, was elected president; Dr. William H. Bauer, Sylvia, vice-president; Dr. George R. Gage, Hutchison, secretary; Dr. Cornelius A. Mann, Hutchison, treasurer, and Drs. Horace G. Welch, Clemens Klippel and Cornelius A. Mann, all of Hutchison, censors.

Maryland.

ALLEGANY COUNTY MEDICAL SOCIETY.—This society was organized at Cumberland October 6, on the standard plan, with the following officers: Dr. J. Jones Wilson, Cumberland, president; Drs. Arthur H. Hawkins, Cumberland, and A. G. Smith, Midland, vice-presidents; Dr. Edgar T. Duke, Cumberland, secretary, and Dr. John A. Doerner, Cumberland, treasurer.

WASHINGTON COUNTY MEDICAL SOCIETY.—At a recent meeting of this society the following officers were elected: Dr. S. Seibert Davis, Boonsboro, president; Dr. William P. Miller, Hagerstown, vice-president; Dr. Victor D. Miller, Jr., Hagerstown, secretary; Dr. Hamilton K. Derr, Hagerstown, treasurer; Drs. J. McPherson Scott, Hagerstown; V. Milton Reichard, Fairplay, and C. D. R. Miller, State Line, censors, and Dr. James W. Humrhouse, Hagerstown, delegate to the Medical and Chirurgical Faculty of Maryland. The society approved the adoption of the constitution as suggested by the American Medical Association.

New Hampshire.

COOS COUNTY MEDICAL SOCIETY.—This society was organized at Whitefield in October, with the following officers: Dr. Ezra Mitchell, Lancaster, president; Dr. John D. Holt, Berlin, vice-president; Dr. Frank W. Evans, Coos, secretary and treasurer; Drs. Edwin E. Jones, Colebrook, Louis B. Marcou, Berlin, and Richard E. Wilder, Whitefield, censors, and Drs. Charles C. O'Brien, Groveton, and William H. Leith, Lancaster, delegates to the state society.

Ohio.

ROSS COUNTY MEDICAL SOCIETY.—Physicians of the county met Drs. Theodore W. Rankin, Columbus, and Horace Bonner, Dayton, at Chillicothe, October 5, and organized a county society on the standard plan, with the following officers: President, Dr. Jefferson E. Seacare; vice-president, Dr. F. T. Marr; treasurer, Dr. Raymond E. Bower; secretary, Dr. Mary Peatter, and censors, Drs. Josephine Riley, Joseph M. Hanley and Harry R. Brown.

SECOND DISTRICT MEDICAL SOCIETY.—The first annual meeting of the society was held in Dayton, November 17. Dr. Horace Bonner, Dayton, counselor for the district, presided. The temporary organization was made permanent, and Dr. David R. Silver, Sidney was elected chairman, and Dr. Frank P. Anzinger, Springfield, secretary. The society adopted the following resolution:

Resolved, That the society uphold the character of Dr. Ohlmacher, the superintendent of the Gallopis state hospital, and condemn the political machine tending to put him out of office.

South Carolina.

AIKEN COUNTY MEDICAL SOCIETY.—At a meeting held in Aiken, two weeks ago, a county society was organized, with the following officers: Dr. Benjamin F. Wyman, president; Dr. Theodore G. Croft, vice-president, and Dr. W. C. R. Turnbull, secretary and treasurer, all of Aiken.

Wisconsin.

FIRST DISTRICT MEDICAL SOCIETY.—This society was organized at Burlington, November 17, with the following officers: Dr. James C. Reynolds, Lake Geneva, president; Drs. Walter S. Haven, Racine, Benjamin J. Bill, Genoa Junction, and J. L. Cleary, Kenosha, vice-presidents, and Dr. Joseph P. McMahon, Union Grove, secretary.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
Southern Surgical and Gynecological Association, Birmingham, Ala., December 13-15.

Western Surgical and Gynecological Association, Milwaukee, Wis., December 28-29.

American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

Pan-American Medical Congress, Panama, Jan. 2-6, 1905.

CLEVELAND ACADEMY OF MEDICINE.

Meeting of the Section of Experimental Medicine, held Oct. 14, 1904.

Dr. Spenser in the Chair.

Total Nitrogen, Ammonia and Urea in the Urine.

Dr. H. D. Haskins read a paper on the value of various methods of estimating total nitrogen, ammonia and urea in the urine. He stated that the accuracy of the Kjeldahl method of nitrogen estimation was corroborated by experimental evidence. He mentioned the Schlosing, Wurster and modified Wurster methods, but did not consider them as of the same value. He recommended Folin's method in preference to these, on account of its greater simplicity, combined with equal accuracy. He considered in detail all the important methods of urea estimation. He especially emphasized the inaccuracy of the hypobromite method, and pointed out that the only time when the finding is of any clinical value is when the quantity present is small in amount. The method estimates an uncertain amount of the total nitrogen rather than the nitrogen of the urea alone. He described the Pflüger-Schöndorff, Möerner-Sjogvist and the Folin methods and the amount of accuracy obtainable from each. None of these four accurate methods can be well carried out by the clinician, but the Möerner-Sjogvist he considered as the least difficult, and the most convenient of any of them.

Meeting of the Clinical and Pathological Section, held Nov. 4, 1904.

Dr. Hamann in the Chair.

Presentation of Clinical Cases.

ACQUIRED SYPHILIS IN A BOY.

DR. WILLIAM OSBORN presented a case of primary and secondary syphilis in a boy of 8. The lesions consisted of a primary sore on the prepuce, with swollen inguinal glands, unilateral condylomata of the anus, mucous patches in the mouth, and a fine macular eruption. The source of infection was genital abuse of various types. The usual antisyphilitic treatment was being carried on.

SACULAR ANEURISM.

DR. BACON related the history of a case of very early aneurism of the sacular type, associated with another small aneurism of the mycotic or infectious type. The patient went to the hospital with symptoms of pneumonia and died soon after. At autopsy there were found, besides the pneumonia, an acute septic endocarditis, grafted on a chronic process, with acute pericarditis and some patches of meningitis probably secondary, besides the usual changes in the organs denoting an acute infectious process. Just above one of the cusps of the aortic valve was a small depression, about the size of a lima bean, in which the aorta was markedly sclerotic, and which was apparently the beginning of a sacular aneurism seen at an unusually early stage. One of the other cusps was entirely perforated, in

spite of which there had been no physical signs of valvular lesion, and at its base was another small sacculation, due to weakening of the aortic wall by the direct extension of the inflammatory process, the so-called mycotic form of aneurism. The chief point of interest was the small size of the aneurism, only seen when as in this case the patient dies of some other trouble.

RECURRENT HEMOPTYSIS.

DR. THOMAS WOOD CLARK read a paper on recurrent hemoptysis in a case of aortic aneurism, with extensive involvement of the right lung and with rupture into the pleura. In the case mentioned there were 16 hemorrhages, varying from 2 to 36 ounces, and extending over a period of nine weeks, a total of 225 ounces in all. Early diagnosis of aneurism was made, but the patient would not submit to the Tuffnell treatment and refused to keep quiet. The hemorrhage always followed some sudden exertion and consisted of almost pure blood, with very little mucus. Hemoglobin estimations showed a progressive secondary anemia. On the sixty-fourth day after admission, after a sudden effort, the patient became very white, declared he was dying and only lived a few minutes. At the autopsy a very unusual condition was found. There was marked general arteriosclerosis, but the organs showed no particular changes other than passive congestion. The heart was moderately hypertrophied, and just above the aortic valve was a slit 4 cm. long, opening into a large sacculated aneurism. This aneurism involved the entire upper lobe of the right lung, the line of demarcation between the sac and the lung tissue being macroscopically indistinguishable. The main sac was filled with a dense laminated clot. Probes could be passed directly from the bronchi into the clot without having to penetrate any sac wall. On the outside of the lung, about in the axillary line, was a fresh rupture 6 cm. long, opening into the pleura, which was found completely filled with fresh blood and clots, the lower lobe of the lung being markedly compressed. The earlier hemorrhages had evidently taken place through the clot into the bronchi, and death occurred from bleeding into the pleura. Dr. Clark then gave a résumé of the few similar cases of repeated hemoptysis in aneurism, in none of which was there such a number of hemorrhages at such short intervals.

Operations in Impassable Strictures and in Hypospadias.

DR. N. STONE SCOTT reported several cases. The first case reported was that of a man of 29, with hypospadias extending to the scrotum, which was itself not cleft. The man had submitted to several operations and was willing to try again, as he wished to marry. A series of operations was performed in this case, in two main groups, the first tending to straightening the penis, the others to closing in a new urethra. On account of the tearing out of the stitches, for various reasons, five separate operations were necessary before a new urethra was formed, and two more before the urethral fistula could be finally closed and put into service. The results were, however, quite satisfactory, and the patient's marriage was followed in due course of time by the birth of a child.

The other cases reported were of impassable strictures, some of them infectious in origin, and others traumatic. It was necessary to dissect out the scar tissue and to form a new urethra. Diagrams were shown indicating the impossibility, in many cases, of passing a sound, as the channel does not necessarily follow a straight line, sometimes even forming a right angle, making the passage of even a filiform bougie impracticable.

DISCUSSION.

DR. W. E. LOWER noted the necessity in these last cases of absolute hemostasis, which he obtains by means of a stream of water flowing constantly over the field of operation. He also noted the advisability of beginning high up, as it is easier to find the urethra in this way.

DR. BENTZ spoke of the extreme antiquity of the operation for hypospadias, recalling that Charles XI of France was operated on with apparently good results. He also referred to Mayo's operation, in which a flap is taken from the dorsum, made into a tube and passed through an artificial opening in the penis to form the new urethra.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held in San Francisco, Oct. 25, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Posture in the Treatment of Disease.

DR. C. M. COOPER stated that patients frequently assume attitudes which are more or less beneficial to themselves; as, for example, when an inflamed joint is immobilized by reflex muscular contraction, or when by a more volitional process, the chin-in-hand attitude is assumed in diseases of the cervical vertebra. In other cases an ignorance as to the nature of his disease does not permit the patient to reason out what would be the most advantageous posture to assume, and in these cases the physician should prescribe the attitude.

The value of a low position of the head in the treatment of the syncope caused by cerebral anemia is universally recognized. It also seems logical and has apparently been beneficial, to employ a similar inverted posture in treating more chronic conditions of cerebral anemia; e. g., the anemic insomnia of aortic regurgitation. Conversely, a relatively erect position is advantageous in the treatment of congestive headaches such as may occur in the early stages of cerebral inflammations, and in the treatment of the sleeplessness due to cerebral hyperemia. Possibly the nocturnal headaches of many syphilitics and the nocturnal attacks of epilepsy are in some measure due to the relative congestion of the brain occasioned by the reclining posture. Possibly, also, we may be able to influence the spread of inflammatory processes in the spinal meninges and in the spinal cord by elevating the foot or the head of the patient and so in this manner we may be able to protect important structures from involvement in the disease.

The erect sitting posture assumed by patients with severe cardiac affections is probably of direct advantage to them and it should be tried more often in the earlier stages of the disease. Frequently it can be shown that the heart rate becomes slower in this position. The tracheal symptoms of aortic aneurism may be relieved by having the patient lie face downward with a pillow under his chest below the seat of the aneurism. In pleurisy and pneumonia, it is possible that the erect posture would tend to prevent the spread of the disease upward. The nocturnal frequency of gallstone colics may be due to the fact that when the patient is lying on his back the mouth of the gall bladder is at a lower level than is the fundus. Attacks of gallstone colic have been aborted by having the patient assume the knee-chest position, thus favoring the falling back of stones from the neck to the fundus of the gall bladder. Possibly also renal colic could be thus aborted if the foot of the bed were elevated and the patient lay on the affected side. A right lateral position in appendicitis would tend to localize the inflammatory process to a comparatively favorable locality. A right lateral inverted posture should be tried in the treatment of dilatation of the stomach, for this posture would aid in emptying the organ.

DISCUSSION.

DR. EMMETT RIXFORD referred to a case described by Macewen where the patient said that he could not lie down. On being induced to do so by the physician, he died suddenly, and at autopsy a clot was found in the brain, which had slipped down in the recumbent posture and caused death. The relief afforded by the sitting posture in cardiac disease is probably due to the fact that when the patient lies down the abdominal contents press on the overworked heart. In the Trendelenburg position it is of advantage to place a pillow under the shoulders in order to render the abdominal wall less tense. When the patient with a dilated stomach is told to lie on his right side for the purposes of better drainage, we should remember that unless the contents of the stomach are heavier than are other abdominal structures they will not sink to the pylorus, but will be pressed up by these other structures.

DR. HARRY M. SHERMAN questioned the advantage of Dr. Rixford's modification of the Trendelenburg position, because it would tend to interfere with respiration. The hand-in-chin position assumed by patients with cervical caries can hardly be called a voluntary position, for the patients can not reason

out its mechanical advantages. He would be inclined to regard it as a reflex.

DR. CARPENTER stated that he had seen patients with hydro-nephrosis who suffered considerable pain in the back when lying down, but in whom this pain could be relieved by elevating the head of the bed, so as to favor drainage of the sac.

DR. C. M. COOPER said that the Trendelenburg position was not without danger and had caused death. The characteristic position assumed by patients with cervical caries is not a reflex, but is voluntary. The patient himself has learned that this position relieves his pain, even though he does not understand why it should do so. When the individual with a dilated stomach lies on his right side the fluid in the stomach comes in contact with the pyloric region and so causes reflex peristaltic movements which tend to empty the stomach.

Diagnosis and Treatment of Fractures of the Neck of the Femur.

DR. H. M. SHERMAN reported several cases of injuries about the hip which illustrate the importance of a special symptom, viz., the inability of the patient to lift his foot off the table when lying on his back. In two of these cases this was almost the only important symptom pointing to a fracture of the neck of the femur. On account of the absence of other symptoms, however, comparatively little attention was paid to it and subsequent events showed that both patients had had impacted fractures of the neck of the femur. In a third case of hip injury the patient could lift his foot from the table and the x-ray showed no fracture. Great care should be taken in all cases not to do violence to a femur which is the seat of a supposed fracture, for an impacted fracture may easily be converted into an unimpacted one by manipulation. For this reason an examination under an anesthetic should never be made. In the operative treatment of ununited fractures of the neck of the femur it is extremely difficult to drive a nail into the head and to obtain a good alignment. Furthermore, as a rule, only fibrous union is obtained. In two children who had been operated on it was found that the shortening of the leg gradually increased and a coxa vara developed, probably on account of a fibrous union of the fragments.

DISCUSSION.

DR. EMMETT RIXFORD stated that, on account of the great leverage involved, the effort to lift the foot off the table puts considerable strain on the fragments. For this reason he would hesitate to use the test described by Dr. Sherman. A symptom of considerable importance in fractures of the neck of the femur is the relaxation of the fascia lata above the great trochanter. He has operated on one case of ununited fracture of the neck and obtained a good result.

DR. SAMUEL HUNKIN, in reply to Dr. Rixford, stated that if the patient had a fracture of the neck, he would not attempt to lift the heel off the table, so that there is no danger in the test. He believes that the test is a good one. Other important diagnostic points are the local tenderness and the pain on slight rocking movement of the joint. The shortening of the extremity which occurred in the cases of the children operated on was perhaps caused by an injury to the epiphyseal line.

DR. H. M. SHERMAN stated that early operation in cases of fracture of the neck of the femur is not justified. The fracture is not usually at the epiphyseal line so that it should not interfere with the growth of the bone.

Travel Notes.

NIX.

THE CITY OF JAIPUR, INDIA, AND MAYO HOSPITAL.

NICHOLAS SENN, M.D.
CHICAGO.

BRINDISI, ITALY, Sept. 30, 1904.

Jaipur is one of the largest, most important and interesting inland cities of India. It is the local seat of government

of the state of Jaipur and the residence of the maharajah, whose palace, exhaustive gardens, crocodile tanks, state and private carriages and elephant stables are objects of growing interest to every visitor.

The city proper is enclosed by towering walls and the two gates are closed and locked regularly at 10 o'clock every evening, in the same manner as was done 300 years ago, when they were first opened during the feudal times, to serve as a safeguard against nightly invasions. This old custom continues with great punctuality, although the protection for safety of life and property has become superfluous since the strong arm of the English government has done away with internal strife and has made India secure against invasion from without.

Jaipur has taken the place of the ancient capital city Amer, a mountain stronghold seven miles distant, once a great and prosperous city, now deserted and its great palace and former mansions and ramparts crumbling into dust. A great fort on the highest mountain ridge overlooking the ancient palace and depopulated city is kept in good repair and is occupied by a regiment of native troops. Looking at this great city, now in ruins, centuries ago the power and pride of this part of India, the safe refuge of a large and prosperous population, the seat

ducted in the same manner now as they were a thousand and more years ago. The elephant, camel, donkey and buffalo are the beasts of burden now as then, and are trained and used in the same manner as under the masters of centuries ago. The little open shops and corners, where the artisans do their work with the crudest kind of tools, are the same now as they were when first opened for business, hundreds of generations ago.

This is the place to see Hindu feasts and processions in their original form (Fig. 2). The Hindu, above any other people, is proud of his race, his ancestry and ancient civilization, and is deeply, almost hopelessly, rooted in the teachings and faith of his Brahmin religion. Hindu life, habits and customs as seen in Jaipur illustrate the meaning of:



Fig. 1.—Native of Jaipur.



Fig. 2.—Hindu dancing girl.

of a gay and powerful nobility, we are strongly reminded of the significance of:

"The fashions of human affairs are short and changeable and fortune never remains long indulgent to men."—Quintus Curtius Rufus.

A few coolies and numbers of monkeys make up the scanty population of the abandoned capital city which centuries ago was the seat of political power, fashion, wealth and general prosperity.

In the meantime its rival, Jaipur, has become old. The present population of Jaipur is about 85,000; the principal streets are wide, lined by houses three and four stories high, with walls covered with plaster, painted a light uniform roseate hue, ornamented with rude artistic designs in white, representing plants and flowers. This is the place to see the real types of natives (Fig. 1), their habits and customs unaffected by time and European influence.

Agriculture, gardening and the different industries are con-

"So difficult is it to bring people to approve of any alteration of ancient customs; they are always naturally disposed to adhere to old practices unless experience evidently proves their inexpediency."—Livius.

The greatest trouble with the Hindu is to convince him of the inexpediency of anything inaugurated by his ancestors, as he is a firm believer in their infallibility concerning happiness in life and an ascending scale of blessedness in the hereafter.

Jaipur represents the center of one of the most fertile and prosperous agricultural states in India. Indications of considerable local wealth in the city are not lacking. The reigning maharajah is very popular and is well and favorably known for his many unostentatious works of charity. It was this prince who, during the last long famine, kept hundreds of his poor subjects from starving by his liberal contributions of food and money. He is the friend of the poor and takes a paternal interest in the Mayo Hospital.

Medical affairs in the city and state of Jaipur are managed

by P. Durrel Pank, Lieutenant Colonel, I.M.S. His last official report¹ contains many interesting facts, and from it I have gleaned much valuable information.

In speaking of the temperature and rainfall he says: "The mean temperature was 77.7 F., or 0.9 F. above the average; the maximum temperature was 115.20 F., on June 3 and 12, and the minimum 35 F., on December 27; the amplitude of yearly fluctuation was 80.2 F., and the greatest on any day was 41.4 F., on February 9. The rainfall registered at the Jaipur Observatory was 23.39 inches, or 1.07 below the yearly average."

The vital statistics show that during the year 1903 the number of births recorded was 4,436, against 6,641 deaths, the death rate being much larger than the birth rate. Infantile mortality is responsible for the large death rate, as the number of deaths among children under one and five years, during the same time reached the astonishing figure of 3,863. The three months most fatal to child life were: June, 531; October, 461, and September, 459. During the year there were 58 deaths from smallpox, 244 from measles, 7 from cholera and 7 from imported plague in Jaipur city.

In reference to the steps taken to check the cholera epidemic the report states: "The usual necessary precautions were taken in every village and city where the outbreak of cholera took place—wells were disinfected with permanganate of potassium; insanitary conditions in the villages and towns removed, so far as possible, and hospital assistants with proper medicines were dispatched to treat all cases."

Malarial fevers were prevalent in many districts in the autumn and 236 packets, containing 100 doses of quinin in each, were supplied to officials of the government for free distribution to the people; there was also a free distribution of quinin and other cinchona alkaloids from each of the district dispensaries.

The mortality from malaria was low, owing undoubtedly to the liberal distribution of quinin free of cost through the different branches of the government service. Free vaccination is performed on a very large scale, 84,019 cases during the year covered by the report. A very interesting account is given of the experience of the medical officers in carrying out the prophylactic serum treatment (Haffkine) during the epidemic of bubonic plague, and the prejudice of the people against this measure was only overcome by the noble example of one of their chiefs.

"In regard to inoculation, the adoption of this in the early days of the epidemic was most difficult and at one time apparently hopeless; but patience, tact and moral suasion at last overcame the dense ignorance and stupid prejudices of the villagers. The last argument, and that which really compelled them to give way in the end, was the fact that their nazim stripped and bared his body before their eyes in order to be inoculated as an object lesson. This they would not allow, and rather than that he should be a scapegoat in their behalf, a few consented. The plunge was made and all followed suit; before many had been inoculated others clamored to be inoculated at once as they could not afford to run the risk of delay in waiting to be done in their proper order and turn, and protested against others being inoculated before themselves. When once they saw and believed that no harm and little inconvenience followed the inoculation, they implicitly believed in it and attributed to it many virtues which it does not possess nor lay claim to." What a striking illustration of

"Men are but children of a larger growth."
Dryden.

MAYO HOSPITAL.

The Mayo Hospital, so called in memory of a former governor of this part of India, is the government general hospital of Jaipur and is the largest of the twenty-six hospitals and dispensaries in the state of Jaipur. It has a superb location, the buildings and grounds facing the beautiful botanical garden and the fine statue of the governor whose name it commemorates. The main building is a solid two-story stone

building, and there are a number of one-story pavilions of the same material, connected by roofed cement walks with the central building. The hospital has accommodations for 160 patients, all natives, cared for at government expense. The wards are capacious, well lighted and ventilated, but the furniture is scanty and of the simplest kind. The operating room is small and the appliances for asepsis of a somewhat primitive character. Lieut.-Col. Pank is at the head of the medical staff, assisted by several assistant surgeons of the subordinate Indian Medical Service.

The worst feature of this hospital is a lack of an adequate number of trained female nurses. Most of the nursing is done by male and female ward attendants, who receive at best only the most elementary training and, consequently, can not be relied on in the operating room or in the care of grave surgical and medical cases. A training school for female nurses is a desideratum that should be met without any further loss of time, as it would be the means of greatly facilitating the work of the medical officers and would secure more efficient care for the patients afflicted with grave disease and for those who are subjected to operative treatment. The records of the hospital speak well for the surgical skill of Lieut.-Col. Pank, who does most of the operative work, which includes general surgery, gynecology and ophthalmology. Considering the difficulties he has to contend with, his results compare well with those of other surgeons in India who have better assistance at their disposal and whose patients are under the care of competent trained female nurses.

During the year 1903, 24,648 out-patients and 2,124 in-patients, total 26,772, were treated at the Mayo Hospital. During the same year 696 major and 664 minor, total 1,360, operations were performed; of these 21 per cent. were on women. Five ovarian cysts were removed by ovariectomy without a death—two of these cysts were very large and in three cases the adhesions were extensive. Ten successful operations for tuberculosis of the lymphatic glands in the neck, axilla or groin were performed and were in many cases very extensive, entailing long and careful dissections. Thirty-seven operations on bones were made without mortality. Among these were two cases in which the whole lower jaw was removed on account of an enormous epulis; and in three cases partial excision of this bone, in one case for sarcoma and in two for necrosis. The right upper maxilla with malar and nasal bones, was removed for sarcoma. No death in ten amputations of all kinds. Operations on the eye constitute the bulk of the operative cases. Lieut.-Col. Pank has had an enormous experience in operations for cataract.

During the year mentioned above 239 cataract operations by von Graefe's method were performed, 219 by Lieut.-Col. Pank and 20 by Assistant-Surgeon Daljaag Singh. These operations were performed on 199 persons; 224 were recorded as able to see well, 4 discharged otherwise and 11 were under treatment at the end of the year. Artificial pupils for corneal opacity were made in 5 cases, in 3 persons, and all were useful in increasing vision. Iridectomy for glaucoma was performed in 14 cases and the disorganized eyeball was extirpated in 14 cases. Eight operations for the radical cure of inguinal hernia by Bassini's method were successful. In four of these cases the hernia was congenital.

The rectum and anus were operated on 31 times with one death (anal fistula); 14 times for hemorrhoids by ligature and 8 times for anal fistula. Vesical calculi were removed in 43 cases by litholapaxy with no death; in 3 cases by lateral lithotomy with one death, and in 4 cases by perineal lithotomy with no death. All cases treated by litholapaxy made excellent and speedy recoveries. The largest stone removed by this operation weighed 935 grains and the average hospital life for each case was 4.18 days. The 3 cases operated on by lithotomy were unfit for any other operation, and the patient who died after operation was a man worn out by the disease complicated by cystitis and renal trouble; his stone weighed 1,072 grains. Perineal lithotomy was reserved for cases in which a lithotrite large enough to crush the stone could not be passed by the urethra. The operation was performed by making, on a

¹ Annual Report on the Jaipur Medical and Meteorological Institute for 1903.

small staff, a median incision just large enough to permit a sufficiently large lithotrite to enter the bladder, one direct stabbing incision going straight into the bladder on a grooved staff was sufficient. The largest stone weighed 1,501.5 grains and the average stay in the hospital was 12.5 days.

SPLENIC ANEMIA.

In the medical wards of this hospital I had an opportunity to examine four cases of so-called splenic anemia, that is, a disease characterized by great enlargement of the spleen with progressive anemia. All the patients were young men, natives, from 18 to 35 years of age. In all the abdomen was very much enlarged and pendulous, and through the thin abdominal walls the outlines of the enormously enlarged spleen could be very plainly traced. In some of these cases the spleen extended beyond the median line and its lower border almost reached the level of Poupart's ligament. In two of the cases the liver was also markedly enlarged. Emaciation and a profound anemia in all of them were the most prominent clinical features. I was informed that this disease generally yields in the course of time to a sulphate mixture which is used in this hospital, of which the most active ingredients are sulphate of quinin and sulphate of iron.

During my visit to the Bengal Medical College, Calcutta, Capt. Seward Rogers, I.M.S., professor of pathology, was kind enough to show me under the microscope the parasite which has been shown to be the cause of this strange disease. It was discovered by Leishman and Donovan, and has been classified by Laveran and Mesnil under the name of *Piroplasma donovani*.

This newly discovered parasite has attracted a great deal of attention, and among the numerous articles descriptive of it I will only refer to the article on Piroplasmiasis by Captain Donovan, published in the "Annual Report and Statistics of the Government General Hospital, Madras, for the Year 1903." And a very important monograph, "A Preliminary Report on a Parasite Found in Persons Suffering from Enlargement of the Spleen in India," by Lieut. S. R. Christophers, M.B., I.S.M., a government publication.

Captain Donovan, in the article referred to, gives a short history of his discovery, from which I will give here some extracts. In speaking of piroplasmiasis he says: "Under this head I have classified a new disease prevalent in Madras; the symptoms are those of so-called chronic malaria. . . . I had noticed many cases of chronic irregular pyrexia, with enlargement of the spleen, and occasionally of the liver, bronchitis, edema of the feet, subcutaneous hemorrhages, chiefly of the petechial type, diarrhœa of a dysenteric nature and cancrum oris. The treatment was most unsatisfactory, no drug having the least beneficial effect."

Captain Donovan doubted the malarial character of the disease and at once made a thorough examination of postmortem specimens. "With a view to remove this doubt I attended the postmortems and took smears of blood from the spleens of patients said to have died of chronic malaria. On the first day, April 9, 1903, I found, in a slide containing such a smear, numerous peculiar round and oval ring-like little bodies, with two masses of chromatin situated in opposite poles. Convinced as I was of their parasitic nature, I could not, however, refer them to any group of protozoa. I thought I had discovered the long-sought-for resting stage form of the malarial parasite in man, but on perceiving the same bodies in two other cases on April 23 and 24, 1903, I changed my view and considered that they might be postmortem degenerations of the nuclei of the splenic pulp cells. On June 15, 1903, I received the *British Medical Journal* of May 30, of the same year, and in it, on page 1252, was an account by Major Leishman, R.A.M.C., of organisms identical with mine. I at once recognized the similarity of what Leishman called degenerations of the trypanosomata, to the bodies found by me in the spleen blood of the three cadavers above mentioned."

On June 17, 1903, Captain Donovan punctured the spleen of a boy suffering from this type of fever and found in it bodies identical with those found postmortem. The results of this

examination were published in the *British Medical Journal*, July 12, the same year. On September 23 he sent a slide containing these bodies to the Pasteur Institute, where they were carefully examined by Laveran and Mesnil and named in honor of their discoverer *Piroplasma donovani*.

A large clinical experience has demonstrated the direct etiologic relationship of this parasite with the splenic affections in question. The parasite is not found in the peripheral blood and, for diagnostic purposes, blood has to be obtained from the spleen by puncturing it. It is in this organ that the micro-organism is found in greatest abundance. Puncture of the spleen for diagnostic purposes is not entirely devoid of danger; there is, at least, one case on record in which the puncture gave rise to fatal internal hemorrhage (Donovan, Case 24). The presence of this parasite in the splenic blood furnishes absolute proof of the nature of the splenic enlargement and settles the differential diagnosis between this disease and malarial and leukemic enlargement of the spleen. In the paper quoted above Captain Donovan gives a detailed account of 31 cases that came under his personal observation during one year with many postmortem findings.

Captain Donovan describes the clinical features of this disease as follows: "The symptoms are, in typical cases, an irregular pyrexia of two or three months' duration, accompanied with shivering with apyrexial intervals. About this time the spleen becomes enlarged and painful, and edema of the feet begins; there is usually diarrhœa of a dysenteric nature, which comes and goes for a week or so at a time. Later the lungs are affected; there is cough and expectoration; enlargement of the liver, ascites (unusual); subcutaneous hemorrhages of a petechial nature; soreness of the mouth, gums or hard palate and cancrum oris. Marked emaciation and anemia supervene, the skin becomes dry and furfuraceous and, if the patient is not washed, the skin takes on a dark discoloration. . . . The blood examination, in cases of piroplasma infection, always shows a marked decrease of the red globules; these vary from two to three millions to the cubic millimeter. There is no actual increase of the leucocytes, but a relative one of the mononuclears, as in malaria. The urine usually contains albumin and invariably pigment, urobilin. The feces in some cases contain balantidia, ankylostoma and rhabdonemata. Quinin has been given by mouth, hypodermically and intramuscularly *ad nauseam*, with no appreciable result. The same may be said of other less suitable drugs, i. e., arsenic, salicylate of sodium, carbohc acid, etc.

I will give here as an illustration the findings of only one postmortem examination: "Case 30. Raghavan, aged 30 years, lived at Periyamett. Fever irregularly for a month and a half; spleen enlargement noticed a month ago; during this period he had occasional attacks of diarrhœa and soreness of the mouth. Admitted for diarrhœa and distension of the abdomen; his spleen and liver were enlarged and he had edema of the feet. He died on the fourth day after admission. The postmortem was made by Captain Symons, I.M.S., and the following notes were recorded: Considerable amount of clear fluid with floating lymph in abdomen; colon at splenic flexure gangrenous; transverse colon much thickened—almost half an inch in places and ulcerated, containing raised papillæ on the mucous surface of a bright red color; descending colon a dark gray color; spleen much enlarged with pigment in patches; liver enlarged 2½ pounds in weight."

The *Piroplasma donovani* is found free in the splenic blood and as a cell inclusion in the red corpuscles and macrophages, but more frequently in the leucocytes; in some of the cells it is multiple.

Lieut. S. R. Christophers, in his exhaustive monograph on this parasite, gives a very minute description of its morphology and multiplication by fission. "In films stained by Romanowsky's method the bodies are seen with great clearness. They exhibit a remarkable uniformity in size and appearance. The majority are about 2.5 micromillimeters in diameter, but forms may be found which are a little larger, 3 to 3.5 micromillimeters, or a little smaller. Very occasionally still smaller bodies, 1.5 micromillimeters in diameter, may be encountered. Most of

the bodies are approximately circular in outline, but very many, and especially the larger forms, are irregularly oval and very much resemble a cockle-shell in shape. This, indeed, appears to be the most typical shape, and even in the apparently round forms an approach to this shape can be made out. Occasionally specimens are found more elongated and distinctly pear-shaped. . . . Except in very rare small forms which show only a single chromatin mass, the bodies invariably possess two chromatin masses—a large one staining lightly and a small one staining intensely, with the red coloring matter of Romanowsky's stain.

"The two chromatin masses are usually situated opposite to each other in the shorter axis of the parasite. . . . The large chromatin mass is situated near what would be the hinge in the cockle-shell-shaped forms and in the thicker end of the pear-shaped forms. The body substance usually stains pink by the method employed (fixation in alcohol and staining by watery solutions of eosin and Romanowsky's blue).

. . . . Forms may be seen which appear to show division of the bodies into two. Appearances showing both longitudinal and transverse fission are seen. In the former two pear-shaped bodies are found lying side by side. The larger chromatin masses are situated in the thick end of the pear and the small red bodies at the thinner end, and the small chromatin mass may often be seen undivided when the larger masses are widely separated."

The discovery of the real parasitic cause of splenic enlargement and anemia, such a common and very fatal disease in India, will, it is to be hoped, soon lead the way to a more successful treatment.

The work done in this, one of the newest fields in pathology and bacteriology, by the officers of the Indian Medical Service reflects great credit on that branch of the British colonial service and will undoubtedly serve as a stimulant to others to blaze new pathways in the as yet but imperfectly explored wilderness of tropic diseases, tropic medicine and tropic surgery.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Furuncle.

As the non-operative procedure of treating furuncles, Hunter, in *Med. Age*, states that the objects to be borne in mind are:

1. Soothing and protecting the inflamed area.
2. The exclusion of the air.
3. Antisepsis.

To carry out these suggestions it is recommended that the following ointment be applied, spread on a piece of absorbent cotton considerably larger than the inflamed area. This should be applied and held in place by strips of adherent plaster across the ends, but not passing over the boil:

R. Acidi carbolic	.....gr. v-x	[30-.65
Ext. ergotæ fld.	.....3i-ii	4-8]
Pulv. amyli	.....3ii	8]
Zinci oxid	.....3ii	8]
Ung. aq. rosæ	.....3i	30]

M. Fiat unguentum. Sig.: Apply locally.

This dressing may be allowed to remain in place for from twelve to twenty-four hours, when a new application should be made. If pus is present and discharging, the surface should be cleansed, but the boil should not be squeezed. According

to the author, it is never found necessary to incise a boil when this treatment is employed. This ointment can be used in all stages, keeping the ointment on until the lesion is quite healed. Another non-operative plan of treatment may be carried out by thoroughly cleansing the area with soap and water, followed by a sponge with alcohol. If suppuration has begun, a strong germicide should be applied in the center by means of some absorbent cotton on a toothpick. For this purpose carbolic acid is the best antiseptic and germicide. Aristol should afterward be dusted over the affected area and covered with antiseptic cotton. The flaxseed poultice is condemned by the author as a splendid field for the growth of micro-organisms. He does recommend, in the early stages of the disease, where the tension and swelling are so great as to produce constant, severe pain, that a bichlorid or carbolized gauze be wrung out of boiling water and applied in a thick pad over the diseased area and covered with oiled silk or with oil paper. If the simple procedure of painting the area early with tincture of iodine, tincture of camphor or other antiseptics be carried out the boil may be aborted. In all cases where suppuration has begun it is better to incise. In earlier cases the foregoing treatment is certainly of value. As to internal medication, any constitutional disease should be treated.

Yeast has been recommended internally, two or three teaspoonfuls mixed with beer.

Colchicum, one-half grain (.03), daily is also highly recommended, especially in gouty subjects.

Treatment of Epilepsy.

Dana, in an abstract in *Ther. Gazette*, recommends the following outline of treatment of epilepsy in patients who can not arrange to be treated in an institution:

THE REGULATION OF THE DAILY LIFE.

Some study or some systematic work. The patient may be permitted to attend school for a part of the day or to take special lessons. If possible he should be encouraged to acquire some musical accomplishment or to learn some handicraft.

EXERCISE AND BATHING.

Three times a week or even six times a week, if the patient is strong, he must take some very active exercise for from 20 to 30 minutes, sufficient to make the perspiration pour out profusely. In the country he may chop or saw wood or ride a wheel. In the city he may learn to fence or box. If this can not be arranged, have the patient get a "hot box" and thrice weekly take a sweat followed by a cool ablutio. This should be done about 5 p. m. in order that the patient may rest until the evening meal. Three times a week the patient should take a short (one minute) hot bath (98 to 108 degrees F.), followed by a lukewarm bath. In the morning a cool sponge may be taken. The foregoing are indicated in order to secure a free action of the skin, muscles and liver.

DIET.

The author gives no specific diet. These patients should have a simple mixed diet, with meat once or twice a day in moderation. The digestive tract must be carefully guarded. According to the author the non-saline diet is of no advantage.

OPERATIONS.

The author does not believe in the reflex causes for epilepsy, but regards it as a progressive degenerative disease, congenital in character. The history of alcoholism, syphilis or trauma should be inquired into, the eyes should be examined as well as the sexual and pelvic organs. While the fits may cease for a time, after operation for phimosis or removal of ovaries, the case is never permanently benefited. Operation is, of course, indicated in Jacksonian epilepsy, but in no other cases except in certain imbeciles.

MEDICINES.

The basal medication is bromids. The average daily dose, for patients over 14 years of age, is 60 grains (4.00). The author regards the glycerophosphate of sodium as the best adjuvant given in doses of 30 grains (2.00) daily, combined as follows:

- R. Aq. sol. sodii glycerophos. 50 per cent. ʒii 60
 Sodii bromidi ʒiii 90
 Aque q. s. ad. ʒvi 180
 M. Sig.: One teaspoonful twice a day in water, six days in the week.

The author emphasizes the importance of giving the medicine twice a day only, and omitting one day in the week in order to allow the patient time to cleanse the alimentary tract. Once a month the author prescribes a mercurial and one day in the week a glass of hot water containing 30 grains (2.00) of sodium bicarbonate three times a day before meals.

- After each meal an acid tonic is given as follows:
 R. Tinct. ferri chloridi (1 year old) ʒi 30
 Acidi sulphurici dil. ʒiv 15
 Aque ʒxxx 40
 Olei menth. pip. m. v 30
 M. Sig.: From 15 to 25 drops well diluted or dropped in capsule after each meal.

INCREASE OF MEDICATION.

As the patient improves the medication should be increased. The less frequent the attacks and the more secure the patient feels, the more stringent should be the watch and the larger the dose. What has been gained must be secured or the work all done over again. After a year's remission it is especially important to increase the medication, and the general care of the patient and for two months he must be closely observed, then the treatment may be decreased for six months. Some relief may be felt after fourteen months, some security after two years and strong confidence after three years.

Malaria.

The following combinations are recommended by *Critic and Guide* in the treatment of malaria:

- R. Quin. sulph. |
 Salol, aa gr. xl-ʒi 2.66-4 |
 Codeina sulph. gr. iii 20 |
 Acetanilidi gr. xx 130 |
 M. Fiat cap. No. xii. Sig.: One capsule every three hours.

Ten drops of dilute hydrochloric acid is recommended after the capsule to insure its solution in the stomach. If it is desirable to administer the medicine in solution the following is recommended:

- R. Quin. sulph. gr. l-xxxx 3.30-5|30
 Acidi hydrochlor. dil. ʒi-ss-ʒi-ss 6-10|
 Tinct. zingiberis ʒi-ss-iv 10-16|
 Tinct. opii camph. ʒi-iv 8-16|
 Syr. limonis ʒii 60|
 Aque q. s. ad. ʒviii 250|
 M. Sig.: One tablespoonful ever four hours in water.

For malarial cachexia following either the remittent or intermittent forms of malaria the following is recommended:

- R. Quin. sulph. ʒi-ss 6|
 Ferri redteti ʒi 30|
 Ext. nucis vom. gr. viii 50|
 Acidi arsenosi gr. i 06|
 Ext. colocynth. comp. gr. x 65|
 Podophyllini gr. i-iii 06-20|
 Mellis q. s. |
 M. Fiat pil. No. lx. Sig.: One after each meal.

For latent and masked forms of malaria the following is recommended by Krauss:

- R. Quin. hydrochlor. ʒss 2|
 Hydrarg. chloridi mitis gr. v 30|
 Pulv. capsici gr. iss 09|
 Pulv. opii et ipecacuanhe gr. v 30|
 Aloini gr. i 6|
 M. Fiat cap. No. vi. Sig.: One every four hours.

Substitute for Milk in Intestinal Diseases of Children.

Helprin, according to an abstract in *Med. Record*, recommends the following as a substitute for milk in the treatment of intestinal diseases of children:

Two tablespoonfuls of ordinary flour, browned in the oven, then dissolved in a little cold water. This amount should then

be added to and stirred in two pints of boiling water. This may be given in quantities of three ounces at a feeding. One-half a dram of condensed milk, gradually increased to one and a half drams, may be added at each feeding. The following prescription is of service in checking the diarrhea:

- R. Bismuthi subnit. ʒv 20|
 Bismuthi salicylatis gr. xii 75|
 Syr. rhei aromatici ʒiii 12|
 Aque dest. q. s. ad. ʒiv 120|
 M. Sig.: One teaspoonful every two to four hours.

Venercal Warts.

The prophylaxis and initial treatment, according to Röhrer, in *Amer. Jour. Med. Sciences*, are practically the same. In either case the cause should be removed. If gonorrhoea is present, treat it. If balanitis exists, repeated cleansing and drying of the parts are imperative. The treatment proper of venercal warts may be either medical or surgical. The former, according to the author, includes dusting powder, ointments, lotions, pastes and caustics. The latter may be carried out by means of the knife, scissors or curette and caustic agents.

MEDICAL TREATMENT.

Dusting with calomel alone is one of the simplest methods, or the following combination is more efficacious:

- R. Hydrarg. chloridi mitis ʒi 4|
 Bismuthi subnit. ʒi-ss 8|

M. Fiat pulvis. Sig.: Apply locally as a dusting powder. Dusting the growths with boric acid is very frequently sufficient to cause their disappearance. Or the following is recommended:

- R. Zinci oxidi |
 Bismuthi subnit. aa ʒii 8 |

M. Sig.: To be applied locally.

A 10 per cent. salicylic acid ointment may be more serviceable in some cases. Resorcin is also recommended by the author as superseding all other local applications:

- R. Resorcini gr. xv 1|
 Liq. petrolati ʒi 30|

M. Fiat unguentum. Sig.: To be applied locally after thoroughly cleansing the parts.

The following combination, it is said by Martin, will remove warts in from twelve to twenty-four hours:

- R. Acidi salicylici ʒi 4|
 Acidi acetici ʒi 30|

M. Sig.: Apply locally with a brush once daily.

A sufficient amount of the foregoing should be deposited on the warts to cover their entire surface and then allowed to dry. One or two applications usually causes them to disappear without a recurrence.

It is also recommended that ferric chlorid be applied to the growths three times daily, the shrunken portion removed with a curette and the drug reapplied until the base is reached. If bleeding takes place it may be stopped with a 5 per cent. solution of antipyrin.

SURGICAL TREATMENT.

The author states that neither curettement nor excision is so effectual as removal by curved scissors unless the growths are very small and few in number; an anesthetic, either general or local, is necessary. Of the local anesthetics, ethyl chlorid and cocain are the best, and ether as a general anesthetic. After the growth is cut off the base should be cauterized with nitric acid or carbolic acid. The wound should then be dusted with iodoform or a powder composed of zinc oxid and calomel, followed by a gauze dressing. Where hemorrhage is severe from excision of large papillomata the actual cautery may have to be brought into service.

CAUSTICS.

The principal caustics are nitric acid, chromic acid, caustic potash, silver nitrate, carbolic acid and glacial acetic acid. When nitric acid is employed the surrounding parts should be protected by some bland ointment. The caustic should be applied on alternate days until the warts are removed. Chromic acid is liable to produce toxic symptoms. With proper care it may be applied locally once daily, either pure or in 10 per cent.

solution. The following combination is quoted by the author as being a very valuable caustic:

R. Plumbi oxidii	gr. ii	12
Potassii hydratis	gr. x	30
Aquæ q. s. ad	ʒi	4

M. Sig.: Shake well and apply, by means of a brush, to the lesion. One or two applications are sufficient.

Intraurethral growths may be removed by means of the urethral forceps, the wire snare, the urethral curette or the galvanocautery through the urethroscopic tube. The treatment of venereal warts in women is analogous to that in the male.

Aspirin in Symptomatic Treatment in Inoperable Cancer.

Ruemann, in *Deut. Med. Wochenschrift*, recommends the administration of aspirin as the substitute for morphin in relieving the excessive pain in cancer. He usually gives it in doses of $7\frac{1}{2}$ grains (.50) every half hour, if necessary, until 30 grains (2.00) have been given. For the production of sleep he gives a dose of 15 grains (1.00) at bedtime. No bad results were produced from the administration of the drug in this manner and its effects were not lessened by time.

Medicolegal.

Non-expert Opinions Based on Insufficient Knowledge.—The Supreme Court of Illinois holds, Chicago Union Traction Co. vs. Lawrence, that if a non-expert witness gives an opinion without sufficient knowledge of facts to support it, opposing counsel may, on cross-examination, show that it is of little value and should have little weight. It may be attacked on argument, and the jury may be instructed that the weight to be given to such opinion depends on the intelligence of the witness, on his acquaintance with the person if mental condition is the subject of investigation, on his means of observation, and on his veracity.

State of Mind of Declarant May be Shown.—It must be remembered, the Supreme Court of Illinois says, in Nordgren vs. People, that dying declarations are in their nature merely secondary evidence, and the party against whom they are produced in evidence has no opportunity to cross-examine the party making such declarations. It has been held that, when dying declarations are offered in evidence, it is competent for the accused to show, on cross-examination of the state's witnesses, or by other witnesses, that the deceased in making the statements was in a reckless, irreverent state of mind, and entertained feelings of malice and hostility toward the accused.

Regarding Schools of Medicine, Chemistry, Pharmacy.—The Court of Appeals of Kentucky says, in the case of the Louisville College of Pharmacy vs. City of Louisville, that if the teaching of law, medicine, chemistry and pharmacy in universities does not deprive them of the character of "institutions of education," it seems to the court that an institution which confines its instructions to one of them is no less an institution of education. The question in this case before the court was whether the college of pharmacy mentioned was an "institution of education" exempted from taxation under the state constitution. The court says that it can conceive of no more useful and important branch of knowledge than that of pharmacy. That knowledge is necessary to protect the lives and health of the citizens of the commonwealth. So important is this branch that the General Assembly has taken the matter in hand and has prohibited any one from compounding medicines unless he has been graduated from some institution of education where pharmacy is taught. In this case public-spirited persons had associated themselves together and organized an institution not for gain or profit but that persons might be educated in pharmacy so that the drug business might be conducted according to law, and the public protected from the uneducated and ignorant pharmacists. It is a home institution, infantile in the matter of age, and merits the protection given by the constitution. Consequently the court is of the opinion that it is exempt from taxation.

Liability for Care of Persons with Contagious Diseases.—Section 7059 of the General Statutes of Minnesota of 1894 authorizes the board of health of any town, village, borough or city to provide for any resident thereof or person coming from abroad who may be afflicted with smallpox or other contagious disease. It in part reads: "And shall provide for such person or persons, nurses, medical attendance and other necessities which shall be a charge in favor of such town, village, borough or city on the person so provided for, his parents, guardian or master, if able; otherwise on the county in which he has a legal settlement, or on the state, if said person be a non-resident of the state and has no property within the state." Under the provisions of this section the Supreme Court of Minnesota holds, Board of Commissioners of Marshall County vs. Board of Commissioners of Roseau County, that a county is not liable to the various towns, villages or cities throughout the state for expenses necessarily incurred in caring or providing for a person having a legal settlement in said county, who is afflicted with a contagious disease in such municipalities, where the person so provided for is solvent. It says that this section, being section 15 of chapter 132 of the General Laws of 1883, has been greatly confused with section 29 of said act, being section 7073 of the General Statutes of 1894, as amended by chapter 238 of the Laws of 1901, and since reamended by chapter 29 of the Laws of 1902. The act of 1901 has reference solely to expenses incurred by towns, villages or cities in the control of contagious or infectious diseases. It has no reference to expenses incurred in caring for individuals. The line between expenses incurred for the purpose of preventing the spread of such diseases and in caring for individuals may be a delicate one to draw, but it is clear the legislature in the two provisions referred to has fastened a liability on the various counties of the state for necessary expenses incurred by the public authorities of the various towns, villages or cities situated therein in preventing the spread of an infectious or contagious disease; while, on the other hand, by section 7059 it is clearly provided that the various counties of the state shall reimburse towns, villages or cities either situated within or without their respective borders for necessary expenses incurred in providing nurses, medical attendance and other necessities for persons having a legal settlement in such counties, who are afflicted with an infectious or contagious disease, but only on condition that they or their parents or guardians are financially unable to discharge such obligation. As this court construes section 7073, as amended, it deals solely with expenses incurred in controlling contagious diseases.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

November 26.

- *The Problems of Internal Medicine. Wm. Sydney Thayer.
- *Severity of Intubations for Laryngeal Diphtheria.—The Lack of Hospitals for Diphtheria and Other Contagious Diseases. Rosa Engelmann.
- Laboratory Aids in the Rapid Diagnosis of Rabies. Walther H. Reubig.
- *Inversion of the Uterus: the Treatment in Cases Complicated by Necrosis of the Inverted Part. Brook M. Anspach.
- *Variations of Radiotherapeutic Technic. Russell H. Boggs.

1.—See abstract in THE JOURNAL of October 8, page 1079.

2. Intubations for Laryngeal Diphtheria.—Engelmann adds 23 cases of intubation for laryngeal diphtheria to 47 published previously, making a total of 70 patients operated on in 10 years. All the operations were done under adverse circumstances and in the worst possible environment. The majority (47) of these operations were done in the earliest antitoxin period; consequently, there is a 38.4 per cent. mortality for this first series of cases, as compared with a 36.6 per cent. mortality for the second series of 23 cases; or, deducting 3 preventable, unjustifiable deaths from this latter series (23 cases with 5 deaths) to a 21.7 per cent. mortality, and for the total of 70 cases to a 37.2 per cent. mortality. One prevent-

able death was due to a choked tube, which the parents refused to have removed; another to a choked tube removed three hours too late; the third was due to the removal for cleansing of a tracheotomy tube by an un instructed interne, who probably could not quickly enough replace the tube, the parts being very edematous. Engelmann believes that laryngeal diphtheria, recognized as such in its early stage, and treated properly by a sufficient antitoxin dosage, need never advance to the obstructive stage that necessitates even intubation, much less tracheotomy. In support of this belief, she refers to the fact that her cases numbered 23 in the second five years, as compared with 47 in the first five years. The greatest number of times intubation was done on a patient was 19 times. The number of autoextubations, or expulsion of the tube, was 18 times in one case, 16 times in four cases, 3 times in 15 cases, and 4 times in 4 cases, making 24 cases. The tube was placed and finally removed in 46 cases. In the patients who recovered, the minimum number of hours the tube was worn was 7, and the maximum, 692, or 28 days and 20 hours. In another prolonged case that ended fatally the patient wore the tube 548 hours, or 22 days. The average time of wearing the tube in the 70 cases was 108½ hours, or 4 days and 12½ hours. In the death list, the minimum, maximum and average time of wearing the tube was 2¾, 548, 86¾ hours. The culture was negative and unknown in 2 cases; showed Klebs-Loeffler bacillus in 50 cases; staphylococcus and streptococcus in 3 cases; Klebs-Loeffler associated in 9 cases; staphylococcus in 3 cases; streptococcus in 1 case; pneumococcus in 1 case. All the cases were fed by the inverted Casselberry method, either on the bed, with the head hanging over the edge of it, or in the same position on the mother's lap. There was spasm of the larynx in 11 cases, and the tube was found choked in 14 cases. Pneumonia complicated 13 cases; rashes, 15; arthritis, 1; measles, 1, and decubitus of the larynx, 1 case; sepsis, 8 cases; cardiac paralysis, 1; nephritis, 1 known case. Engelmann says that the type of disease seen during the past year is more malignant than that observed in previous years. She has also seen comparatively more of the so-called primary laryngeal type during the past year than in the previous 9 years, and also did the largest number of the 23 cases in this short period.

4. **Inversion of the Uterus.**—In the case cited, Anspach adopted the simple plan of amputating the inverted mass, because of the lessened danger of infection, and the undesirability of removing the adnexa, which were normal. The pedicle of the mass was compressed by a large hysterectomy forceps. After cutting away the necrotic mass beneath the forceps, the latter were left in place, their points being pushed back into the uterus and this packed with gauze. Forceps seemed safer than sutures because there was less liability to infection of the peritoneum. The forceps sloughed off on the fifth day, and the patient made an uneventful recovery.

5.—See abstract in THE JOURNAL of September 24, page 909.

Medical Record, New York.

November 26.

- 6 *Diseases of the Skin Connected with Errors of Metabolism. L. Duncau Bulkley.
- 7 *A Case of Vonglomerate Tubercle of the Choroid. Thomas R. Pooley.
- 8 *The Treatment of Pneumonia. Frank De Witt Reese.
- 9 Three Cases of Primary Malignant Tumor of the Lung. Siegfried Wachsman and Alfred W. Pollak.
- 10 Report of a Case of Chronic Cystic Dilatation of the Vermiform Appendix. J. C. Lendenberger.
- 11 Natural vs. Scientific Feeding of Infants. D. E. English.

6. **Skin Diseases and Metabolism.**—Bulkley reviews the underlying principles of metabolism and the means by which abnormal variations in the process may be recognized. He considers a proper study of the urine an invaluable aid in the practical management of this class, and that without such study much of the treatment would be experimental and empirical. Metabolism represents the changes occurring in the system, whereby nutritive materials and oxygen are transformed into living tissue, and retransformed into waste products, while during these processes, their potential energy

is being given off in living force and heat. A healthy cell action and transformation is produced and maintained by perfect metabolism, so, when there is perverted metabolism, the structures in various parts of the body must suffer, and that is called disease. Furthermore, inasmuch as every cell in the body constantly takes up and gives off material, so the results of metabolism can be affected by the normal or abnormal action of every living cell in the organism. Metabolism, however, is principally affected by the kind of nutriment taken: the action of the digestive organs and ductless glands, and the action of the nervous system. Among the skin lesions or eruptions which are believed to be associated with or dependent on metabolic conditions are gout, rheumatoid arthritis, diabetes, obesity, and scrofula. As yet, no absolute statements can be made, says Bulkley, as to the necessary connection between the two, for the same eruptions occur in several of the metabolic affections. The idiosyncrasy of the patient, and many causative elements, external or internal, nervous, etc., often determine which form of skin disturbance or alteration shall take place. Errors of diet, disorders of digestion, faulty excretion and nervous derangement, which have all been recognized as etiologic factors in many diseases of the skin, often find their ultimate expression or mode of action through the faulty metabolism induced thereby. Metabolic errors are exhibited in the excreta from the lungs, skin, intestines and kidneys, and, of these, as mentioned, the urine best affords a satisfactory indication, as it represents nearly one-half of the total excreta, and practically all of the nitrogenous and soluble mineral substances, together with about one-half of the water expelled from the system.

7. **Tubercle of the Choroid.**—Pooley reports a case of conglomerate tubercle of the choroid, with extension into the sclera and retina, and secondary glaucoma occurring in a man aged 26. The eye presented the usual symptoms of absolute glaucoma and there was no ophthalmoscopic reflex. The other eye was normal. The affected eye was enucleated and microscopic examination of the tissues showed that the process was well advanced, and tubercle bacilli were demonstrated in stained sections. The patient made an uneventful recovery, and one year after the operation there is no evidence of any pulmonary involvement.

8. **Treatment of Pneumonia.**—Reese cites 21 successive cases of lobar pneumonia, which were treated with few drugs and without alcohol. There were two deaths in the series, one, a man 28 years of age, who died from uremia produced by retention of urine because of an impassable urethral stricture. The other was a traumatic case, that of an old lady, of 83 years, who fell and broke two or three ribs, and developed pneumonia; she lived only a few days. Eliminating this case from the series, there was a mortality of only 5 per cent., and that was not because of the treatment employed. Reese urges that the treatment of pneumonia should always be eliminative, and that we should refrain from putting anything into the system in such large doses as taxes the vital powers to eliminate it. He inaugurates his treatment by giving a foot bath according to Dr. Rochester's method, thus equalizing the circulation and quieting the nervous system. Then he gives 5 grains of calomel, followed by a saline, to empty and disinfect the alimentary canal and stimulate the action of the kidneys. He also gives salicylate of sodium in small doses every hour, until the diagnosis is fully established. Then the patient is put on acetate of potassium, 10 grains every four hours with half a glassful of water. He believes that if we can stimulate the kidneys by making the blood more alkaline, the system will be relieved of the ever-accumulating toxins, which depress the nervous system and poison the heart muscle. His experience inclines him to the belief that the potassium salts have some specific action in the treatment of pneumonia, and that they should be administered in some form to every case. Associated with the acetate of potassium, there is given one dessert-spoonful of liquor ammoniac acetatis, with fluid extract of licorice, diluted with

water, every two hours. Reese expects with this to relieve the hurried right heart by bleeding the patient into his capillary vessels and eliminating the toxins by diaphoresis. With this also, pyrexia and cough are controlled to a great extent. Cold sponging is resorted to, or the cold pack to the chest, changed every two hours, if the temperature rises to 105. The patient should not be fed too often nor too much, and the food should consist of the most digestible substances, such as milk, beef tea, broths, and beaten egg. Abdominal distention is relieved by the use of a rectal tube or by a daily enema, and turpentine stupes to the abdomen. The pulse should be closely watched. A hard pulse is softened with Dover's powder and nitroglycerin, and a soft pulse is strengthened with strychnin, digitalis, ergot, and especially rest, on which great emphasis is laid. His experience has taught him that the mortality is less when alcohol is not given, because alcohol really does just what we try to undo with our treatment. There is no indication in the treatment of pneumonia that can not be met by other remedies than alcohol.

New York Medical Journal.

November 26.

- 12 *Methyl Alcohol, Its Properties, Uses and Abuses. H. W. Wiley, 13 *Radiotherapy; a Review.* Milton Franklin.
 14 *The Relation of the Physician to the Bureau of Health. S. W. Newmayer.
 15 *The Surgical Cure of Certain Cases of So-called Chronic Dyspepsia. C. A. L. Reed.
 16 *Fibroma of Mastoid, Auricle and Auditory Canal. Thomas R. Pooley.

12. **Methyl Alcohol.**—Wiley describes the various methods of manufacture of methyl alcohol, its properties, methods for detecting methyl alcohol in commercial spirits, its uses and abuses.

14.—See abstract in THE JOURNAL of November 26, page 1651.

15. **Surgical Cure of Chronic Dyspepsia.**—Reed cites some illustrative cases and discusses in detail the confusing symptomatology, the pathology and natural history and other clinical data, the principles of treatment, and the after-course. He says that the majority of cases of so-called "chronic dyspepsia," "gastralgia," "nervous gastralgia," "neuralgia of the stomach," "cardialgia," and "hyperchlorhydria" are, in fact, cases of ulcer or the organic consequences of ulcer of the stomach or duodenum, or both. Cases amenable to medical treatment should be cured in from five to six weeks, after which time they should be placed in the surgical category, while hemorrhagic cases should be operated on without the delay prescribed by medical writers. Surgical ulcer of the stomach, says Reed, if neglected, may develop adhesions, perforations, hemorrhages, or cancer, or, in the absence of these, may provoke sepsis and anemia, which, if the underlying conditions are not corrected by operation, may, and frequently do, prove fatal. Therefore, it is important that the cases should be promptly brought to operation, which should establish rest and maintain drainage for the diseased organ. Reed believes that the comfortable after-course of these cases, the low primary mortality, and the permanent curative results following the operation comprise its complete justification.

16. **Fibroma of Auditory Apparatus.**—In the case cited by Pooley, there was found a large elastic growth, situated behind the ear, close to the attachment of, and extending for some distance on the posterior surface of the auricle, about the size of a pigeon's egg; also another filling the meatus, and extending for some distance into the auditory canal, about the size of an olive. The tumors were removed by operation, but, owing to the unsatisfactory course of the healing, treatment by the x-ray was resorted to. This was followed by immediate improvement in the patient's general condition, and an early healing of the entire wound. The pathologic diagnosis of the tumor masses was fibroma. The clinical diagnosis was sarcoma, and Pooley inclines to the belief that the course of the disease, with its frequent relapses and the length of time required to secure a healing, show the malignant character of the disease.

Boston Medical and Surgical Journal.

November 27.

- 17 *The Ideal of Accuracy in Clinical Work; Its Importance and Its Limitations.* Richard C. Cabot.
 18 **Metatarsal Valgus or Humped Foot and Its Relation to Boots.* E. H. Bradford.
 19 **The Pain of Osteo-arthritis of the Spine; Its Bearing on the Diagnosis of Urinary Disease.* Arthur L. Chute.

18. **Humped Foot and Boots as a Cause.**—Bradford discusses the relation of deformities of the foot to the wearing of improperly made shoes. The most common deformities, he says, are caused by crowding the toes together, as the shoe is always made narrower than the natural spread of the foot. This crowding results most injuriously on the great toe, which is pushed toward the middle of the foot and frequently partially dislocated. The boot is then pressed backward on the foot and, meeting the resistance of the head of the first metatarsal, develops, by irritating, irregular bony enlargements, as well as thickening and irritation of the skin. This will result from a loose boot as well as from a short or tight boot. The injurious effect of the shoe is increased by the custom of a stiffened toecap, which prevents the stretching of the leather and acts as a clamp, holding the toes together, when they would naturally spread in walking. The remedy of the present prevalence of shoe deformities must come by educating the public demand, as has been accomplished in an improvement in the shape of corsets and the more general use of less harmful waists. Bradford is convinced that this is the result, largely, of the increasing athletic activity of women, and partly by a better knowledge of the human figure. It should be the custom for all people to furnish themselves with working and dress boots, and to relieve the foot from all pressure when at leisure, wearing moccasins or Turkish slippers. The working shoes of women should be like those of men, giving freer play to the foot. Children should wear moccasins, sandals and loose, light boots and shoes.

19. **Osteo-Arthritis of the Spine and Urinary Disease.**—In his attempts to find a definite cause for obscure pain, which was supposed to depend on hypochondriasis or neurasthenia, Chute examined with great care all urinary patients who complained of pain for which there was no evident cause. The only abnormality he could find in some of these patients was a stiff lumbar spine, treatment of which gave relief from the pain in a certain number of cases. A continued study of this subject has convinced him that this pain of osteo-arthritis of the spine is an element which must be taken into consideration in the diagnosis of a certain number of cases which present themselves to men interested in urinary disease. He applied the term osteo-arthritis of the spine to those chronic, non-tuberculous processes which are characterized clinically by more or less stiff or immobile spines, usually presenting considerable spasm of the back muscles and often accompanied by local or referred pain. He has observed two sorts of pain, one, which is local, referred to the spine or vaguely to the back in the lumbar or sacral regions, and is to be attributed to sensitive vertebral articulations. The second pain is referred to the distribution of certain of the nerves arising from the lumbar or sacral plexuses, and probably is due to the presence of an inflammatory exudate about the spinal articular processes, which exudate exerts pressure on the nerve roots as they pass out between the laminae. The local pain may, under some conditions, be confounded with the pain of movable kidney, prostatitis, or vesiculitis. The patients who present themselves with a pain of this sort have, as a rule, suffered from previous attacks of urethritis or other urinary disease. When, on examination, a stricture, a prostatitis, or some pathologic condition is found, the pain is supposed to depend wholly on this. In the absence of such findings, the pain is likely to be considered neuralgic or neurasthenic. Therefore, these cases should be examined carefully with reference to the presence of any disease of the urinary tract. In the mildest cases, improved hygiene and phosphate of soda may be all that is required. In most cases, however, something is required which will support the

spine or even partially or wholly immobilize it. In some cases seen by the author, strapping the back with strips of adhesive plaster has been sufficient. In some, a wide, heavy canvas belt has relieved the pain, while in others a plaster or leather jacket has been required. The duration of treatment may vary from a few weeks to many months.

Medical News, New York.

November 26.

- 20 *Operative Treatment of Retroversion and Retroflexion of the Uterus. Walter A. Jayne.
- 21 Stone in the Kidney; Its Diagnosis and Operative Treatment. Joseph Ranshoff.
- 22 *Therapeutic Value of Colorado Climate. F. Gillett Byles.
- 23 Does Absence of External Injury Legally Demonstrate Fright or Mental Etiology? James G. Klerman.
- 24 *Compressed-Air Illness, or Caisson Disease. Charles J. Aidrich.
- 25 A New Case of Chloroma with Leukemia; with a Study of Cases Reported since 1893. (Continued.) George Dock and Alfred Scott Warthin.

20. **Retroversion and Retroflexion.**—Jayne reviews the operative treatment of these conditions and expresses himself as being in favor of the Alexander operation.

22. **Therapeutic Value of Colorado Climate.**—Byles emphasizes the fact that a sick man in Colorado needs medical care just as much as he does in the East, and that the same medical care, aided by the atmospheric conditions of the place, will, in suitable cases, result in much greater benefit to the patient in Colorado than the one in the East. The benefit of Colorado climate to a tuberculous patient depends very much on a proper understanding on his part of the kind of life he should live there. A tuberculous patient will do better in the East with plenty of food and home comforts than in Colorado on a starvation diet. He had better live out of doors in the East than shut up in a stuffy room in Colorado.

24. **Caisson Disease.**—Aldrich discusses the clinical history of this affection as he has found it in a study of over 50 cases.

St. Louis Medical Review.

November 26.

- 26 The Diagnosis and Treatment of Perforation in Typhoid Fever. A. T. Bristow.
- 27 Fracture of a Lower Dorsal Vertebra with Paraplegia; Operation; Recovery with Partial Restoration of Function. H. G. Mudd.
- 28 Report of the Foregoing Case of Fracture of a Lower Dorsal Vertebra. M. W. Hoge.

Lancet-Clinic, Cincinnati.

November 26.

- 29 *The Effect of Direct and Indirect Violence on the Skull and Brain. Albert E. Sterne.
- 30 *The Female Breast—Some of Its Notable Characteristics as to Structure and Functions, Their Elements and Pathology. Thomas H. Manly.
- 31 The Surgical Cure of Certain Cases of So-called Chronic Dyspepsia. Charles A. L. Reed.

29.—See abstract in THE JOURNAL of November 12, page 1491.

30.—See THE JOURNAL, October 29, page 1327.

Western Medical Review, Lincoln.

November.

- 32 *Variola Hybrida (Happel) and Vaccination. J. S. von Mansfelde.
- 33 The Management of Suppurative Cases of Appendicitis. Charles E. Allison.
- 34 *The One-Minute Form of Chloroform and Ether Anesthesia. H. Gifford.
- 35 Inflammatory Diseases of the Frontal Sinus. George H. Bicknell.
- 36 Medical Bibliography. H. Winnett Orr.
- 37 Management of Accidental Wounds. S. S. Wilson.

32. **Variola Hybrida.**—Mansfelde maintains that the recent epidemic of so-called smallpox is not the classical disease, but a modified species. In observing several hundred cases, he recognized at least four distinct varieties of smallpox (sub-species), as well as various types of each variety. Persons contracting the disease developed the same variety of smallpox as had the patient from whom the disease was contracted. "Each variety bred true to seed." Mansfelde considers that glycerinated lymph is a chemically changed virus, which has not the protective power of spontaneous cowpox virus or human virus; and that the latter, taking the possibility of transmission by it seriously, is safer than glycerinated lymph.

34. **One-Minute Form of Anesthesia.**—This method of anesthesia was introduced by Sudeck. He pours three to five grams of ether into the cone and after the patient has taken 10 to 15 deep inhalations, the operator can begin. Clifford terms this method "one-minute anesthesia," since in many cases the operation can be started in about a minute after the first inhalation is taken. He has used the method in about 200 cases and cites a number of them to illustrate what can be done. One difficulty in using the method is to decide when to begin and when, during the operation, to give more or less of the anesthetic. To get the best results, not only as to safety, but efficiency, the patient must be kept in the narrow zone between the stages of sensibility and excitement. He has the patient count after the anesthetizer, who occasionally changes the order of the numbers, and the minute the correct answers cease the anesthetic should be stopped and the operation begun. During the operation the anesthetizer should frequently urge the patient to count, and, if he responds, a little more anesthetic should be given, but not otherwise. If signs of excitement or resistance appear, stop the anesthetic and the operation for a minute or so, until the patient will count again. The advantages of the method are: (1) The decrease of danger; (2) the saving of time; (3) the saving of pain; (4) comparative absence of after-effects, vomiting is very rare during or after the anesthesia, and where nausea occurs after it is over, it is of short duration and very trifling compared with that which follows the deeper form. The disadvantages of the method are: (1) That it sometimes fails to work. According to Gifford, this simply means that the patient has to be pushed along into the ordinary deep stage, and, therefore, the objection is not serious. (2) That if the plan of making the patient count, off and on, during the operation is followed, it interferes with the quiet and order in the operating room and with any teaching which the operator may wish to carry on during the operation.

Therapeutic Gazette, Detroit.

November 15.

- 38 Blood Changes Produced by Ether Anesthesia in Both Man and the Lower Animals. J. M. Anders and L. Napoleon, Boston.
- 39 An Inorganic Oil Solution of Acetone for Treating Suppuration in the Lower Air Passages. John J. Kyle.
- 40 A Statistical Report of Cases of Accidental Gunshot Wounds, following the Fourth of July Celebration, treated in the City Dispensaries of the City of St. Louis with Antitetanic Serum. Henry J. Scherck.
- 41 *The Problems of Therapeutics. (Concluded.) Sir Lauder Brunton.
- 42 *The Relation of Therapeutics to Other Sciences in the Nineteenth Century. Oscar Liebreich.
- 43 *Effect on Edema of Elaterium in Non-Purgative Doses. Henry Sewall.

41 and 42.—See THE JOURNAL of October 8, page 1079.

43. **Elaterium in Edema.**—Sewall believes that elaterium, aside from its action on the excretory functions of bowels and kidneys, directly excites absorption of fluid from the tissue spaces. Whether this effect is brought about by a sudden increase of osmotic pressure of the blood or through some specific stimulation of the capillary epithelia through which endosmosis is accelerated, is a question for definite investigation. He has found that the action of elaterium seems to be cumulative over considerable intervals of time. One or two small doses daily may finally produce a physiologic effect or give rise to intolerance. The drug may appropriately be used in most cases of edema, barring those in which there is a tendency toward enteritis. If it is attempted to obtain therapeutic results without nausea or griping, elaterium will be found irregular and unreliable in its action. Sewall suggests that possibly better results will follow the use of its active principle—elaterin. He has given elaterium in doses of three thirty-seconds (3/32) of a grain, on two or three successive days, every hour until nausea is produced, with most excellent result. Out of 20 recorded cases, elaterium disagreed—produced nausea, or rarely griping—in about one-half. In most instances the diminution of dropsical accumulations under its influence was attended with purgation. The favorable results secured through the use of elaterium, supported by appropriate other treatment, were of a strikingly durable character.

Iowa Medical Journal, Des Moines.

November.

- 44 Treatment of Pneumonia. P. Joor.
 45 *Turpentine a Cure for Traumatic Gangrene. Will D. Christy.
 46 Nose Treatment in Injuries of the Eye. F. G. Murphy.
 47 Infected Wounds. Henry Wiedow.

45. Turpentine in Gangrene.—Christy avers that in traumatic gangrene equal parts of turpentine and raw linseed oil, constantly applied on lint or on a soft linen cloth, have always affected a cure, and that he has thus saved a limb that had been condemned to amputation. The case referred to was a young man who was struck by a crank of a threshing machine engine on the middle of the forearm, bruising the tissues for three inches entirely across the arm, and also fracturing the ulna. In 48 hours the bruised parts were black, with numerous blebs appearing on the uninjured skin around it. The arm was treated as mentioned above, and in 10 days the danger was passed and the arm was as sound as ever.

Columbus Medical Journal.

November.

- 48 A Study of Metabolism in Five Cases of Dementia Precox. Eugene F. McCampbell.
 49 *Exophthalmic Goiter, with Report of a Very Rare Case. J. W. Wright.
 50 The Columbus Sewage Testing Station. R. Winthrop Pratt.
 50½ Fifty Years in Medicine. John D. West.

49. Exophthalmic Goiter.—Wright's case is that of a girl aged 16, with the following history. When she was about 8 years old, there was first noticed a protrusion of the left eye, with pronounced nystagmus of both eyes, and defective vision, much worse in the left eye than in the right. When she was 13, it was discovered that she was entirely blind in the left eye. Both eyes were very much protruded, the left more than the right; there is pronounced external squint of the left eye. The pupils are normal. When the right eye is exposed, there is consensual reaction of the pupil of the left eye. An ophthalmoscopic examination showed complete atrophy of the disc of the left eye, with large retinal veins and small arteries. The right eyeground appeared almost normal. The interesting features in this case, says Wright, are the age and the loss of vision.

Wisconsin Medical Journal, Milwaukee.

November.

- 51 *Importance of the Early Removal of all Neoplasms Whether Malignant or Benign. Charles W. Oviatt.
 52 *Intermittent Claudication and Analogous Phenomena (Angina Pectoris, etc.). Arthur J. Patek.
 53 *The Therapeutic Uses of the Roentgen Ray in Dermatology. Louis F. Frank.
 54 Delayed and Non-Union of Fractures. A. Hayden.

51 and 52.—See THE JOURNAL of July 2, pages 66 and 67.

53. Roentgen Ray in Dermatology.—Frank gives a general clinical and statistical résumé of his experience in the treatment of various forms of dermatoses by the *x*-ray. He is in accord with others as to the value of the *x*-ray in the eradication of epithelioma and cancerous degeneration of the skin, and that its value becomes more doubtful where the lesion is more deeply seated, involving the subcutaneous structures. Acne in its various forms has tenaciously resisted the most patient and persistent course of treatment. Frank does not hesitate to affirm, however, that the *x*-ray will accomplish what other measures have often failed to accomplish. Ten cases of chronic eczema of the palms of the hands were treated successfully with the *x*-ray; three cases were followed by a recurrence, which again readily yielded to a few renewed treatments. Similar good results were obtained in a chronic vesicular eczema of the hands due to wild ivy poisoning of 10 years' standing, in two cases of eczema of the auditory canal, and a number of similar, localized chronic conditions that had baffled ordinary therapeutic measures. In cases of hypertrichosis, the danger to the patient, the discomfort and the time consumed tend to discourage the use of the ray. More gratifying results were obtained in a few cases of syphilis of the most rebellious type, with multiple follicular abscesses. Frank attributes this not to the bactericidal influence of the ray, but to its complete depilatory action. In psoriasis, of which he has treated a few cases only, he has succeeded in causing the infiltrations to disappear without difficulty, and so far without a recurrence. In keloids and cicatrices, he has

found the action of the Roentgen ray a most pronounced one, the lesions disappearing after about fifteen treatments. A few warts were beneficially acted on in like manner. Frank concludes that in the *x*-ray we possess a valuable adjunct in the treatment of dermatoses, but unbounded enthusiasm for the results obtained should not blind us to the equally good results obtained by the ordinary and harmless methods. A combination of the *x*-ray with the ordinary methods of treatment enhances the therapeutic value of the former.

American Journal of Orthopedic Surgery, Philadelphia.

October.

- 55 *Ultimate Results of Mechanical Treatment of Pott's Disease in Dispensary Practice. Henry Ling Taylor.
 56 A Study of the Amount of Correction of Deformity in Pott's Disease Obtained Within Plaster Jackets. Augustus Thordarson.
 57 *The Treatment of Upper Dorsal Pott's Disease. James K. Young.
 58 Analysis of 1,000 Cases of Static Foot Trouble. W. E. Budgett.
 59 Case Illustrating the Operative Treatment of Paralysis of the Serratus Magnus by Muscle Grafting. A. H. Tubby.
 60 *Typhoid Coxitis, with Report of a Case, with Skiagrams. John L. Bryant.
 61 *An Operation for the Cure of Chronic Bursitis; Especially Adapted to House-maid's Knee. Phil. Hoffmann.
 62 Tuberculosis of the Abdominal Lymph Glands: Its Complications, Differential Diagnosis and Treatment. Charles F. Palmer and Wm. G. Erving.
 63 *Treatment of Round Shoulders by Forceful Correction. Robert W. Lovett.
 64. An Improved Apparatus for the Treatment of the Deformity of Hip-Joint Disease by Weight and Pulley Extension. Albert H. Freiberg.

55. Mechanical Treatment of Pott's Disease.—Taylor cites 11 cases treated by mechanical support and usually by fixed plaster-of-Paris jackets for from four to eight years, after which, if the patient was considered free from active disease, a laced plaster-of-Paris corset was usually substituted. In the upper dorsal and cervical regions a jury-mast was added. One case was treated by the Taylor brace, and one by the Knight brace throughout; in several cases a Knight brace was used in the later stages. The jackets were changed every 10 or 12 weeks, unless the patient absented himself contrary to orders. Patterns were taken with the lead tape, and transferred directly to the pages of the histories by pencil in the usual way, the patient being in the prone position. The ages varied from 2 to 8 years; six patients were 3 years or under. In no case had the symptoms attracted attention for more than one year; in seven the duration was given as six months or under. In most instances the general condition, when observed, was good or fair and the deformity slight or moderate. Three had complicating bone disease, one in the radius and maxilla, one in the hip, and one in the knee. Two cases had spinal abscesses, one of which receded without opening. In none was paraplegia noted. In many instances the notes are defective as to the exact condition of the patient after the 10-year period. All but one or two were still under treatment and wearing support of some kind at the time of the last note. Of the cases which had left off support, one relapsed after a fall; in two support was reapplied after a year or two owing to pains, and but one was known to be cured, having been without support during eight years. In every case but one the final result showed a considerable increase in deformity. In this case, after an initial increase, there was a final decrease and practical obliteration of all deformity. The results as to deformity may be summarized as follows: Good, 1; fair, 5; poor, 5. The results in all cases but one was a marked kyphosis, and in about half the cases a large and disfiguring kyphosis. Taylor considers this group of cases as far too small to be more than suggestive, nor is it an indication of average results. At the same time, it bears out the writer's general impression that, while the ordinary jacket treatment in dispensaries affords great relief and is productive of much benefit, it does not usually quickly arrest the disease nor prevent very serious and disfiguring deformity even in young patients seen in the first few months of the disease and in otherwise good condition, and also that the results are far inferior to those obtained in private practice.

57. Upper Dorsal Pott's Disease.—For the treatment of this condition, Young recommends an apparatus which is made

over a cast which includes the head, neck and trunk. The patient is placed face down on a frame, stockinette is securely applied to all these parts and a plaster-of-Paris cast is made. From this an exact counter-cast is made, and from the counter-cast the felt or celluloid cuirass is constructed. The head portion is made removable from the body portion, but the entire cuirass is secured and reinforced by steel. The cuirass is secured to the body by broad webbing into which elastic webbing has been incorporated, and shoulder straps and a frontal band complete the outfit. It is applied with the patient lying on the face and secured in position before the patient is turned over. While the cuirass is being prepared, or if any indications occur for recumbency, the patient is placed in bed, on a wire frame bent backward, felt pads are placed under the deformity on either side and the patient is secured to the frame immovably by means of a specially constructed wheel couch. The patient can be taken into the open air daily. This couch permits the patient to lie in the full extension position. The advantages of this apparatus are that the deformity is reduced, that the paralysis quickly disappears, and that there is a complete restoration of function.

60. Typhoid Coxitis.—Porter says that involvement of the hip in the course of typhoid enteritis is an infrequent complication, one which usually develops late in the disease or even during convalescence. The pain is often severe, though the patient may only complain of slight pain or discomfort about the joint. Swelling develops slowly, and, on account of the thickness of the muscles about the joint, may progress to a considerable degree before being noticed. The first thing to call attention to the joint may be the fact that the patient can not lie on that side, or that he keeps the thighs flexed. The one peculiar thing about these hip infections, says Porter, is the tendency to spontaneous dislocation of the joint, and it is this feature which makes typhoid coxitis such a serious condition. Little is known about the bacteriology of the condition. It is believed that the synovitis is sero-fibrinous in character and that, besides causing a distension of the joint, it produces an inflammatory softening of the acetabular margin and the pressure of the head of the femur, by contraction in a flexed and abducted position, causes a pressure atrophy of the outer part of the acetabular rim, permitting the head of the femur to slip slowly out. Early evacuation of the joint is the only satisfactory treatment. Two illustrative cases are cited.

61. Cure of Chronic Bursitis.—The operation advocated by Hoffmann consists of puncturing the bursa, thoroughly scarifying its walls, expressing its fluid contents, bringing its walls in contact and holding them so by means of a compress until their raw surfaces have grown together and have thus obliterated the cavity. It is especially adapted to the treatment of the condition known as housemaid's knee. An ordinary tenotome, having a long shank, or an especially devised instrument, is passed into the distended bursa at its base. With the sharp edge, its entire inner surface is marked with many fine cuts, after which the instrument is withdrawn and the bursa evacuated of its fluid contents through the small skin incision. A thick, wide pad of gauze is placed over the bursa and firmly bound down with strips of adhesive plaster overlapping one another and completely encircling the limb from an inch or two above the upper margin to the same distance below the lower margin of the bursa. Over this a muslin and a crinolin bandage are applied. A pad of cotton should be placed within the popliteal space beneath the plaster, to protect the prominent ham-string tendons and overlying skin from undue pressure. The raw bursal surfaces should be kept in contact until firm union has occurred. Two weeks are sufficient. The adhesive plaster strips should be renewed or re-enforced whenever they appear loose; as a rule, every two or three days. No anesthetic need be given, nor need the patient be confined to bed or even use crutches during the after-treatment. In the past nine years, Hoffmann has operated on 104 cases of house-maid's knee. In two, the operation had to be performed twice, and in four three times,

while in 98 it was primarily successful. The scarification must be thorough, the withdrawal of synovial fluid complete, and the compression quite firm to assure success.

63. Treatment of Round Shoulders.—Lovett presents a method of treatment which, in his hands, has produced improvement in cases of the resistant type, which had been, for the most part, for many years under gymnastic or mechanical treatment without marked benefit. The method consists of forcible hyperextension of the dorsal spine with forcing back the shoulders and, while the patient is held in the corrected position, a corrective plaster jacket is applied embracing the shoulders. The apparatus used consists of an oblong gaspise frame of the ordinary pattern. Fastened to this near the middle and hinged so as to be raised to any degree is another section of gaspise lying on the frame proper and of the same shape and size as the upper half of the frame. To this movable section is fastened, at right angles to it and movable on it, a gaspise bridge rising about 18 inches from the movable section. When prepared for use, two strips of webbing, lying one over the other, run from each of the buckles at the bottom of the frame. The lower pair of these strips is tightly drawn and run to the buckles at the end of the movable section. The upper pair is loosely fastened to the bridge over the movable section. The cross-pieces are tightened and the patient laid face downward on the webbing strips. The thighs are flexed and the feet rest on the floor so that the lumbar spine is flattened. Two pieces of webbing are passed over the mid-dorsal region side by side, tied to the lower non-movable frame on each side. These furnish the resistance for the straightening of the spine when the upper end of the frame is lifted, carrying with it the head and upper chest. The upper part of the frame is lifted after the patient is in place and as much force is exerted as seems advisable. The movable part of the frame is finally raised and fastened in place and a plaster jacket applied. In three or four weeks this is replaced by a brace, and corrective exercises are begun. The brace used has some modification of the tempered uprights in common use. All that one can hope from this method, says Lovett, is to restore to the dorsal spine a more normal range of hyperextension and then to educate the muscles to retain the improved position. His results have been extremely gratifying.

Memphis Medical Monthly.

November.

- 65 Physiologic Action and Morbid Effects of the Coal-Tar Products and the Contrasted Action of Cold in Fever. F. W. Galloway.
- 66 Points of Interest in Obstetric Surgery. H. Lee Farris.
- 67 Obstinate Nasal Hemorrhage following Removal of a Septal Spur in a Hemophilic. Richmond McKinney.
- 68 Neurasthenia—Diagnosis and Treatment. G. W. Penn.
- 69 Successful Reduction of Dislocation of the Shoulder Joint of Three Months' Duration. Alfred Moore.

St. Paul Medical Journal.

November.

- 70 History of Medicine. Jacob E. Schade.
- 71 Hypertrophy and Inflammation of the Male Breast. A. K. Colvin.
- 72 Notes on 273 Labors. Christopher Graham.
- 73 The Diagnostic Significance of Pus in the Urine. M. C. Millett.
- 74 Heredity as a Determining Cause of Disease. R. M. Phelps.

Journal of Medicine and Science, Portland, Maine.

October.

- 75 Special Topography of Vreter and Right Colon. Hepatic Culture and Transverse Colon. Byron Robinson.

Journal of the Michigan State Medical Society, Detroit.

November.

- 76 Chorioepithelioma Malignum. A report of a Case. Wm. F. Metcalf and H. E. Sanford.
- 77 General Dic—with Report of a Case. C. C. Wallin.
- 78 Differential Diagnosis of Conditions Simulating Appendicitis. Louis J. Hirschman.
- 79 Dysmenorrhea. Jeanne C. Solls.
- 80 Interpretation of Radiographs. P. M. Hickey.

Northwestern Lancet, Minneapolis.

November.

- 81 Pneumonia Pathology; Empyema as a Complication. Lyman Skeen, Jr.
- 82 Professor Dunbar's Hay-Fever Investigations. Herman Bonman.
- 83 Surgical Gynecology. A. E. Benjamin.
- 84 Some Empyemas of the Maxillary Sinus. Robert A. Campbell.

Buffalo Medical Journal.

November.

- 85 The Physician in the Making. T. H. McKee.
 86 Some of the Common Forms of Headache. A. B. Frazee.
 87 Status Lymphaticus; its Relation to Sudden Death. Edgar R. McGuire.

Journal of the Kansas Medical Society, Lawrence.

November.

- 88 A New Method of Isolating Micro-Organisms. M. A. Barber.
 89 Dispensing Drugs. H. L. Clarke.
 90 Evolution. The Evolution of Man, Physical, Mental and Moral—Its Hindrances and Helps. (Continued.) W. L. Schenck.
 91 The Eye in General Diseases. J. E. Minney.

Atlanta Journal Record of Medicine.

November.

- 92 The Stomach Tube—Its Origin, Use and Abuse. L. Amster.
 93 Georgia Commission on Tuberculosis. Charles Hicks.
 94 Is Tuberculosis a Disease of Environment Only? H. McHATTON.
 95 Remarks on Gonorrhoea. W. L. Champion.

Medical Examiner and Practitioner, New York.

November.

- 96 Concerning Reports on Rheumatism, Diseases of the Heart and Injured Vision. J. P. Hurd.
 97 The Modern Treatment of Neurasthenia. G. W. Tobias.
 98 Early Deaths in Life Insurance. F. A. Smith.
 99 Medical Examination of Applicants for Life Insurance. C. Theodore Williams.
 100 Electricity in the Diagnosis and Treatment of Diseases of the Brain and Spinal Cord. A. D. Rockwell.

Kansas City Medical Index-Lancet.

November.

- 101 Postpartum Hemorrhage. J. Reed Lytle.
 102 Puerperal Infection. F. T. Van Eman.
 103 The Solar Plexus and Its Importance in Diagnosis. W. M. Clemmons.
 104 How to Avoid Damage Suits in Fractures. V. Berry.
 105 Mercuric Chlorid Poisoning—Report of a Case. N. A. Drake.

Northwestern Lancet, Minneapolis.

November 15.

- 106 The Life and Character of the Late James H. Dunn, M.D. William Asbury Hall.
 107 Some Observations on Movable Kidneys. A. W. Abbott.
 108 Relation of Feeding to Infant Mortality. S. G. Eghian.

Medical Bulletin, Philadelphia.

November.

- 109 Aids to the Recognition of Disease. Judson Daland.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

November 19.

- 1 Ricardus Anglicus and the Teaching of Anatomy in the Middle Ages. Joseph Frank Payne.
 2 Address, Section of Dental Surgery, British Medical Association. E. A. Beves.
 3 Discussion on Oral Sepsis as a Cause of Disease in Relation to General Medicine. Wm. Hunter.
 4 A Preliminary Note on the Pathology of Oral Sepsis. Kenneth W. Godby Hall.
 5 The Surgical Aspect of Oral Hygiene and Oral Sepsis. Rickman J. Godlee.
 6 Fulminant Caries Alveolaris Specifica. Joseph Arkovy.
 7 Case of Melanotic Sarcoma in a Child of Three Months. Wm. H. Battle.
 8 Influence of the Growth of Bone on the Positions of the Teeth. J. G. Turner.
 9 The Care of Children's Mouths. Sidney Spokes.
 10 Physical Degeneration in Relation to the Teeth. J. Sim Wallace.
 11 A Suggested Method of Mounting Anatomic Specimens for Museum Purposes. C. J. Patten.
 12 A Contribution to the Origin of Embryonic Leucocytes. J. H. Bryce.
 13 Discussion on Giants and Dwarfs. D. J. Cunningham.
 14 Cranio-cerebral Topography. Richard J. A. Berry and Hubert D. Shepherd.
 15 Observations on the Development and Morphology of the tail. A. H. Young and S. Robinson.
 16 The Arrangement of the Maternal and Fetal Glycogenic Cells in the Placenta of the Mouse. J. V. Jenkinson.
 17 Three Cases of Chorion-epithelioma. R. F. C. Leith.
 18 *An Early Case of Chorion-epithelioma Following Hydatidiform Mole; Vaginal Hysterectomy; Recovery. Smallwood Savage.
 19 *Case of Chorion-epithelioma. Christopher Martin.
 20 *Case of Malignant Chorion epithelioma. Thomas Wilson.
 21 *Case of Decidua Malignum (Chorion-epithelioma). C. W. Windsor and J. S. Fairbairn.

18. Chorion-Epithelioma Following Hydatidiform Mole.—A case is reported by Savage, occurring in a woman, aged 50, the mother of eight children, the last born seven years ago. For the last few years menstruation had occurred irregularly, at intervals of from two to eight weeks, and it was scanty.

For two months she complained of dyspnea and progressive wasting, with pains, tenderness and swelling of the abdomen, especially on the right side. The breasts had been getting larger; there had been no vomiting, but the patient could not eat anything. On examination, the pulse and temperature were found raised and the general condition was bad from weakness and anemia. The abdomen was enlarged by a tumor rising up out of the pelvis and reaching to one finger's breadth of the umbilicus. It was higher on the right side. A fluid thrill was felt in parts and it was somewhat tense. A souffle was heard all over it, but not a fetal heart sound. A blood clot lay in the vagina, the vaginal walls and cervix were swollen and edematous, the veins of the vulva were enlarged. The tip of the finger could be inserted through the internal os, but only a soft, doughy mass was felt. Ballottement could not be obtained. The tumor was made out to be uterine, but the nature of the enlargement was not clear. As the general condition was bad, and as the examination brought on hemorrhage, Savage inserted some gauze into the cervix and gave ergot in the hope that the uterus might empty itself. On the following day he removed, by means of a finger and a blunt curette, about four and a half pints of cysts of the hydatid mole, mixed with blood and clot; the cysts were of varying sizes, up to that of a small walnut. The uterus contracted down to about four inches in its cavity length. After the operation, hemorrhage of slight amount lasted for five days; convalescence soon took place. One month afterward, a continuous slight blood discharge commenced, lasting a fortnight. Later, profuse hemorrhage occurred, rendering the patient anemic and faint. The vagina was promptly plugged with iodoform gauze. On examination, nothing was felt by the abdomen. The uterus was found to be somewhat enlarged, thickened, and it felt heavy; the cervix was opened enough to admit the tip of the index finger; both lips were edematous. Eleven weeks after the removal of the mole, Savage performed a vaginal hysterectomy, and five months afterward the patient was in excellent condition, with no sign of recurrence. Microscopic examination of the tumor showed it to be a chorion-epithelioma.

19. Chorion-Epithelioma.—Martin's case gives the following history: Patient, 50 years old, had eleven children and three miscarriages. For twelve weeks she had constant hemorrhage through the uterus. There was no other discharge and the blood was never offensive. There was some shortness of breath on exertion, but otherwise the patient felt well. The examination of the abdomen was negative. Per vaginam, the uterus was found enlarged, the cervix soft, spongy and granular, but without any growth or ulceration. It was patulous, but did not admit the finger. The uterus felt as large as the body of a uterus two months pregnant. It was quite mobile and there were no signs of disease of the uterine appendages. A diagnosis of cancer in the body of the uterus was made, and a vaginal hysterectomy was performed in the usual way. On laying open the uterus, it was found to contain a soft, friable, fungating growth about the size of a small hen's egg, growing from the endometrium. The patient made a good recovery. The microscope disclosed a typical chorion-epithelioma.

20. Malignant Chorion-Epithelioma.—The history of Wilson's case differs from the two preceding ones in that the patient was only 22 years old and single, and succumbed to the disease one year after she was delivered of a hydatidiform mole. The physical findings were the same as in Martin's case.

21. Decidua Malignum.—The case of Windsor and Fairbairn followed a full-term delivery. Recovery from the confinement was not complete, the patient remaining anemic and feeble, and throughout the illness there was some sanguineous discharge. About six months after the confinement, the uterus was found enlarged, and later the discharge increased and became offensive. A vaginal hysterectomy was performed, convalescence from which was complicated by the development of a subclavicular abscess, and six weeks after the operation the patient died, with symptoms of severe paroxysmal headache,

abdominal pain, vomiting, and symptoms of general collapse. The microscopic findings were typical.

The Lancet, London.

November 19.

- 22 Some Practical Points in Abdominal Surgery; with Special Reference to a Simple Technic for Appendectomy and Intestinal Anastomosis. Frederick Holmes Wiggin.
- 23 Infantile Syphilis. George F. Still.
- 24 Clinical Observations on the Anesthetic Effects of Methyl Oxide, Ethyl Chloride and the So-called "Somnoform." (To be continued.) Frederick W. Hewitt.
- 25 Non-fatal Rupture of Aortic Aneurism. Charles H. Melland.
- 26 *The Action of Perchlorid of Iron in Blood Poisoning and Other Disorders. P. W. Latham.
- 27 Case of Encephalitis Cerebelli. Frederick Taylor.
- 28 Bilial Diarrhea in the Plains. P. A. Nightingale.

23. **Infantile Syphilis.**—Still says that in the treatment of this condition there is little choice of drugs; the only question is in what form should mercury be administered, in what dose, and for how long. In his opinion, gray powder is the best. Combined with aromatic chalk powder, a dose of half a grain can usually be given three times a day without causing diarrhea; but if there is any looseness of the bowels, Dover's powder may be given with the gray powder in doses of 1/4 of a grain for infants over 3 months of age and 1/4 of a grain at the age of 6 months. He has also used the liquor hydrargyri perchloridi, but found that it is more liable to cause diarrhea; an infant a month old can take from 5 to 10 minims three times a day. Inunctions of unguentum hydrargyri may be used either alone or, in severe cases, in addition to the internal administration. A piece of the size of an average green pea—a rough measurement of 15 grains—is gently rubbed over the abdomen or the inside of the thigh or arm at night and left covered over with a flannel bandage until the following morning, when it is washed off; this to be repeated every night until the skin shows signs of irritation, as it occasionally does. Still says that he knows of no condition in which there is anything to commend the intramuscular or intravenous injections of iodine or mercury for infantile syphilis. They involve an absolutely unnecessary infliction of pain and an equally unnecessary risk of troublesome inflammation. Iodids should be used internally in addition to mercury. The disappearance of symptoms is no indication for discontinuing treatment. It should be continued for at least six months after the disappearance of active symptoms, and it may be necessary to continue it for a year or more, if symptoms tend to recur when treatment is omitted.

26. **Perchlorid of Iron in Blood Poisoning.**—Latham again calls attention to the efficiency of the tincture of the perchlorid of iron and chlorin in the treatment of various forms of blood poisoning. The most judicious plan is to give moderate doses, cautiously watching their effect and administering them more frequently if the patient will bear them. If not, continue moderate doses and, if further antiseptic action is required, give chlorin water or euclorin internally, alternately with or in the intervals between the doses of iron. The chlorin water is prepared by adding 20 grains of powdered chloride of potassium and one dram of strong hydrochloric acid to 20 ounces of water. (The author fails to mention doses.)

Annales de l'Institut Pasteur, Paris.

Last indexed XLII, page 983.

- 29 (XVIII, No. 3.) Etude de la spirillose des poules (of poultry). C. Levadit.
- 30 Le passage du virus rabique a travers les filtres. Remlinger.
- 31 Coagulation de l'amidon (of starch). A. Fernbach and J. Wolf.
- 32 Etudes sur les microbes nitrificateurs. E. Boullanger and L. Massol.
- 33 (No. 4.) Suite d'expériences relatives au phénomène de l'agglutination des microbes. C. Nicolle.
- 34 2 cas de guérison de la rage expérimentale chez le chien (recovery of 2 dogs from rabies). Remlinger and Mustapha Effendi.
- 35 Recherches sur les ferments des maladies des vins. P. Mazé et P. Jacot.
- 36 Appareil pour l'agitation continue des cultures. E. Bodin and E. Castex. Illustrated.
- 37 Dispositif pour stériliser le catgut à l'autoclave. Triollet.
- 38 Etudes d'hygiène soustraine. E. Duclaux. (Concluded.)
- 39 (No. 5.) Recherches sur le mode d'utilisation du carbone ternaire par les végétaux et les microbes. P. Mazé.
- 40 Contribution à l'étude de la pathogénie de la crise dans la pneumonie fibrineuse. N. Tchistovitch.

- 41 Cas d'appendicite chez le chimpanzé. M. Weinberg.
- 42 Une méthode de culture des microbes anaérobies. J. Bordet.

Annales des Mal. Génito-urinaires, Paris.

Last indexed XLII, page 1697.

- 43 (XXII, No. 5.) Les polyypes de l'urèthre chez la femme (in the female). K. Grégoire.
- 44 Traitement des rétrécissements de l'urèthre sans pression sur les parois adjacentes saines (piston dilator for strictures). P. Sakalek.
- 45 Béniqué laveur (irrigator). J. de Sard.
- 46 (No. 6.) *La torsion du cordon spermatique (bistournage spontané). J. Vanvets.
- 47 Volumineuse tumeur du scrotum (lymphangiome kystique). Gaudier.
- 48 (No. 7.) Des hémorragies spontanées de la prostate. B. Motz and L. Suarez.
- 49 Contribution au traitement des uréthrites chroniques. A. Carion.
- 50 L'incontinence d'urine essentielle. Revel. Abstract.
- 51 La séparation de l'urine des 2 reins. G. Luys. Abstract.
- 52 (No. 8.) La Cystite chronique rebelle. E. Garcean. (Boston). Translated.
- 53 Kystes hydatiques pelviens et rétention d'urine. H. Hartmann.
- 54 Le cathétérisme urétral thérapeutique. Rafin.
- 55 (No. 9.) Un cas rare de calcul vésico-prostatique. F. Cathelin et M. Villaret. (Concluded.)
- 56 Un nouvel aéro-urétroscope. Wasserthal.
- 57 (No. 10.) Traitement rapide du bubon suppuré par l'incision, l'expression et la suture immédiate. E. Luzzani.
- 58 (No. 11.) *Rupture de Bladder.—Des ruptures intrapéritonéales de la vessie sans fractures du bassin dans les contusions abdominales. C. Dambin and E. Lapid. (Concluded.)
- 59 *Etude expérimentale et clinique de l'exclusion rénale. G. Cochet and P. Cavallion. (Concluded.)
- 60 Taille hypogastrique modifiée pour arriver à voir aisément les orifices urétraux dans la vessie ouverte. Rochet and Ruotte.
- 61 Contribution à la pathogénie et au traitement de la neurasthénie observée en certains cas de néphropose. L. Ruggi.
- 62 (No. 12.) Cure radicale du cancer de la prostate. A. Pousson.
- 63 Déféquente tuberculeuse fistulisée, d'origine prostatique. E. Fillet.
- 64 Note à propos de 12 cas de division endo-vésicale des urines des deux reins (segregation of urine). Cathelin.
- 65 Traitement abortif de la gonorrhée. C. Engelbreth.

46. **Torsion of Spermatic Cord.**—Vanvets concludes from a study of 44 recorded cases that if the testicle is retained, it is impossible to reduce the torsion by manipulation. If the condition has lasted more than 24 hours, castration is the only recourse. If the testicle is in the scrotum, reduction of the torsion by manipulations may be possible if done early. If not successful in the first few hours, surgical intervention is required.

58. **Intraperitoneal Rupture of Bladder.**—Seventy-five cases of surgical intervention on this account are analyzed from the literature, and 3 unpublished cases added. There were 44 recoveries and 24 deaths, a mortality of 43.5 per cent., and during the last ten years of only 20.5 per cent. The symptoms, etc., are studied in detail. Laparotomy and suture are the only treatment.

59. **Exclusion of Kidney.**—This work issues from Jaboulay's clinic and 2 cases of exclusion of one kidney are reported. The results demonstrate that this is a harmless operation, which fact has been further confirmed by numerous experiments on animals. The indications in one case were a suppurating lumbar fistula, pyelonephritis and incipient cystitis. The patient was practically cured by ligation of the ureter from the infected kidney.

Archiv f. path. Anat., Etc., Virchow's, Berlin.

Last indexed page 1507.

- 66 (CLXXVII, No. 3.) Ueber Knochenbildung in Lymphknoten und Gaumenmandeln (bone formation in lymph ganglia and tonsils). O. Lubarsch.
- 67 Ueber Knochen- und Knorpelbefunde in den Tonsillen (bone and cartilage in tonsils). A. Ruckert.
- 68 Nochmals die Pigmentfrage. E. Neuman.
- 69 Anatomische Befunde in einem Falle von Myxödem. A. J. Arriksoff.
- 70 Ueber Lebercirrhose und Blutkrankheiten (liver cirrhosis and blood affections). P. Bleichroeder.
- 71 Fall von pseudorhabdischer hämorrhagischer Skelettkrankung bei einem jungen Hunde (in dog). W. Sroetzner.
- 72 Ueber die Folgen der Markkapselobliteration der Kaninchenniere (rabbit kidney). Tollens.
- 73 Ueber die Veränderungen der arteriellen Gefässe bei interstieller Nephritis (changes in arteries). P. Prym.
- 74 Zur Frage der Aortitis syphilitica. Fahr.
- 75 Ueber die fibrinösen Gerinnungen an der placentaren Fläche der Chorion (coagulation). J. Biland.
- 76 Intraabdominelle Hernie der Tursa omentalis bei geschlossenem Foramen Winslowi. E. Schwäbe.
- 77 Menschen-Tuberculose vom Aussehen der Rinderperlsucht (human simulating bovine tuberculosis). J. Ipsen.

Berliner klinische Wochenschrift.

- 78 (XLI, No. 44.) *Ueber Serum-Behandlung beim Puerperal-Fieber. J. Bumm.
 79 *Das Cecum mobile. T. Haussmann.
 80 Zur Theorie der Osteomalacie. Zugleich zur Lehre von den Krankheiten der Schilddrüse (thyroid). E. Hoennlecke.
 81 *Untersuchungen über einige Immunitäts-Fragen. A. Wolff. (Commenced in No. 42.)
 82 *Quinin Prophylaxis on Large Scale in German Africa. Ziemann, Berg and others. Abstracts.
 83 (No. 45.) Eine Beziehung des Lecithins zu Fermenten. E. Reiss.
 84 Ueber den Einfluss von Kaltreizen auf die Arterien (cold stimuli to arteries). M. Herz.
 85 *Intestinal Tuberculosis in Children.—Ueber Darmtuberculose der Kinder in Waldenburg (Schl.). R. Richter.
 86 Ueber den diagnostischen Werth cytologischer Untersuchungen von Exsudaten. C. Preislich and H. Flesch. (Commenced in No. 44.)

78. Serum Treatment of Puerperal Fever.—After ten years of testing the various makes of antistreptococcus serum, Bumm finds that the serum prepared by inoculation with human material is the most effectual in controlling puerperal fever. He here reviews his experience in general and especially the results observed in 32 cases of severe puerperal infection. The impression derived is that a septic puerperal process, confined to the uterus, is unmistakably influenced by antistreptococcus serum injected subcutaneously. He shrinks from the intravenous route since observation of a serious mishap in one instance. In 4 particularly striking cases of high fever, but no phagocytosis, phagocytosis occurred 12 hours after the injection of serum, very intense, the leucocytes incorporating the streptococci with great avidity. The serum evidently sustained and re-enforced the natural defensive processes which, without it, would have been unable to cope with the infection. In order to keep watch of the phagocytosis induced by the serum, the secretions must be examined repeatedly, as the process occurs abruptly and does not last long. When the septic process has spread beyond the uterus, none of the serums available are powerful enough to affect it in the slightest. Consequently, their use should be restricted to the uncomplicated cases of septic streptococcus endometritis.

79. Movable Cecum.—Haussmann warns that a movable cecum may cause ileus and other disturbances attributed to other organs. Whenever he palpates an abnormally movable cecum, he always informs the subject of the finding and bids him call the physician's attention to the abnormal play of the gut.

81. Serum Prophylaxis and Treatment.—Wolf's conclusions from his extensive research and reasoning are to the effect that the best prospects from the use of bactericidal serums are from the standpoint of prevention. Especially in the streptococcus domain are the prospects most encouraging for successful preventive immunization. When general streptococcus infection is feared, as, for instance, after opening an abscess in the tonsils, after operations on the nose, after abortions, severe deliveries, etc., prophylactic use of the antiserum may prove very useful. From the therapeutic standpoint, we can hope for success only when the serum can be given during the stage of incubation, before the bacteria get the upper hand. Early diagnosis, during the phase of incubation, will enable serum treatment to be applied in time. After this is past, little can be hoped from it in the present state of our knowledge.

82. Quinin Prophylaxis of Malaria.—Ziemann's report states that 24 of the 25 control subjects who took no quinin had malaria fever, generally very severe, and the twenty-fifth had malaria in the latent form. Thirty-six per cent. died. Of 70 who submitted to an unsystematic quinin prophylaxis, only 6 died and only 6 had to be sent home on account of malaria (from Kamerun). Of the 69 who took systematic prophylactic quinin treatment, only 3 died and only 2 had to be sent home. The regular prophylaxis consisted of a gram or half gram dose of quinin every third, fourth or fifth morning, after breakfast, accompanied by 1 gram of potassium bromid, if the subjective disturbances were annoying. More seemed to depend on systematic regularity than on the dose or interval.

85. Intestinal Tuberculosis in Children.—Richter practices in a mining district and states that tuberculosis of the intestines and mesenteric glands is very prevalent among the children, especially between the ages of 1 and 4. The onset is frequently sudden; the children become emaciated, with a chalky pallor, diminished appetite, abdominal pains and tenderness in the umbilical region, headaches, restless sleep and occasionally slight evening fever. The glands in the neck become enlarged in the majority of cases. In exceptional cases, diarrhea is noted. The affection runs a chronic course, and when the subjective symptoms disappear, the child is left weak and pale for a long time. Only 7 terminated fatally out of a very large number of cases that came under his observation, all with the identical clinical picture. Improved hygiene has reduced the number of cases and recovery is more rapid. It seems as if the intestinal tuberculosis in youth confers immunity later to pulmonary tuberculosis, as the latter is comparatively rare among the miners and their families. The deaths from tuberculosis are only 6.86 per cent. of the total mortality, while the proportion in Berlin is 12.3, and in Breslau 14.53 per cent.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed page 1318.

- 87 (LXXXI, Nos. 1-2.) *Methodisches und Technisches zur Orthodiagraphie. F. Moritz.
 88 Ueber Urotropin, Methylenzitroneure und methylenzitroneures Urotropin (Helmitol, Neurotropin). A. Nicolaler.
 89 Agglutination bei Autoinfektion mit besonderer Berücksichtigung des Leptothorax. H. Lück.
 90 *Zur symptomatologie der Aortensklerose. A. Bittorf.
 91 Zur Kenntnis des Benee-Jones'schen Eiweisskörpers (albumose). L. Lindemann. One case.
 92 *Ueber chronische Veränderungen des Pankreas bei Arteriosklerose und ihre Beziehung zum Diabetes mellitus. G. Hoppe-Seyler.
 93 Ueber die chemische Zusammensetzung von tuberkulosem Käse (tuberculous caseous products). E. Schmol.
 94 (Nos. 3-4.) Der Eiweissstoffwechsel bei der Alkaptonurie (albumin metabolism). W. Falta.
 95 In what Form is Retained Nitrogen Utilized?—In welcher Form kommt aus der Nahrung retenirter Stickstoff im Organismus zur Verwendung. H. Lütjke and C. Berger.
 96 Ueber die Zählung der Blutplättchen im Blute des Menschen und ihr Verhalten bei pathologischen Zuständen (blood plate count). F. Helber.
 97 Ostrus vermicularis in der Darmwand (intestinal wall). O. Wagener.
 98 Ueber atelektatische Bronchiektasie. E. Edens.
 99 Nierenveränderungen bei experimenteller Hemoglobinurie (kidney changes). L. Levy.
 100 Experimentelle Untersuchungen über den N. depressor. C. Hirsch and E. Stadler.
 101 *Zur Kenntnis der Spezifität der Präzipitine. H. Kinck and R. Inada.

87. Orthodiagraphy.—The Greek term ortho means straight, and it has been applied to Roentgen inspection of the trunk from a point directly above. The views thus obtained offer many interesting peculiarities. Moritz describes them and explains the data thus obtained.

90. Symptomatology of Sclerosis of the Aorta.—Bittorf reviews in detail the various symptoms noted in 54 cases of sclerosis of the aorta. Subjective disturbances were not noted in all the cases, and they were generally due to the associated imperfect nourishment of the organs. To this cause he ascribes the palpitations, vertigo, especially when caused by abrupt changes of position or copious meals, buzzing in the ears, weakness in the arms, intermittent limping, etc. The average age was 55.6, but the syphilitics averaged ten years younger. The majority of the subjects were pale; a few had red faces. The heart was hypertrophied in 24, and this was suspected in 22 others. In 49 cases there was a distinct area of dullness corresponding to the shadow to the right of the sternum in dorsoventral fluoroscopy. The shadow on the left of the sternum is not accompanied by dullness, as the aorta at this point is too far below the anterior wall of the thorax.

92. The Pancreas in Arteriosclerosis and Its Relation to Diabetes.—In 9 out of the 18 cases of arteriosclerotic changes in the pancreas observed by Hoppe-Seyler, glycosuria had been evident in 9. The arteriosclerotic lesions were much more pronounced in the cases accompanied by glycosuria. The Langerhans islands were always affected in the latter, and

proportionately to the intensity of the diabetes. The lesions in the diabetic subjects always predominated in the tail of the pancreas. His experience corroborates the assumption that the principal difference between lesions originating in the vessels and those originating in the efferent passages is that, with the former, the sugar metabolism is disturbed, while with the latter the production of pancreatic ferments suffers most. Treatment of arteriosclerotic subjects with diabetes is pre-eminently dietetic, with mild laxatives, courses of mineral waters, iodine preparations in small amounts long kept up and arsenic as needed. The dieting should not be too strict, as a little sugar is better than loss of appetite and strength.

101. **Specific Action of the Precipitins.**—The "biologic blood test," or specific albumin reaction not only tells the species, but also serves to differentiate various kinds of albumin from the same species of animal. It is thus possible to distinguish between a solution of the white and the yolk of the egg, etc. The yolk gives a stronger reaction than the albumin, possibly owing to the larger proportion of lecithin or phosphorus.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

- 102 (XXX, No. 44) *Principles of Medicinal Action.—Eine wesentliche Grundlage der Arzneiwirkungen, besonders der Desinfektionsmittel. L. Lewin.
 103 *Iodometric Test for Sugar.—Ueber quantitative Bestimmung des Harnzuckers unter besonderer Berücksichtigung der Iodometrischen Zuckerbestimmung. H. Citron.
 104 *Artificial Abscesses.—Ueber die künstliche Eiterung nach der Methode Fochiers bei pyämischen Prozessen. P. Bröse.
 105 Fall von Kehlsackbildung am Halse (Laryngocele Virchow's). Herhold.
 106 *Behandlung der Knochenbrüche (fractures). W. Liermann. (Commenced in No. 49.)
 107 Stypticin gegen hämorrhagische Chorioiditis. M. Peschel.
 108 *Exstirpations- und Operationsfeder (operating pen). Dreuw.

102. **Medicinal Action.**—Lewin warns against routine medication and routine disinfection, to the neglect of the fundamental principles of the action of drugs. Through-and-through contact is an indispensable condition for penetrating and durable action. The animal body casts off as rapidly as possible all foreign matter which it is unable to assimilate. Unless there is an affinity between the tissue and the drug, it is expelled without delay. Even when the drug is circulating in the blood, and is thus theoretically brought into contact with all the tissues, the contact is of the briefest. The drug is hurried along in the blood and expelled at the earliest possible moment by every available route.

103. **Quantitative Tests for Sugar in Urine.**—Citron lauds Fehling's test as the simplest and most reliable means to determine the amount of sugar in the urine. It should not be estimated by the color reaction, but by determination of the amount of unreduced copper sulphate in the filtrate. This is done by Lehman's technic, which is based on the fact that every molecule of copper sulphate liberates one atom of iodine. Allihn's tables show the amount of sugar which corresponds to the proportion of copper reduced. Thus modified, the test surpasses in delicacy the polarimetric test and should supplement the latter when other optically active substances are suspected. Even the novice can complete the test in five to ten minutes, and when large amounts are at hand, the test is still more rapid. Citron gives an illustration of the small case with automatic burette, vials, etc., which he has found most convenient for the test.

104. **Fixation Abscesses.**—Bröse reports a case of severe pyæmia treated by injection of 5 c.c. of turpentine oil in the left calf. The patient was a iii-para of 25, and the pyæmic process followed an abortion. No local process could be discovered and no micro-organism could be isolated from the blood, but the fever kept high and the general condition grew constantly worse. As the fixation abscess developed the fever subsided to complete recovery. The suppuration continued for some little time in the abscess after it had been evacuated. The pus was always sterile and no hyperleucocytosis was detected. Fochier, the originator of the method, seldom injected more than 2 c.c.; it is possible that the large amount used in this case may have been a factor in the results.

106. **Treatment of Fractures.**—Liermann advocates mobilization and massage of a fracture at the earliest possible moment.

This shortens the length of treatment and restores conditions to normal with remarkable promptness. The physician should be guided by the Roentgen findings, but he warns that the Roentgen plate should be regarded merely as a medical diagnostic aid. The plate should remain in the hands of the physician; it is generally unnecessary to have a finished picture made from it, and above all things, such a picture or plate should never be given to the patient for him to misconstrue. The best of all appliances for massaging and treating fractures is the "surgical hand," and the general practitioner should seek to acquire this. He gives the details of treatment of fractures on these principles, adding that the quiescence of treatment is to forbid the use of the limb at first, but to apply rational massage and mobilization during the bed-rest imposed. The effusion is much more rapidly absorbed and the strain of the muscles aids in restoring the fragments to place and in their consolidation.

108. **Operating Pen.**—See abstract on page 1508.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed page 1319.

- 109 (LXXIV, Nos. 1-2.) *Ueber schädliche Chloroform-Nachwirkung (injurious after-effects). Vorderbrugge.
 110 *Die Enterostomie in der Prophylaxe und Therapie der Peritonitis. E. Gebhart.
 111 Zur Luxation des I. Metatarsalknochens. G. Fischer.
 112 *Ueber Epiphysenlösungen, Frakturen und Luxation in Bereiche des Ellbogengelenkes und ihre Behandlung nach der Bardenheuer'schen Methode (in elbow region). F. Stolle.
 113 *Ueber Luxation des Ulnaris. F. Hahn.
 114 Ueber die Endresultate der Radikal-Operationen der Unterleibsfrühe (hernia). F. Hahn.
 115 *Forward Displacement of Urethra.—Zur Technik der Dislokation der Harnröhre bei der Hypospadie und anderen Defekten am Verlaufe der Harnröhre. C. Beck.
 116 Radikal-Operation des Ductus omphalo-entericus persistens. M. Sträter.
 117 Zur Kasistik und Therapie der Struma lingualls. O. Riethus.
 118 Experimentelle Untersuchungen über die Gefäßwirkung von Strychnin in Verbindung mit örtlich anästhesierenden Mitteln (with local anesthesia). A. Löwen.
 119 *Blood Pressure in Spinal Anesthesia. Das Verhalten des Blutdruckes bei der Lumbal-Anästhesie. M. Morl.
 120 Ueber Operationen bei wechselnden Tages- und Nachtlicht (alternating day and Röntgen light). Holzknacht and Grünfeld.

109. **After-Effects of Chloroform.**—Vorderbrugge reports from Dantsic 2 cases of serious after-trouble from moderate use of chloroform. The subjects were children, 10 and 5 years old, and less than 30 gm. of chloroform in one case and less than 12 gm. in the other had been used. After some time symptoms of collapse were noted, fatal in one case. The necropsy revealed fatty degeneration in heart, liver and kidneys. In the other case albuminuria and hemoglobinuria were long persistent, but the child finally recovered. The hemoglobinuria suggests that the assumption may be correct which ascribes the injury from chloroform to destruction of the red corpuscles. Trouble may be anticipated after chloroform when the pulse shows great disturbance while the temperature remains approximately normal, with albuminuria and other signs of acute parenchymatous nephritis, vomiting, icterus and brain symptoms.

110. **Enterostomy in Prophylaxis and Treatment of Peritonitis.**—Gebhart attributes the serious outcome in many cases of diffuse suppurative peritonitis to absorption of the stagnating bowel contents in the paralyzed intestines. He cites 8 cases from his own experience in which he made a temporary opening into the bowel as a prophylactic or curative measure, and always with good results. He commends the procedure as a prophylactic operation in peritonitis of intestinal origin and in general sepsis and in all cases of paralytic ileus or occlusion of unknown etiology. Also as a palliative operation in case of debility forbidding further operation. It is sometimes advisable after perforation to suture the perforated point to the skin. The fecal fistula usually heals spontaneously, in from seven to eight weeks at farthest.

112. **Elbow Injuries Treated by Bardenheuer's Technic.**—Stolle gives radiograms of a large number out of the 140 cases he reports. The Bardenheuer technic method of extension in elbow injuries is described in detail and its application. The technic is easily comprehended from the illustrations. In 23 cases the dislocation was complicated by fracture in 14.

113. **Luxation of the Ulnar Nerve.**—Haim reports 2 cases and adds 12 new ones to the 40 collected from the literature in 1896. The subjects were all over 15 years old, and a congenital predisposition to extreme movability of the nerve was apparent in some, but cubitus valgus seemed to be the chief factor in its production during a traumatism. In 10 cases the luxation caused no symptoms of any kind. The pain is usually severe at the time of the accident, and dull pains persist with paresthesia in the arm or even paralysis. In treatment the preferable method is to fasten the ulnar nerve to the periosteum and adjacent connective tissue of the fossa between the olecranon and the epicondyle. Two cases on record were treated by resection of the nerve, and the condition was aggravated. The nerve becomes dislocated because it is too short, and resection is contraindicated.

115. **Forward Displacement of Urethra.**—Beck's technic for the treatment of hypospadias is well known in this country. He here emphasizes certain minor points which aid in the success. He has only had a single failure in his extensive experience, and in this case the patient tore out the catheter and suture himself the day after the operation. Beck has found the method applicable also to women and for various kinds of defects and injuries of the urethra.

119. **Blood Pressure in Spinal Anesthesia.**—In 16 cases in which spinal anesthesia was induced with a combination of suprarenin and cocaine, the blood pressure was found augmented at first, but later sank slightly below normal. In 12 others it remained high throughout. In 8 no influence was perceptible. In 9 there was a marked drop in the blood pressure to such an extent as to threaten collapse in some of the subjects. This was due probably to the combination of three factors, the cocaine, the operation for which it was injected, and the patient's excitement. The details of the 50 cases are tabulated. The work issues from Bier's clinic.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed page 1268.

- 121 (XIX, No. 6.) 2 seltene Fälle von Tubar-Gravidität. J. Voigt.
 122 2 solide Ovarial-Embryome. H. Rothe.
 123 Blood Supply of Contracting Uterus.—Ueber die Blut-Versorgung des sich kontrahierenden Uterus. O. Schaeffer.
 124 Drüsenangry und Rezidive bei der Total-Exstirpation (the glands and recurrence of cancer). A. Mackenrodt.
 125 Geschlechtliche Unempfindlichkeit (Anesthesia sexualis) der Frauen (in women). Nematofevs.
 126 Anatomische Patien (historical sketch). G. Klein.
 127 (XX, No. 1.) Zum Studium des graviden und kreisenden Uterus. F. d'Erchia.
 128 *Zur Frage der Hyperemesis gravidarum. M. Graefe.
 129 *Hyperemesis gravidarum. S. v. Zaborzky.
 130 *Hyperemesis und Ptyalismus in der Gravidität. K. Baisch.
 131 Sublamin als Hände-Desinfiziens. B. Krönig.
 132 (No. 2.) Die Pathologie des Corpus luteum. (Concluded.) E. Santl.
 133 Zum Mechanismus und zur Behandlung frischer Schelden-Dammverletzungen (lacerations of vagina and perineum). A. Hengge.
 134 Die Prophylaxe der Wochenbettsmorbidity in der Schwangerschaft (puerperal morbidity). Kroemer.
 135 *Ueber Blasensteine (bladder stones). W. Zangemeister.
 136 Beitrag zur Statistik des Inoperablen Uterus-Carcinoms. E. Lilek.

128-130. **Hyperemesis Gravidarum.**—Graefe ascribes the incoercible vomiting to hysteria in many cases, and thinks that suggestion is an important element in treatment. The most important indication is the isolation of the patient. Zaborzky's experience has convinced him that it is due to a reflex neurosis in many cases. Interruption of the pregnancy does not always put an end to the vomiting. The vomiting persisted in 3 cases under his observation, all terminating fatally. The post-mortem examination disclosed a cancer in the stomach, yellow atrophy of the liver or inflammation in the intestines as the unsuspected cause of the vomiting. Baisch does not accept either of these theories altogether. He regards the hyperemesis as a reflex phenomenon, a motor or secretory disturbance of the stomach function, the irritation proceeding from the periphery and transmitted through the vomiting center. The uterus, the nerve centers in the medulla or the stomach itself may be the points where the exaggeration of the reflex occurs, and consequently treatment should be applied to correspond for each individual case. In his experience the cases with the gravest prognosis were those accompanied by abnormal sali-

vation. This is an objective sign of a severe central disturbance of the reflex excitability. In 2 such cases he interrupted the pregnancy, with a favorable outcome. The relations between the villi and the uterine wall are probably the primal cause of the disturbances. Suggestion is liable to reduce the reflex excitability in some cases. It is characteristic of hysterical vomiting that the digestibility of the food does not seem to have any influence on the vomiting.

135. **Stones in the Female Bladder.**—Zangemeister remarks that the clinical picture of stones in the bladder varies in men and in women. Foreign bodies are usually responsible for their formation, either as a nucleus or as inducing hemorrhages. Chronic catarrh of the bladder should always suggest the possibility of a stone, and the cystoscope be used, but x-ray examination is seldom necessary. Foreign bodies in the bladder should be removed as soon as possible, and no suture material should be used that is not readily absorbable. Colpocystostomy is easy, and the prognosis is so favorable that he prefers it as a routine procedure to sectio alta or even to dilatation of the urethra. The opening into the vagina heals rapidly. He makes a sagittal incision, cutting away from the sphincter. The details of 11 cases are tabulated. Out of 9,692 cases of stones in the bladder on record, only 205 were in women. The stone does not obstruct the urethra as it is so liable to do in men, and the vague pains from its presence are often referred to the genitalia and treated on a mistaken diagnosis. The disturbances are less pronounced than in men. The stone lurks in the side recesses and moves around so readily that it is difficult to palpate through the vagina. Incontinence may be the only symptom.

Münchener medicinische Wochenschrift.

- 137 (No. 44.) *Zur Hetol-Behandlung der Tuberkulose (cinamic acid). O. Prym.
 138 *Zur Behandlung der Lungen-Tuberkulose nach Landerer (cinamic acid). F. Schrage.
 139 *Meine Erfahrungen mit dem Anti-Tuberkulose-Serum Marmorek. H. Frey.
 140 Ueber die parapatelle Resorption bei Neonatorum Während der ersten Lebensstage. W. Gessner.
 141 *Plant. Dermatitis.—Ueber die Primelkrankheit und andere durch Pflanzen verursachte Hautentzündungen. E. Hoffmann.
 142 Classification of Mental Affections.—Moderne Einteilung der Geisteskrankheiten. O. Dornbluth.
 143 Inoperable Mastdarm-Karzinom als Geburtshindernis (rectal cancer as obstacle to delivery). Moritz.
 144 Sacrifice of Living Child in Favor of Mother.—Ueber die Opferung des lebenden Kindes zu Gunsten der Mutter. O. v. Herff.

137-138. **Cinamic Acid in Treatment of Tuberculosis.**—Prym reports the results of treatment of 22 cases of tuberculosis according to Landerer's technic. He was impressed with the unmistakably potential action of the hetol on tuberculous processes, but found that this action was not always for the benefit of the subject. Sometimes, in the severer cases, the effect seemed to be injurious. Schrage's experience has been more favorable. He restricted the treatment—according to Landerer's directions—to beginning phthisis: uncomplicated, afebrile cases. He has been applying it during the last four years and asserts that with it the physician is certain to cure a certain proportion of the cases—not all. The effect is soon apparent in the cessation of the night sweats, increase in weight, and in the vanishing of the physical signs of the affection. A dozen cases are described in detail out of his large experience. The formula is: Natrii cinnamylci, 1 part (or 3 to 5 parts); solution natrii chlorati, (7 per cent.) to 100 parts. For intravenous injections he keeps the syringe and the solution in a small nickelin case in which everything is sterilized by steam generated by an alcohol flame an hour before use.

139. **Marmorek's Antituberculosis Serum.**—Frey has made more than 350 injections of this serum at Davos, his material embracing a dozen cases of tuberculosis. His experience confirms that of others in regard to the harmlessness of the serum. No symptoms of intoxication were observed, while the condition of the patients showed marked improvement. He urges further trials.

141. **Plant Dermatitis.**—Besides the primrose, Hoffmann has observed cases of plant poisoning due to the chrysanthemum,

the poison sumach, fresh squill roots, arbor vitae and the Japanese laquer derived from rhus vernifera. The subjects of these affections never connect them with their contact with the plant—the contact sometimes being of the briefest—and the differential diagnosis is, therefore, at times difficult.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed page 150.

- 145 (LII, No. 3.) Uebergang der Toxine von der Mutter auf die Frucht (transmission of toxins from mother to fetus). Schmidlechner.
- 146 Ueber acute Oedem der Portio vaginalis in der Gravidität. R. Jolly.
- 147 *Beitrag zur konservativen Myom Chirurgie. M. Henkel.
- 148 Die Scheidencysten in ihrer Beziehung zum Gartner'schen Gänge (vaginal cysts). E. Pollak.
- 149 *Die Tuberculose des graviden und puerperalen Uterus. F. Kraus.
- 150 Ist eine innere und äussere Ueberwanderung des Eies möglich (migration of ovum)? G. Burckhard.
- 151 Beitrag zur Mechanik des Tubenverschlusses (obstruction of tube). E. Opitz.
- 152 Ueber den suprasympophysären Kreuzschnitt nach Küstner (transverse incision). Kraus.
- 153 Ueber interstitielle Gravidität. P. Dosse.

147. **Conservative Surgery of Myoma.**—Henkel reviews the material, operations and remote results of the myomas observed at the Berlin gynecologic clinic. He adds in conclusion a theory to explain the symptoms observed after hysterectomy. The uterus may produce a substance which acts as a toxin unless neutralized by an antitoxin which is generated in the ovaries. The antitoxin may likewise have a toxic action in case it has none of the toxin to act on, as, for instance, when the ovaries are retained after the uterus has been removed. In regard to the preservation of the menstrual function he believes that it is a welcome feature of conservative surgery, but that it is not its chief purpose. The subjective results of enucleation are much better than those of the radical operations. Drainage is better when the capsule is removed with the tumor. Its removal is required also because additional myoma nuclei have sometimes been discovered in the capsule.

149. **Tuberculosis of Gravid and Puerperal Uterus.**—Kraus states that tuberculosis develops in the pregnant uterus as a chronic endometritis, spreading from the tubes over the surface, or as a military infection of the placenta and its point of attachment, the decidua vera persisting intact. No case has yet been recorded in which the military infection involved more than the placenta and its attachment. Military tuberculosis may develop in the puerperal uterus from some extragenital focus by way of the blood, or may spread from a tuberculous focus in the tubes.

Gazzetta degli Ospedali, Milan.

Last indexed page 107.

- 154 (XXV, No. 91.) *Plastic Fixation of Kidney.—Proposta di nefropesi col passaggio attraverso al rene del peristio della 12a costa resecata. C. Mariani.
- 155 New Instrument for Craniotomy.—Nuovo strumento per la craniotomia osterica in sostituzione del cranioclasta di C. Braun. L. Conti.
- 156 Staining Properties of Red Corpuscles.—Della coloribilita delle emazie coi bagni di metilene nelle anemie. A. Germani.
- 157 (No. 9.) Citologia dell'Idrocele volgare. O. Marchetti.
- 158 *La cura dei Riegi Roentgen nella leucemia. Z. Guerra (Bozolo's clinic, Turin).
- 159 (No. 97.) Ricerche sulla produzione di "plasteine" nello stomaco dell' uomo allo stato normale e patologico. E. Tedeschi.
- 160 *Le iniezioni endovenose di Thymol nel decorso della infezione sperimentale da stafilococci piogene aureo. O. Fiorentini.
- 161 Intorno all' uso dei preparati di ferro in terapie (Iron). P. Merloni.
- 162 La morfologia del bacillo tubercolare e il suo valore semiologico. A. Chiessi.
- 163 (No. 100.) 2 casi di insufficienza delle valvole aortiche in seguito a trauma. C. Trevisanello.
- 164 Intorno ad una epidemia di meningite cerebro-spinale. A. Perez.
- 165 4 casi di tetano traumatico curati col methodo Bacelli (intra-venous injection of carbolic acid). C. Mastri.
- 166 Cura chirurgica della peritonite acuta. A. Montini.
- 167 *Sulla cura della pneumonite lobare acuta e sull'uso della digitale a dosi tossiche. M. Capuano.
- 168 *Iniezioni endo-articolari di salicilato di sodio nel reumatismo articolare acuto. A. Santini (Siena).
- 169 (No. 103.) Nota cliniche sopra un' epidemia di scarlattina. N. Muglia.
- 170 Sull' eziologia di pertosse. G. Corsini.
- 171 Neurosi ed anomalie di sviluppo. C. Ortali.
- 172 (No. 106.) Cancro primitivo della milza (of spleen). G. Bacelli.
- 173 Asepsi clinica ed asepsi batteriologica. D. Maragliano.
- 174 Contributo alla patogenesi ed alla neurosina osservata in alcuni animali di neoptosi. G. Fussi and Piori.
- 175 La diagnosi del dolore (of pain). G. Campanella.

- 176 Sull' azione delle iniezioni di sangue venoso emulgente e di emulsione di parenchima renale negli animali della stessa specie. I. Fiori.
- 177 I solfati ferroso e manganoso nell' ipodermo-terapia. L. Camurri.
- 178 Sull' incapacita al lavoro per ernia. D. Paligni.
- 179 (No. 10.) Trattamento operativo dei voluminosi tumori emorroidaril. De Franchis.
- 180 *Studio sperimentale sulle iniezioni endovenose di sublimato corrosivo come cura nelle infezioni interne dell' occhio. P. Fummi.
- 181 *Hot Baths in Neurasthenia.—Il bagno caldo per i nevrotici. U. Alessi.

154. **Plastic Fixation of Kidney.**—Mariani remarks that the conditions for successful fixation of a wandering kidney are that it should be fastened in its natural position, with some substance not foreign to the body, and not elastic, and that the organ should still have its normal limits of physiologic excursion. He has been trying on animals and on the cadaver a technic which answers these conditions much better than any other proposed to date, in his opinion. He exposes the twelfth rib and isolates it completely. Gauze is then worked under it and its periosteum incised lengthwise and detached from the bone. The rib is then resected about 4 cm. from its articulation. The periosteum rolls up into a large cord as soon as the rib is resected, and this cord of periosteum is drawn through the kidney and sutured to the muscles of the eleventh interspace. Four large dogs operated on by this technic bore the operation well. When killed two months later the kidney was found solidly attached to the cord of periosteum and to the muscles in the interspace; the periosteum was alive and the kidney normal except for a narrow zone around the periosteum in which the tissues appeared a trifle harder than normal. There was not a trace of supuration past or present nor of bone formation from the periosteum. The desired result had been attained beyond expectation.

158. **Roentgen Treatment of Leukemia.**—See abstract 97, page 1669.

160. **Intravenous Injections of Thymol in Staphylococcus Infection.**—The results of Fiorentini's experimental research are tabulated and demonstrate that thymol administered by intravenous injection seems to display an almost specific action against infection with the staphylococcus aureus. In the proportion of 10 cg. per kilogram it modifies and even arrests the progress of staphylococcus infection. It evidently does not destroy the cocci, but attenuates them to such an extent as to render them harmless. It is a substance not modified by the organic fluids and retains its specific action in the blood, where it induces a pronounced defensive reaction, causing hyperleucocytosis with polymucloisis. It shares with bichlorid this leucocytogenic property, but possesses it to a greater degree than the latter.

167. **Treatment of Pneumonia with Large Doses of Digitalis.**—Capuano reviews the history of this method of treating pneumonia and its mechanism, citing his own experiences. He has had occasion to treat 36 cases of lobar pneumonia during the last year and has given digitalis in all, according to age; the dose is from 4 to 5 grams for an adult. This was repeated for four or five successive days, and no signs of intolerance were apparent in any instance. By the second or third dose the temperature fell, the respiration became less rapid and the pulse subsided from 120 or 150 to 100, 90, or even less. When the pulse keeps high for forty-eight hours under these doses of digitalis the patient is inevitably doomed. This occurred in 3 cases in his series. The others promptly recovered, the crisis coming on by the fourth to sixth day. He explains the action of digitalis in these large doses as due to the hyperleucocytosis which it induces. All but a few of his patients were between 6 and 60 years old, the others still older.

168. **Intra-Articular Injections of Salicylates in Rheumatic Joints.**—Santini has followed Bouchard's method of treating rebellious articular rheumatism by injecting a 3 per cent. solution of sodium salicylate around the joint or joints most affected. He found it remarkably effectual, but discovered that the same or better results could be accomplished by injecting the fluid directly into the joint. He has treated 30 cases of articular rheumatism in this way and is enthusiastic in regard

to the numerous advantages and the harmlessness of this technique, if the usual aseptic precautions are adopted. In a number of cases the entire disease was arrested by this local treatment; in others it was attenuated and the most serious manifestations relieved. In case there is much effusion in the joint he aspirates a little before injecting the salicylate. The existing pain is usually relieved almost at once, the fever drops and the disease is aborted. The intra-articular injections do not display any efficacy in a couple of cases of tuberculous pseudo-rheumatism or gonorrhoeal arthritis. The literature on the subject and the history of these local measures are summarized, with theories to explain their action. He regards this application of the salicylates to combat the process where it is localized as a great advance in therapeutics, in cases rebellious to internal medication or as an adjuvant.

180. Bichlorid Intravenously in Ocular Affections.—Two years of research on more than a hundred rabbits have demonstrated that intravenous injection of corrosive sublimate has an unmistakable but moderate action in arresting or retarding an infectious process in the depths of the eye in the large majority of cases, both acute and chronic. The objections to this mode of treatment, however, and its occasional failures should cause it to be reserved for a last resort. Tumminia's experiments included tuberculosis and other infections.

181. Hot Baths in Neurasthenia.—Alessi noticed that his neurasthenic patients were much less irritable during the summer than in the winter, and felt better generally. This fact, in connection with others which he cites, suggested the propriety of stimulating the more sluggish metabolism during the winter by means of hot baths. He has found them of the greatest value for this purpose during the cold months. The bath is taken in the morning, the temperature of the water is as warm as is most agreeable to the subject, and he remains in it for forty minutes. He finds afterward that he is far less nervous and irritable and that he gets through the day comparatively without fatigue. Alessi ordered the baths merely to combat the symptom of irritability, and supplemented them by the ordinary measures.

Riforma Medica, Naples and Palermo.

Last indexed page 1669.

- 182 (XX, No. 30.) *Il tachiolo nell' antipessi gastrica (silver fluoride). L. Ferrannini.
- 183 Curettement of the Bladder.—Sul raschiamento della vesica. D. S. Rolando.
- 184 Avvelenamento acuto per sublimato corrosivo. A. Rossi.
- 185 (No. 40.) Sulla stafilococcia. R. Caminiti.
- 186 *La cura della tubercolosi cutanea desunta dai nuovi metodi di cura e dalla mia osservazione. R. Campana.
- 187 La sterilizzazione del catgut col metodo del claudius nella pratica chirurgica. A. Ceruzzi.
- 188 *Collapse of Veins in Relation to Pressure in Right Auricle.—Sul collasso delle vene in rapporto con la pressione nell' atrio destro. A. Abbruzzetti. (Commenced in No. 35.)
- 189 (No. 41.) Sulle alterazioni cadaveriche degli elementi del timo (thymus). D. Salvatore.
- 190 La malaria in Italia durante il 1903. A. Celli. Abstract.
- 191 La sierizzazione nella tubercolosi. G. Marini. Abstract.
- 192 (No. 42.) Sull' infusione in Nephritis.—Gli effetti delle ipodermiche clorurate nelle nefriti in rapporto alle moderne teorie sul 'azione della clorurazione nelle malattie renali. L. Ferrannini.
- 193 Le precipitine nel siero di sangue normale. G. Q. Ruata.
- 194 Sulla tubercolosi del cieco e dell' appendice vermiforme. N. Palermo. (Commenced in No. 41.)
- 195 Alterazioni dei muscoli intercostali nelle malattie della pleura. B. Pernice.
- 196 Per la diagnosi del sarcoma delle ghiandole retroperitoneali (glands). Crispolti. Abstract.

182. Silver Fluorid in Stomach Affections.—Among all the silver salts the Italians prefer silver fluorid, which Paterno prepares in a durable 10 per cent. aqueous solution. Durante reported its powerful antiseptic properties in 1902, and since then a number of Italians have used it for various therapeutic purposes. Ferrannini has been making a study of the drug's action on the stomach, testing it on dogs with Pawlow fistulas and on other animals. He claims that his experiences have fully confirmed its power as an antiseptic and against fermentations, while it possesses the property of stimulating the motor function of the stomach, and slightly enhancing the proteolytic and coagulating power of the gastric juice. It also modifies the stomach lining, similar to the action of the silver salts in general. This will be found a valuable aid in

the treatment of chronic gastritis. He concludes that this drug in a 1 to 3,000 or 5,000 solution, is one of the best antiseptics and antifermentation agents known, whether used for lavage of the stomach or administered internally. He tabulates the findings of his various experimental tests *in vitro* and on animals.

186. Treatment of Cutaneous Tuberculosis.—Campana thinks that cutaneous tuberculosis should be treated by local excision or cauterization, that absorption should be promoted by administration of tuberculin according to the latest and most approved methods, and complications avoided by protecting the parts from septic invasion. He is convinced that the so-called recurrences are due to septic invasion of the part which thus invites renewed infection or arouses a latent one. The thorax should be immobilized to aid in the recuperating processes; and the excursions of the thorax should not be disturbed by use of the voice. Cold applications should also be made to the surface of the thorax on the affected side and the mouth should be kept in the nearest approach to a sepsis that is possible. Another measure is to have the patient breathe in an atmosphere impregnated with a medicinal spray. The intervals between the use of the tuberculin should be fifteen days at least. This allows time for the action of the tuberculin to be felt without disturbing the general health by its continuous administration. Given in this way it aids in the resolution of the inflammatory process, reduces the tendency of the tuberculous process to spread, and induces a slight degree of local immunity in the vicinity.

188. Collapse of Veins as Sign of Pressure in Right Auricle.—Abbruzzetti has been making a very thorough study of Gaertner's test of the pressure in the right auricle described in THE JOURNAL, xlii, page 687. He tested it on healthy subjects and under the influence of chloroform, alcohol, etc., as well as in a large number of diseases. His conclusions are that although it may serve in certain cases to determine the approximative value of the pressure in the right auricle, yet it is scarcely able to reveal chronic affections not appreciable by other means, and is of no use for the early diagnosis of disturbances in the heart and lungs. It may serve occasionally as an aid in the prognosis, but not when toxic phenomena predominate.

NEW PATENTS.

- Recent patents of interest to physicians:
772707. Drop stopper for bottles or the like. Martin Elfstrand. Uppsala, Sweden.
772802. Atomizer. George F. Hawley, Chicago.
772359. Fumigating device. John Hurley, Little Falls, N. Y.
772806. Combined support for garments and catamenial sacks. Elizabeth H. Johnson, Clayton, N. C.
772466. Vaporizer. James M. Locke, Faulkner, S. D.
772664. Truss. Frank L. Moynoux, Painesville, Ohio.
772666. Roentgen tube. Carl H. F. Muller, Hamburg, Germany.
772607. X-ray tube. Carl H. F. Muller, Hamburg, Germany.
772438. Vibrot. Charles F. Spillford, New York.
772450. Aseptic syringe. Herman A. Wulff-Lange, Paris, France.
773274. Stethoscopic instrument. Robert C. M. Bowles, Brookline, Mass.
773281. Container for radium and allied compounds. W. E. Everett, Tacoma, Wash.
773145. Fumigator. Bertram K. Hollister, Chicago.
772948. Invalid bed and lifter. Lewis C. Martin, London, Tenn.
772959. Medical battery. Leon W. Pullen, Philadelphia.
773229. Carbon analysis. George O. Seward, Hotcombs Rock, Va.
772993. Pocket fumigator. Frank E. Wolcott, Indianapolis, Ind.
774075. Apparatus for generating steam for medicinal purposes. Max F. Hentschel, Leisnig, Germany.
773774. Measuring bottle. Stanley Kosowski, Chicago.
- 773827 and 774118. Roentgen ray tube. Elin Thompson, Swampscott, Mass.
773828. Curative apparatus. John Titus, Oyster Bay, and W. Titus, Westbury, N. Y.
774151. Continuously producing and rectifying chloral. Jules A. Besson, Caen, France.
774378. Machine for decapping, filling and recapping capsules. Albert V. Carter, Syracuse, N. Y.
774572. Hygienic night stand. Narcisse Faucon, Dijon, France.
774317. Corn or union shield. Isaac A. George, Hastings, Neb.
774386. Vaginal syringe. Elmer E. Hall, Chicago.
774191. Clip for catamenial belts. Art. E. Luzzi, New York.
774529. Electrothermic and vacuum appliance. Charles C. F. Nieschang, Fort Wayne, Ind.
774282. Ear phone. Douglas E. Smith, New York.
773105. Electric baker for surgical purposes. Walter S. Edmonds, Newton, and C. A. Hogg, Boston.
773214. Flexible water bottle or pad. Wm. A. Galloway, Xenia, O.
774948. Sterilizing apparatus. Milo B. Perry, Chicago.
774773. Aseptic cartridge, etc. Wm. E. Ranz, Townsend, O.
772988. Suspendory. James C. Riley, Los Angeles, Cal.
772727. Design, water bag. Antonio C. Eggers, New York.

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Address.

THE PHYSICIAN'S CALLING AND EDUCATION.*

BISHOP JOHN LANCASTER SPALDING.
PEORIA, ILL.

I have hope and wish that the nobler sort of physicians will advance their thoughts, and not employ their time wholly in the sordidness of cures; neither be honored for necessity only; but that they will become coadjutors and instruments of the divine omnipotence and clemency in prolonging and renewing the life of man.—Bacon.

Love for true, wise and heroic men and women is part of our love of life, which is a craving for more perfect and abundant life. They show us how blessed a thing it is to be a genuine man. They confirm our faith in the worth and sacredness of conscious existence, and make our standards of value real and palpable. They convince us that within and beneath and beyond all that appears is the creative Spirit who knows and loves and is good. They make it plain that he has not lost his cunning, but is still with us as he was with our fathers of old. They give us confidence that life shall not be emptied of its spiritual content; that a race which has learned to believe and hope, to think and do, can not descend into the sloughs of sensual indulgence and there lie in brutish indifference. What no one has done we imagine can never be done, and these sages and heroes reveal to us new possibilities. When they appear a new quality of life diffuses itself. They may do what all the world is doing, but it is not the same. They breathe a purer air, they are uplifted and borne on by higher thoughts and diviner impulses; they need not money nor recognition nor any kind of worldly success to make them our benefactors and masters. In their presence financiers, inventors and battle-winners dwindle. These deal with life's circumstances; they drink at the eternal fountain-head. Mental and moral force, like the physical, propagates itself, and the influence of the wise and good is transmitted to ever-enlarging circles. To hear of great achievements is to feel a new impulse to fresh resolve. We gain from them a higher conception of the meaning of life, and of the marvels that lie within the reach of whoever has faith and industry. So a noble man, though dead, still lives for those who knew him or get tidings of him, and he is often more helpful so than when he moved in bodily presence. So long as there are those who meditate and love the lives of noble and just men, the race of noble and just men can not perish.

Thanks to God who makes us and to the human heart by which we live, such men are found every-

where. Neither learning nor wealth nor high place is required that they may exist. Their power springs from within where great thoughts, high aims and loving dispositions are born and nourished. They may or may not have genius or fame. They may dwell in solitude or mingle with the restless crowds that pour through the thoroughfares of populous cities; they may be of exalted or of humble birth; they may follow the plow or sway the minds of listening multitudes. Their worth lies in themselves—in the spirit in which they act—and not in the circumstances by which they are environed. Whatever their worldly fortune, they are true to their deepest insight, pure in mind and heart, modest, unenvious, free from vanity, from the desire to shine and to become a theme for idle tongues, consenting to be made conspicuous only at the command of duty, happy in the good they do, not in the praise or the money they receive, holding themselves aloof from controversy and intrigue, intent on their own improvement and that of the environment in which their lot is cast, and rejoicing when leisure is given them to take refuge from the cares and labors their business or profession involves and imposes in the solitude and obscurity where best opportunity is afforded to grow in wisdom and in freedom.

Thoughts like these spring unbidden when we turn to the character and work of him to do honor to whose memory we have come together. He was fortunate in the circumstances of his life, but more fortunate in having within himself something higher and worthier than circumstances can provide. He was one of the happy and hardy band who are born where Nature holds her primal sway and challenges the soul to become itself; who from their earliest days are brought face to face with what is great and abiding, with the solid earth and the heavens made glorious by the rising and setting sun or beautiful by the waxing or waning moon, or sublime and awful by the intermingling mystic light of countless stars; who dwell with the changing seasons until all their thoughts and dreams are enriched and colored by the radiance and freshness of spring, by the abounding fragrant wealth of summer, by autumn's splendor and tranquillity, and by winter's white purity and crisp energy; who, felling trees or feeding kine, store for themselves a treasure-house of courage and firm resolve whence they may draw rich nourishment through all the coming years of toil and struggle. There is iron in their blood and the full, deep throb of conquering strength in their pulse-beat. Thrown back on Nature and on themselves, they are made aware of the almightiness of God revealing itself in both. It is he who, tossing the celestial orbs, as a child its toys, bids them spin forever in abyssal space; it is he who lifts the oceans on high and scatters them over the thirsty earth as a gardener waters

* Address at the memorial service for the late Dr. Nathan S. Davis, held in Powers' Theater, Chicago, Oct. 23, 1904.

his flowers. No man nor all the race of man has made the world in which these young souls live and are exalted and urged to high thoughts and deeds.

To the age of 16 young Davis worked in the fields, tilling, reaping and garnering, spring, summer and autumn; and when winter's frost made such labor impossible, he went to school. Little of the learning that is found in books could he, under such conditions, make his own, but the little he acquired gave him a thirst for more; and his father (his mother having died when he was but 7), persuaded by the youth's eager desire for knowledge, sent him to a seminary, where, however, he was permitted to remain but for a single session; and it was with this scant intellectual equipment that he began, in 1834, the study of medicine. It was only in the latter part of the eighteenth century that medical schools were founded in the United States—first in Philadelphia, then in New York, and later still at Harvard University; but even into the earlier half of the nineteenth century the custom of apprenticing students of medicine to practicing physicians still prevailed; and Davis' initiation into the science to which he had resolved to devote his life was made in the office of Dr. Daniel Clark, which he soon left for the College of Physicians and Surgeons of Western New York, where he was graduated in 1837, when he was but 20.

Here, then, is a country youth who, with scarcely any mental culture or intellectual discipline, quits the plow to take up the study of a learned profession which, to be mastered and followed with ability and skill, requires a large acquaintance with philosophy, history and natural science; and who, notwithstanding, within less than three years receives license to practice medicine, to experiment on the lives and fortunes of his fellow-men.

His talents, his industry and his earnestness were doubtless exceptional, but the social conditions which rendered such a state of things possible were primitive, not to say barbarous; and it is a convincing proof of Dr. Davis' strength of mind and character that he was not misled by his great gifts, to imagine that even genius can, without the best education, make a competent physician. His own lack of opportunity made him eager to provide opportunity for others.

He was a born teacher, and he had hardly begun to practice when he gathered in Binghamton a little following of medical students whom he instructed and inspired. In 1843 he was sent as a delegate to represent his county society at the annual meeting of the New York State Medical Association in Albany, and it was there that he made his first appeal for a higher standard of medical education. An individual may honor and serve his profession in various ways, but in none possibly so effectually as by creating a demand and providing opportunities for the more thorough education of its members. Dr. Davis' plea was not unavailing, and at the next annual meeting of the state society a call was issued for a national convention of delegates from medical colleges and societies throughout the Union to deliberate on the best measures to improve medical education. The outcome was the organization of the American Medical Association, a permanent body, whose influence for good has been and is deep and widespread. The defenders of dying causes may be heroes, but most fortunate are they who are called to do a work which the course of events furthers and prospers, whose issue is emancipation from ignorance, sin and suffering.

There is nothing in the history of the nineteenth century for which we may be more justly or profoundly thankful than for the rapid and wonderful advance made in the knowledge of the causes and cures of disease. From the time men began to think, they began to consider how sickness and death might be, if not overcome, at least mitigated or postponed; nor was their thinking altogether vain or profitless. The Egyptians and the Hebrews, still more the Greeks and the Romans, arrived at some insight into the laws of health and the treatment of disease. Hippocrates and Galen are great names, but their value for us is historic, not scientific. Hippocrates was born 400 years before Christ, and from that date to about the middle of the nineteenth century there was relatively but little progress in medicine. Here and there, indeed, we meet with physicians or surgeons of special ability or skill. Harvey's discovery of the circulation of the blood in the seventeenth century was important. Sydenham, by his insistence on the necessity of careful observation and on the healing power of Nature, rendered valuable service. In the eighteenth century Boerhaave, whose fame was probably greater than that of any physician who has ever lived, whose attainments were as surpassing as his character was benevolent and pure, contributed nothing of an essential importance to the science of medicine. In the eighteenth century, too, we have Dr. John Brown, whose teachings are said to have destroyed more lives than the wars of Napoleon, of whose school our own Benjamin Rush was a follower.

The most important contribution to medical progress in the eighteenth century was made by Jenner, when, in 1796, he introduced vaccination as a prevention of smallpox; for he not only discovered the means by which one of the worst scourges has been practically eliminated, but he opened the paths along which the most wonderful advance has been made. When Dr. John Hunter, whose pupil he was, said to him, "Do not think, investigate!" he announced the opening of a new era in medical history. The starting point was the systematic employment of scientific methods of research. Experiment as the best means of arriving at accurate knowledge is not a discovery of the nineteenth century, but the nineteenth century provided facilities and laboratories for scientific investigation, and so made it possible for medical students to observe, analyze and determine with precision the functions and conditions of the organs and tissues of the body in health, their pathologic changes, the causes of disease and the means of prevention or cure. The result was that in the nineteenth century medicine became a new science, which made most of what had been taught in the past a mere curiosity of literature. All the vital organs, all the phenomena of life, were examined in the scientific spirit, and as knowledge grew it was perceived that a single organ might afford sufficient matter for the study of a lifetime.

Many physicians consequently limited their field of investigation to the diseases of special organs, or to the diseases of women or of children, and to the labors of these specialists is due much of the progress which has been made in the ascertainment of fact and in the best methods of treatment. The greatest medical triumphs were won in the realm of the infinitesimal beings that, unseen, swarm and multiply within and about us everywhere. Bacteriology was born of the philosophic doubt, which for ages had engaged the attention of acute minds concerning the origin of life. Is the living born

of the dead? For centuries the weight of opinion had inclined to give an affirmative answer, so far, at least, as the lowest organisms are concerned. The theory of spontaneous generation prevailed far into the nineteenth century. It seemed, indeed, to be an implication of the theory of evolution which tended more and more to take possession of the modern mind. It would have supplied the missing link in the chain of causation. Hence in scientific minds there was a bias toward its acceptance. It adapted itself to the pantheistic or materialistic world views which were gaining wider and wider acceptance. To doubt its truth was to retrograde. But the brutal fact established by scientific experiment showed the hypothesis to be a delusion, that the plain truth is that whatever has life is born of the living. Pasteur, probably the greatest benefactor of the human race in the nineteenth century, proved in 1861 and again in 1876, that the theory of spontaneous generation is without foundation in fact, and contrary to all the evidence which scientific research can adduce. The consequence was that bacteriology became a science, and the causes of all the phenomena, whether of health or of disease, began to be sought for in the activities of living organisms, the smallest known, and belonging for the most part to the vegetable kingdom. They upbuild and they break down all the larger forms of life. They are the mighty armies on whose banners is inscribed the axiom, "Who despiseth small things shall little by little be brought to ruin."

Bacteriology has furnished a solid basis for preventive medicine, which has conferred and is capable of conferring more and more as its principles receive wider application, benefits on mankind, that make the triumphs of industrialism of minor importance.

More than 250 years ago, Descartes, the most original mind of the modern age, who, more than any other thinker, has determined the course both of speculative and of scientific inquiry, declared that if any great improvement in the condition of mankind was to be brought about, medicine would provide the means, and what he foresaw we see. The discovery that nearly all the worst diseases which afflict the human race are due to the action of minute organisms directed the attention of educated physicians to the exclusion of these organisms, or, if this be impossible, to investigations which should show how their baneful action might be prevented. The cause which creates a disease being known, the physician's business is to learn how to remove it or to neutralize its effects. Bacteriology has revealed to us the infinitesimal organisms that produce many of the gravest maladies to which man is subject—Asiatic cholera, diphtheria, typhoid fever, typhus fever, yellow fever, smallpox, the bubonic plague, tuberculosis, pneumonia, hydrophobia, leprosy, venereal diseases, puerperal fever and malaria. These are all germ diseases which it is possible to prevent or cure. Some have ceased to be a cause of alarm to the civilized nations—smallpox, for instance, Asiatic cholera, typhus fever, the bubonic plague and puerperal fever. When vaccination is rightly employed, smallpox wholly disappears. When filth and overcrowding are abolished, where there is good sewerage and pure drinking water, typhus fever, Asiatic cholera, yellow fever and diphtheria will hardly be found. The bubonic plague has no terrors for the peoples of Europe and America. Puerperal fever, which formerly destroyed each year the most precious lives of thousands of mothers, is now almost unknown, the mortality from

this cause being only about .07 per cent. Physicians themselves carrying the infectious germs from bedside to bedside were the agents of death, which ignorant and heedless physicians are always in danger of becoming.

When it became scientifically certain that many of the worst diseases are produced by bacteria, it was plain that the principal occupation of the physician and surgeon should be concerned with the exclusion of poisonous germs or with the means by which their baneful action might be suppressed. This led to the employment of antiseptics and antitoxins. The miracles of modern surgery are due not so much to the superior skill of our operators as to their knowledge of the means by which inflammation and suppuration may be prevented. Sepsis is a Greek word which means putrefaction, and antiseptics is the science and art of preventing putrefactive processes. The appalling death rate following surgical operations thirty or forty years ago, is not to be ascribed to imperfect anatomic knowledge or lack of manual skill, but to infection caused by disease-producing germs which, introduced into the body by contact with the air or with any object whatever, in which they had not been destroyed, multiply and sow the seeds of death with incredible rapidity. Asepsis, based on the germ theory of infectious diseases, now enables the surgeon to operate with comparatively small risk in cases in which formerly the dread of some form of blood poisoning deterred him from attempting to save his patient. Surgery has consequently become a new and most beneficent art, anesthesia rendering the operation painless, while asepsis excludes infection. The progress of pathology and therapy, if less striking, is not less real, and will doubtless in the next quarter of a century overshadow the triumphs of surgery. The field in which it works is vaster, and its methods reach deeper, touching the roots of the ills from which relief is sought. The living body has within itself a greater or lesser power to resist the attacks of the foes to health, and there have never been lacking practitioners or schools to teach that in the treatment of disease the chief reliance is in the healing force of nature. The blood and tissues, in their normal state, have a germicidal efficacy which varies with the special diatheses of individual constitutions. There are vigorous natures which seem to have the power of resisting the action of all poison-producing bacilli, while others afford no hold to certain specific germs. In our cities the bacteria of tuberculosis, pneumonia and influenza are in the air and are inhaled by all, but fortunately they find a suitable lodging place in but comparatively few. Then there is in the blood a regular army of white cells or leucocytes, whose function is to repel and destroy the intruding enemy. They are the divinely appointed defenders of life's fortress, to whom the secret of Nature's medicinal power is entrusted. They change or neutralize the toxins generated by the poison germs, and elaborate antitoxins; and when the victory has been gained and recovery has taken place, the patient has acquired at least a temporary immunity from the disease which has been eradicated. Insight into this fact has led to the discovery and employment of serum therapy, whose efficiency has wrought a transformation in medical practice, and promises, as knowledge grows, yet greater things. In one who has had the smallpox the conditions which favor the spread of the poison have been destroyed. The question suggests itself whether by introducing into the system the specific poison in a milder form, equal immunity may not be acquired. This methodical doubt led Pasteur to the discovery of

serum therapy, which by the injection of the serum of the infected blood prevents or cures the disease. Its efficacy in the treatment of diphtheria, hydrophobia and various diseases of animals has already been abundantly proven, and there is good reason to believe that the research of specialists will enlarge the field of its prophylactic or curative power, until it shall be universally recognized as the opening of a new epoch in the history of medical science and practice, an epoch in which new and accurate knowledge of the causes and nature of disease shall lead to new and efficacious methods of prevention or treatment. Drugs will not be discarded, but their action will be scientifically investigated and confidence in their therapeutic value will diminish.

It was Dr. Davis' good fortune to begin the study of medicine when this great transformation was about to take place; and, like the good, wise and far-seeing man he was, he understood that the physician could no longer be permitted to be but an empiric.

From the early years, when he helped to found the American Medical Association, to the close of his long life, he was the tireless champion of higher medical education. He thoroughly understood that a science which embraces the whole of human life, physical and psychical, can never be mastered by those whom mental culture and discipline have not prepared for its study. Men of exceptional talent and industry may surmount obstacles which for the many are insuperable; but the standard of professional attainment must necessarily remain low so long as a proper preliminary education is not required of all who offer themselves for matriculation. The physician who is not also a scholar may be a more or less successful practitioner, but his influence will be confined, his methods mechanical and his interests narrow. The doctor, the lawyer and the minister of religion can do but inferior work, unless to a knowledge of their several sciences they bring the insight, the wide outlook, and the confidence which nothing but intimate acquaintance with the best that has been thought and said can confer. The more accomplished the specialist, the greater the need of the control which philosophic culture gives.

The lack of opportunity for his own mental training made Dr. Davis the more eager to provide it for others. His life in Chicago was identified with the educational, moral, scientific and sanitary history and progress of the city. He was among the first to urge the need of a supply of pure water and of an adequate system of sewerage; and in a course of public lectures he showed how this might be accomplished. With the money charged for admission, he laid the foundation of Mercy Hospital. He was a Methodist, not a Catholic, but his vigorous mind and noble character taught him that prejudice is ignorance or imbecility, and that where suffering is to be relieved, where good is to be done, all, save the blind or the perverse, are drawn together to help and to cheer. The more angels, the more room, and the greater the misery the more do noble natures feel that there is place for all who have good will and the desire to serve. Great minds and loving hearts offer boundless hospitality. When the Chicago Medical College was founded, its more exacting requirements for admission and graduation could not but win the sympathy and approval of Dr. Davis, and, heedless of the loss and sacrifice, he resigned his professorship at Rush to take one in the new institution, of whose faculty he continued to be a member for more than forty years.

He was a leader in the organization of the Illinois State Medical Society, of which he was elected president, and which he served as secretary for twelve years. For six years he was editor of THE JOURNAL of the American Medical Association, which he placed on a solid financial basis. If genius be exceptional capacity for work, Dr. Davis had genius. His industry was tireless, his painstaking unwearied. In the midst of the onerous duties of a large private practice, in the midst even of unremitting ministrations in times of epidemic, he still continued to teach, to write, to edit, co-operating meanwhile in any movement for the common good to which his attention might be called.

He was one of the founders of the Northwestern University, the Chicago Academy of Science, the Chicago Historical Society, the Illinois State Microscopical Society, the Union College of Law, and of the Washingtonian Home.

"The essence of greatness is the perception that virtue is enough," says Emerson in his fine way. Perception, indeed, is not and can not be the essence of anything, but he who has insight into the fact that the end of life is moral, is conduct and character, understands wherein the essence of greatness consists. It lies, like the kingdom of heaven, within. Title, office, possessions may or may not be its accompaniments. Vast knowledge even gives no assurance of its presence; for it is what a man believes, hopes, loves, admires, yearns for and does rather than what he knows. Only they whose existence is upborne and illumined by a high and holy purpose are interesting or have intrinsic value. The rest are busy with what they shall eat and wear, with how they shall be housed and attended, and pass their existence on the low plain of appetite and vain desire. Dr. Davis was more than a learned and skillful physician; he was a genuine man filled with religious and moral fervor and zeal. He might have grown rich, but he died poor. He felt like Agassiz, that he had no time to get money. Had he possessed the wealth of the founders of universities, his chief significance and value would still have lain in himself—in his rectitude of purpose, in his desire to teach men how to live, in the simplicity and honesty of his life, in his love of truth and justice, in his high-mindedness, purity and benevolence, in his freedom from envy, jealousy and pettiness.

In every profession there are men without principle or character who prefer success to virtue, whose predominant passion is greed, who to get money are ready to prey on the weaknesses and miseries of their fellows, who, like the ghouls that gather wherever great calamities befall, consider the helplessness and sufferings of their fellows but opportunities for plunder; and since a man is willing to give all he possesses for health, and since whoever can pay can advertise, the healing art offers the most inviting field for these hyenas in human shape; and therefore the medical profession, more than law and quite as much as the sacred ministry, is most commended and honored by men who to scientific attainments add the essential and abiding worth of moral character. If it be true that an orator is first of all a good man, one who inspires confidence, who is himself more eloquent than words can be, it is also true that a physician should first of all be a man of moral worth, of principle, of probity, of honor, of benignity and heroic unselfishness. If confidence in him as a man be lacking, the wise will hesitate to put trust in the exercise of his professional knowledge and skill; and confidence is half the cure, since in his power to inspire hope, a cheerful and brave spirit, lies, in most cases, the

secret of a physician's success. Boerhaave, whose reputation surpasses that of all other physicians, to whom letters addressed "to the most famous physician of Europe" were sure to be delivered, wrought, it is said, more cures by his presence than by his remedies. However great one's science or skill, the foundation of the trust we place in him must be laid by his moral worth. Knowledge does not of itself determine will or form character, and one may know many things and be only the greater villain.

The trend of the most recent theory and practice in education is to lay chief stress on intellectual ability and technical skill, and to hold lightly the convictions of those who are persuaded that human life is essentially conduct, and that the everlasting fountain-head by which right doing is fed is religious faith, which alone can build the foundation of a rational belief in the absolute worth and sacredness of man, as revealed by his origin and destiny.

The ideal is that of the calculating understanding in the service of the senses. Get money, and whatever is desirable shall be thine. Succeed, by fair or foul means, and the world will do thee homage. Make thyself able, strong and skillful, and thou shalt have small need of virtue.

Dr. Davis was a lover of knowledge, a life-long student, a chief promoter of medical organization in this country, and the tireless, persuasive advocate of the need in his own profession of higher and more thorough education. His mind was vigorous and alert, his intellectual curiosity drew him ceaselessly to scientific inquiry, his temper was judicial, his power of diagnosis was exceptional; but his religious, virtuous life, his sobriety, his tolerance, his largeness of thought and sympathy, his independence, his sense of justice, his desire to be of help, his fearlessness in the assertion and maintenance of right, his indefatigable zeal for the promotion of temperance and morality—his character—gave him a distinction which belongs to but few in any profession. He himself is greater than his knowledge, than his deeds, than his reputation. "The chief need," says Seneca, "is of great teachers." Dr. Davis was a great teacher, and, like all teachers of essential vital truths, his highest lessons are taught by his life more than by his words.

In the midst of the crowd of adventurers, of the rabble of fortune seekers, in which he found himself when first he came to Chicago, he walked the narrow path among them like a ministering spirit, but not of them; and when the town of twenty thousand had grown to be a city of a million and a half of inhabitants, he, where all had changed, remained steadfast, true to God, to himself and to the service of his fellow-men, faithful to the old principles which assert religion, conduct and character to be the aim and end of life. For him duty is a divine impulse, and honor, the finest sense of duty. The patient who called him became as sacred in his eyes as is the penitent in the presence of the priest. What he learned was as though he knew it not. The body is not separate from the soul, and, like it, is sacred. He who ministers to the infirmities of the one, helps the other. The physician and the priest are near kin, and in all ages have been held to be so, though like near kin they have had their quarrels. Both recognize that moral good is the essential good; that if men had but virtue enough, they would have health and happiness enough.

Progress in etiology and diagnosis has confirmed the

belief that the root of evil lies not in the stars, but in ourselves.

Men are most prone to lie to themselves, and most willing to be lied to, when there is question of their health and morals. They will lay their infirmities and faults to anything in the wide universe but themselves. Whether there is question of medicine or of religion, their unwillingness or inability to employ the right preservatives or remedies lies in their unwillingness or inability to lead right lives. We make ourselves the victims of greed, lust, gluttony, drunkenness, envy and hate, and find what comfort we may in denouncing doctors and priests. And doctors and priests, who, if they are not better, are worse than laymen, are forever tempted to palter, to flatter, lacking the courage to unveil truth to the easily shocked eyes of lechers, drunkards, gluttons, thieves and tricksters, if, having money and position, they can make or mar. They are forever tempted to prove false to their deepest knowledge and insight, to compromise where compromise is betrayal, to indulge where indulgence is ruin, to administer palliatives when there is no hope but in radical change. This false and cowardly attitude undermines character, confuses knowledge, and destroys the power to inspire confidence in those who are ill that they shall be made whole.

In the presence of the all-pervading self-indulgence and self-deceit which lust and pride and greed beget, we are made conscious of the transcendent worth of a man like Dr. Davis.

In him the average sensual man, who is every man, can find little comfort. He sees the fact and speaks plain. Between him and the possibility of quackery there lie infinite worlds. Between him and the expert who values his professional ability chiefly for its power to exact large fees, there lie infinite worlds. Between him and the crowd of the prosperous, who believe that a man is worth not what he is, but what he possesses, there lie infinite worlds.

Into the valley of the Mississippi, made fat and fertile by the slow but ceaseless action of natural forces during epochs of indefinable length, there has come suddenly a race, provided with the highest religious, moral and scientific power, a race of exceptional vigor and of most fortunate historic experience. In brief time we have developed here a material civilization whose wealth and promise is a world-wonder. What hitherto it had taken thousands of years to bring about, has been accomplished in half a century. But we ourselves have not grown as our prosperity has increased. We have succumbed to our success. We have vast riches, and all the comfort, luxury and display which money provides, but our thoughts are superficial, our sympathies shallow, our desires selfish or sensual, our aims and ambitions vulgar.

Like those who, in the midst of unending waters, die of thirst, we, having all that earth's bounty can give, have lost the secret and the art of leading a worthy and a happy life, because we have ceased to be either willing or able to believe that souls live by faith, hope, love and imagination, in the light of high ideals, and in the glow and warmth of self-devotion to what is forever true, and good and fair. We measure human worth by mechanical standards, the value of life by the opportunities it affords for the indulgence of appetite or vanity. We are feverish, restless, timid and uncertain. In our very strength and energy there seems to be something akin to disease. We can neither work nor play in moderation. The wisdom of those who are con-

tent with what suffices is in our eyes folly. Hence it is easy for us to become gamblers, promoters, givers or takers of bribes, drunkards, and suicides; and in the midst of the dazzling spectacle of our national progress, it is a question whether our millionaires or our toiling, hard-driven wage-earners, are more discontented and unhappy.

With us everything improves—mechanical devices, the breeds of domestic animals, the qualities of vegetables and fruits—man alone is stationary or retrograde, because his nature, being essentially moral and religious, the worship of vulgar success, the indulgence of appetite, the preference of the external and transitory to the real abiding world within, make religion and morality impossible.

From the midst of such a world, a man like Dr. Davis rises, like one inspired, to proclaim by word and deed, that righteousness is life, that the wages of sin is death, that whatsoever thing a man soweth that shall he reap, that sin or culpable ignorance or neglect, which is sin, is the cause of nearly all the diseases, ills and miseries by which we are brought to ruin.

To the learned professions especially his teaching and his example declare that they rest not more on a basis of knowledge and skill, than on a foundation of principle, honor and benevolence. His view is generous and comprehensive. Not for his clients alone does the lawyer exist, nor for his penitents, the priest; nor for his patients, the physician.

God makes sages and saints that they may be fountain-heads of wisdom and virtue for all who yearn and aspire; and whoever has superior knowledge or ability is thereby committed to more effectual and unselfish service of his fellow-men. If the love of fame be but an infirmity of noble minds, the craving for professional reputation is but conceit and vanity. To be of help, and to be of help not to mere animals, but to immortal, pure, loving spirits—this is the noblest earthly fate, this, the highest good fortune. In the light of this ideal Dr. Davis believed, hoped, loved, worked, suffered, died and triumphed. When the politicians, the captains of industry, the inventors of mechanical devices, the lavishers of millions to promote whatever ends, shall have sunk into oblivion or be remembered with the contempt of indifference, he shall remain as a witness to right human life, as an influence and encouragement to all who have faith in God, in truth, in justice, in plain, unselfish living, in brave endeavor, in purity and love; a principle of hope and courage, an inextinguishable light to beings who wander amid the labyrinths of time and space, and feel and are certain that their true home is with the Eternal Father who makes and upbeats the Universe that beings like unto Himself may be born and grow forever.

Before the Royal College of Surgeons of London, there is delivered an address, each year, to commemorate the life and work of John Hunter. Let the physicians and the medical schools of Chicago bear witness to their love of worth and appreciation of excellence, by making a similar foundation to perpetuate the memory of Nathan Smith Davis.

The Physician Should Insure His Life.—A physician owes much to his family. His peculiar life, his enforced absence, and his irregularity are exasperating in the extreme; therefore, he should offer reasonable compensation by definitely providing for accidents, illness, and death, particularly for the comforts of those who depend on him for their future existence.—*N. W. Lancet.*

Original Articles.

THE SURGICAL TREATMENT OF BILOCULAR UTERUS AND BIFID VAGINA.*

H. W. LONGYEAR, M.D.

Gynecologist to Harper Hospital; Physician to the Woman's Hospital; Clinical Professor of Gynecology, Detroit College of Medicine; President of the American Association of Obstetricians and Gynecologists.

DETROIT.

My object in presenting this subject is to call attention to a simple operative procedure for the correction of one of the numerous forms of anomalous development of the female generative organs which result from faulty evolution in the process of development of the Müllerian ducts.

The strange silence of gynecologic literature appertaining to the therapeutics of these sexual deformities is remarkable, as it would seem that, where possible, their early discovery and correction should be aimed at, rather than allowing such abnormal conditions to continue as a serious menace to the health, and possibly the lives, of their possessors.

The bilocular, double, or septate uterus is usually attended with the same condition of the vagina, the latter being divided by an apparent continuation of the uterine septum into two lateral halves. The cause of the deformity being an arrest of coalescence of the Müllerian ducts, the result is one uterus and one vagina divided by an anteroposterior septum of fibrous tissue in such a manner as to cause the apparent duplication of the organs; thus, to correct the deformity and form one uterus and one vagina, as Nature intended, all that is necessary is to destroy the dividing septum in both vagina and uterus. When this is done, a vagina and uterus, both being rather more capacious than normal, will result, and the two small cervixes will be coalesced into one normal-sized cervix. The whole apparatus is thus placed in practically a normal condition, so that gestation and parturition may be assumed in a normal manner.

Others, no doubt, have worked this matter out as is here suggested and corrected the deformity by operative procedure of one kind or another, but beyond the destruction of the vaginal septum, I can find nothing recommended in the text-books, and so I present my method of operating, with report of two cases, which comprises my experience with this particular variety of malformation.

Care is necessary in the selection of the cases for operation, so that a bicornate uterus may not be mistaken for a septate uterus, as it is apparent that the division of the mistaken septum in the former would open the peritoneal cavity. The differentiation is easily made by conjoined examination, so that, with reasonable care, the accident is not liable to happen.

THE METHOD OF OPERATION.

The vaginal septum is first removed in the following manner: Two pairs of long pedicle forceps are made to grasp it along its entire length from the vulva to the two cervixes, one anteriorly and one posteriorly, close to the vaginal wall; the tissue between them is then entirely cut away with scissors and trimmed clear from between the cervixes at its upper end; the Paquelin cau-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

tery is then applied to the edges of tissue held in the grasp of the forceps, and the latter removed. This plan of removal of the septum insures a bloodless operation and can be accomplished much more quickly than if the parts are cut away and stitched.

The capacious vagina can now be opened widely with a retractor and the two small cervixes plainly seen lying closely against each other, with only the edge of the divided septum between them. Both are then dilated sufficiently to facilitate manipulation, the direction of each uterine canal ascertained, and, if necessary, a farther bimanual examination made to be certain as to the shape of the uterus. The dilator is then inserted, with one jaw in each os, and the Paquelin cautery knife thrust between them, cutting the septum to the depth of perhaps an inch. The dilator, which has acted as a shield to the outer sides of the cervix, is then withdrawn and the farther division of the uterine septum up to the fundus is completed with a pair of long, curved, blunt-pointed scissors. The cavity is then curetted, if necessary, and swabbed out with tincture of iodine and packed with iodoform gauze, the latter being continued into the vagina, which is also loosely packed with it.

At the end of four days the gauze is removed and daily vaginal irrigations of carbolic water, followed by sulphate of zinc solution, gr. 3 to 5 1, used till the parts in the vagina are healed.

The two cases which have come under my observation were discovered on examination to determine the cause of severe dysmenorrhea, both patients complaining of the persistently increasing pain from month to month.

In the first case only the vaginal part of the operation here proposed was made, and it was the experience with the case following the division of the vaginal septum that determined the trial of the extension of the operation to the removal of the septum in the uterus. The following are the histories of these cases:

CASE 1.—G. R., single, 20 years of age, but in appearance an undeveloped girl of 15. Breasts and labia small and genital hair scanty. Menstruation had occurred irregularly five or six times, each period being more painful than the last, and it was for this symptom that the girl's mother brought her to the clinic at the Woman's Hospital, Jan. 10, 1899.

Examination.—On examination under anesthesia the abnormality was discovered. The vulva was normal, the vagina was divided into two lateral parts by a firm anteroposterior septum which extended from the introitus to the vault, where, on each side of this dividing membrane, a small cervix uteri was felt, with the inner aspect of each lying closely to the septum and adherent to it almost to the os. On passing the sound along the finger into the two uterine canals, the left was found to deviate considerably toward that side, while the right was deflected but little from the median line. The left measured 2½ inches and the right 2¼ inches.

Each cervix was thoroughly dilated, and the patient directed to report occasionally for further observation and treatment. She was not seen again until June 13, 1902, when she presented herself again, through the courtesy of Dr. Samson of Windsor, Ont.

Her general development was then greatly improved in every way, and it was discovered that the members of the left side of her body were more largely developed than the right: the left breast, left arm, leg and thigh, as well as this side of the abdomen, being markedly larger than the opposite corresponding parts. The size of the hands and feet were not different. For several months she had had increasing severe pains at each menstrual epoch, which always began in the right hip and extended across the abdomen. On account of the limited room in the vaginal canal, due to the septum, bimanual examination was unsatisfactory, but a sensitive mass larger than an ovary

could be made out in the region of the right ovary, so its removal by abdominal section was decided on, as well as the ablation of the vaginal septum.

Operation.—At the Woman's Hospital, June 14, 1902. The vaginal septum was first removed in the following manner: Its whole length was grasped by two long pairs of pedicle forceps, one anteriorly and one posteriorly, from the introitus to the vault, cut away with scissors close to each forceps, and the edges thoroughly cauterized with the Paquelin cautery. On removal of the forceps no hemorrhage occurred. This left the cervixes projecting into a vagina which was rather wider than normal. The abdomen was then opened and a careful examination of the pelvic contents made. The double uterine body was nearly three inches in breadth at the fundus, the right side being somewhat smaller than the left, with a slight indentation marking the junction of the two halves. The left tube and ovary were normal; the right tube was normal, but the ovary was enlarged by a hematoma to the size of a hen's egg, and was removed.

Her first menstruation, while still in the hospital, was attended by the same pain in the back of the right hip. This same pain, occurring at the menstrual epochs, continued to increase in severity and duration after this operation, until Dr. Samson again returned the patient, Jan. 8, 1903, with the opinion that the woman would soon be dead, from either suffering or morphia, unless relieved.

Examination revealed no cause for the pain, but the condition being desperate, the removal of the remaining ovary was determined on for the purpose of bringing on the menopause. At the operation, which was performed at the Woman's Hospital, Jan. 29, 1903, nothing in the line of adhesions or other cause for the pain could be found, and the ovary was normal. It was noted that the right half of the uterus, the side from which the ovary had subsequently been removed, had diminished considerably in size.

A bloody discharge from the uterus, two days after the operation, caused the old pain in the hip, necessitating hypodermics for its relief, and ceasing with the cessation of the discharge. Four months after operation the patient reported no menstruation and no pain. Was becoming very fat.

After the experience with this case the query naturally rose as to the possible rôle the uterine septum had played in the causation of the dysmenorrhea, and whether its removal should not have been first attempted and the ovary left for the *dernier ressort*. It was decided to try it next time, not only for the relief of a possible dysmenorrhea, but for the purpose, as well, of placing the organs in a condition more nearly approaching the normal. Such an opportunity presented itself sooner than expected.

CASE 2.—W. M., servant, 21 years old, single, normally developed in every way. Menstruation began at 13 years of age, always painful, but lately much more so. Sought advice because of the severity of the pain, which was located in the hypogastric region, of a colicky nature, and active only during the first day of menstruation. Is well and strong between periods and able to work.

Examination.—Vulva normal; no hymen; two vaginal openings were found, divided by a thick, loose septum which adhered closely to the right side, and was not at first discovered by inspection. This septum extended from the entrance to the vault of the vagina, where a cervix uteri could be felt on each side of it. Vagina very capacious, each side receiving a large size bivalve speculum. Cervixes small and placed close to the septum. Sound passed 2½ inches in each side, the left deviating slightly to that side and the right a trifle toward it. Uterine body felt to be broad and freely movable. Appendages apparently normal.

Operation.—Harper Hospital, Jan. 26, 1904. Vaginal septum excised with scissors, between two forceps (anterior and posterior), and edges cauterized with Paquelin cautery. The two cervixes were then successively dilated, and, after introducing and opening the dilator, with one jaw in each side to act as a

shield, the cautery knife was thrust between them into the uterine canal to the depth of about one inch, thus making one os uteri and cervical canal. The dilator was then withdrawn and the balance of the uterine septum cut through by small successive snips with a pair of long, curved, blunt-pointed scissors. The hemorrhage was quite insignificant. Examination with the curette showed the endometrium to be in a healthy condition on each side. The uterus was then swabbed with tincture of iodine, washed out, and both uterus and vagina packed with iodoform gauze.

The patient suffered no pain or discomfort from the operation. The gauze was removed on the fourth day, and carbolic acid and sulphate of zinc douches used while she was in the hospital. She sat up on the tenth day, and was discharged on the fifteenth.

Result.—Reported at office, April 6, 1904. Had had two menstrual periods since operation, both being less painful and flow more free than before operation. Examination showed the vagina well healed; cervix showed no signs of the operation, except that the os was a trifle larger than is usual in a nullipara, and the remains of the vaginal septum could be discerned on its anterior and posterior aspects. The uterine canal was free, and no remains of the septum could be felt with the sound, excepting a slight projection of tissue of about a quarter of an inch at the fundus, which marked the point of insertion of the septum.

NOTE.—Sent, 30, 1904, patient very well in every way and not suffering from dysmenorrhea.

DISCUSSION.

DR. C. S. BACON, Chicago, said that the obstacle to labor from the septum in the vagina is easily conceivable, but that he can see no reason for cutting the septum in the uterus on account of the pregnancy or to relieve any disturbance during labor. Menstrual difficulties seem to have been the reason for the operation, and it certainly seems remarkable that without further attempts to improve menstruation, ovaries that apparently were normal should be removed. Hematoma of the ovary is not a sufficient reason for removing it; hence, the case is open to criticism. Dr. Bacon said that it is hardly conceivable that a septum can be the cause of difficult menstruation, unless it acts as a mechanical obstruction.

DR. L. H. DUNNING, Indianapolis, has seen cases in which a septum in the uterus and vagina acted as an obstacle to menstruation; both women conceived and were delivered without any operative procedure. In both cases the septum was torn during labor. The first case occurred early in his career and he concluded to leave things to nature, especially as the septum was very thin. The septum was torn in both uterus and vagina, and no accident followed. In the second case the septum was thick and there was a wedge-shaped piece of tissue running from the external os up the cervix. The patient refused operative interference, and she had a very hard labor. The descending head tore its way through the septum, and, incidentally, through the cervix. Dr. Dunning doubts whether it can be laid down as a general rule that the septum in the uterus should be removed by operation. Malformations of the uterus may be found more often than we think. He has seen eight cases, two of them uterus bicornis, and the others of various kinds.

DR. H. T. JOHNSON, Washington, D. C., has seen one or two cases of partial double vagina, in which the trouble was overcome by snipping away the septum. He recalled the case of a woman living in the country who had a miscarriage. She came to the city to be curetted, on account of a more or less continuous flow after the miscarriage. She recovered from the operation, went to New York, and remained there for several months. In the meantime her abdomen increased gradually in size, but as it caused her no inconvenience she did nothing about it. One evening, however, she had a very severe pain and was taken to the hospital of Dr. L. G. Wylie, who delivered her of a five months fetus. Dr. Johnson could not explain it at all, as he had curetted thoroughly. Later he received a letter from Dr. Wylie describing a perfect double

uterus. The patient had had a miscarriage in one side of the uterus while a pregnancy existed in the other, and it was fortunate that he did not get the curette into the pregnant side.

DR. J. H. CARSTENS, Detroit, said that he had had similar cases in his practice. Eighteen years ago he attended a lady who had had a miscarriage. There was nothing unusual about it, but after six or eight months she had another miscarriage, and after a time she had a third miscarriage. The placenta was retained and he was obliged to remove it. Then he found that there was something wrong. The placenta was over on one side, but during his manipulation he found a septum extending down to the internal os, the external os being normal and the fundus normal; the septum was the only thing abnormal. Some months later he dilated the cervix with sponge tents and removed the entire septum, making one uterine cavity. In about three months she became pregnant again and was delivered of a full-term child. After that Dr. Carstens had a case of septum passing through the uterus and vagina. He removed the septum so as to make only one cavity. In order to prevent adhesions of the uterine walls after removing a septum, he always swabs out the uterine cavity with strong carbolic acid. He has had several cases where he could not operate because of the shape of the uterus, the fundus being depressed, making a sort of bicornate uterus. In order to make an operation permissible there must be only one septum and a normally-shaped uterus.

DR. W. B. DORSETT, St. Louis, operated on a case recently and found a double vagina and uterus. The patient was very fleshy and it occurred to him that it would be a rather hazardous procedure to carry the incision all the way up to the fundus, as he might enter the abdominal cavity, or it might have been a case of bicornate uterus and not merely a septum in the uterus, so he divided the septum in the vagina and as far as the internal os into the uterus. Several years ago he was called in consultation in a case of labor with a septum in the vagina. The child's head had come down well until it met this band, which prevented its further descent. He cut it and the labor proceeded without further trouble. These septa are not alike. Sometimes they consist merely of mucous membrane, while at other times they may contain some circular and longitudinal muscle fibers and frequently troublesome blood vessels.

DR. H. W. LONGYEAR said that the case reported by Dr. Dunning shows the beneficial results following division of the septum. Removing the ovary in the first case to stop menstruation was not advocated as a method of treating these cases. The removal of a normal ovary is always a subject for difference of opinion, but here was a case of abnormality in every way. The whole individual was abnormal; all the soft parts were abnormal, and the excruciating pain necessitated the administration of morphin for two weeks out of the month; and she was not a morphin fiend. He had had the opinion of an excellent practitioner who had been her physician, and he had no hesitation about removing the ovary, because the woman was a wreck and would continue to be such, apparently so long as the menstrual epoch continued to recur. Removal of the ovary was the simplest way to stop it. He had nothing to guide him in the matter, as he could not find anything in the literature. He hesitated to continue the division into the uterus, for the reason that there might have been a bicornate uterus and he might have gone into the abdominal cavity. He has wished since that he had done the same operation in this case as in the later one, before any organic changes took place in the first ovary. The patient consulted him for the relief of dysmenorrhea, and that is how he discovered them, although he did not operate solely to cure the dysmenorrhea, but to put the patients in a normal condition. Dr. Longyear knows of one case like Dr. Johnson's where infection occurred. The physician thought that he had curetted away everything, but the woman became septic, and it was then discovered that she had a double uterus, and he had curetted only one side. On making a thorough examination he found that the other side contained septic matter so that she apparently had a double miscarriage.

A PLEA FOR CONSERVATIVE OPERATIONS ON THE OVARIES,

FROM A NEUROTIC STANDPOINT, WITH REPORT OF CASES.*

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The subject of ovarian neurosis is one of the most difficult the gynecologist has to deal with to-day, because of his inability to fix a standard from which to determine the beginning of surgical treatment. Hence the question is of diagnosis rather than of surgery, and the thing to decide is whether the woman's symptoms arise directly or indirectly from pelvic disease. This decided, the treatment is simplified, but should the pelvic disease not enter into the case further than one of many other factors, then it is not a surgical case, and should be treated accordingly; and it is this very factor which complicates the subject and has given discredit to legitimate surgery and brought to view the shining light of the operator, while the conscientious surgeon prevents damage to the patient and injury to his profession.

It is my purpose to emphasize the importance of a better knowledge on the subject of diagnosing such cases and point out the mistakes likely to occur in doing so, because no class of patients suffer more or longer with less prospect of relief than do these. They are fully convinced that, directly or indirectly, all their grief emanates from the pelvis, and oftentimes this idea is fostered and materially augmented by their friends. The headache, backache and tired feeling, combined with pain in iliac regions, are considered indications of pelvic disease, but when these symptoms are accompanied with disordered menstruation, dysmenorrhea and leucorrhœa, then there is no doubt about the diagnosis, especially if some kind friend or thoughtless doctor confirms their opinion.

The real cause frequently originates from abortions, gonorrhea, endometritis and pelvic inflammation, which keep up an irritable condition of the ovaries, and the woman suffers for years, and it is no wonder she is willing to resort to any means that will promise relief. However, the all-important question arises in all such cases as to whether surgery is an advantage or disadvantage, or whether it will do the patient harm or good. Opinions of leading gynecologists differ on this point, although the bulk of authority is against the assumption that pelvic disease is not the cause, but result of neurosis.

The intimate relationship existing between diseased conditions of the reproductive organs of the female and functional disturbance and organic changes in other parts of the body should be better understood; also that fermentation and putrefaction within the intestinal canal will produce autoinfection, and that intoxication will produce ptomaines and leucomains, which are the most prolific and common cause of nervous disease. We should know that excretions retained within the body, as well as waste tissue, are absorbed and bring about pathologic changes in the blood, which, in turn, causes malnutrition of nerve centers, and thereby materially interferes with and abridges healthy functions in all the vital organs.

Other causes than pelvic disease may operate to produce this abnormal nervous condition, we must admit.

and that the functional disturbances within the pelvis may be the effect and not the cause of the pathologic nerve state, is equally true.

Many surgical procedures, heretofore undertaken with confidence, have been sadly disappointing, and have utterly failed to relieve the condition for which they were advised. The neurasthenia and functional disturbances have remained, and both patient and surgeon have lived to regret the treatment adopted. Many operations which, a few years ago, were very popular with the profession for relief of supposed ovarian nervous troubles, have grown in disfavor, and are now seldom done, which ought to teach us all an important lesson not to take up fads, hobbies and phantom neuro-psychosis, but to take a broader and more comprehensive view of the subject and be less radical and more conservative in our treatment of such cases.

A few gynecologists condemn oophorectomy in neuroses, and deny the existence of genital neurasthenia. This is, in my opinion, an extreme view of the subject, and is as injudicious, in the face of clinical facts, as are the teachings of those who report such large numbers of these patients as cured by the removal of the ovaries.

The experiences of Liebermeister and Baldy coincide so nearly with mine that I quote, in abstract, from remarks made by them on the subject:

"On the one side we often see extremely nervous women, in whom the anatomic and functional conditions of their sexual organs are normal, and, on the other hand, all sorts of diseases of the sexual organs may occur, without the presence of nervous disturbances. Neurotic cases cured by local gynecologic treatment are rare. Many cases are cured in whom the sexual organs remain unchanged. The conclusion, then, must be that neurotic cases are rare that are wholly dependent on diseases or abnormalities of their sexual organs, and yet it is equally true that abnormal irritation of the same functions are conditions especially fitted to cause nervous manifestations."

I began five years ago to examine the right ovary in all cases of appendectomy in women, and was surprised seldom to find an ovary normal, from an anatomic standpoint, but many cystic ones and in some diffused edema. A few conservative operations were done on such ovaries with negative results, and now the ovary is removed or dropped back unmolested, unless prolapsed or congested, then suspension should be done.

Statistical reports of the surgical and non-surgical aspect of ovarian neurosis does not convince me that either extreme should be adhered to, and that an intermediate position is preferred between the two extremes, not laying down any specific rules to be governed by, but judge each case on its own merits.

During the past year several cases have come under my professional care, or have been seen in consultation, on which conservative operations on the ovaries had been performed with negative results, and now they seek a secondary operation for relief. I will report two of such cases which have occurred in my own practice, and two were from other physicians.

CASE 1.—Jan. 6, 1901. Mrs. B., aged 35; good family history. Examination showed she was suffering from metritis and prolapsed and diseased ovary; had severe pain in loin and back of head, which had existed for months without an intermission, producing a general hyperesthesia of the nervous system, insomnia, loss of appetite and emaciation. I put her to bed, using local and constitutional remedies for four weeks without satisfactory results. February 16 I removed the diseased ovary, and she had an uninterrupted convalescence. Her

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nervous troubles seemed relieved for a few weeks, but gradually returned in an aggravated form; in fact, hysteria. Two years after the operation I saw her again, and symptoms were unchanged. I advised her to try medicinal treatment for a few weeks, and if the results were not satisfactory that she should have the uterus and right ovary removed; my advice was not carried out, and I have not seen her since.

CASE 2.—March 20, 1901. Miss S., aged 22. Her family history was negative, and so were most of her subjective symptoms; so far as contributing to the reflex nervous condition, eliminating a diseased condition of the left ovary, which an objective examination fully verified. An operation was advised as the best way out of her trouble; this was refused, although she had suffered almost continually, and often severely, for about three years.

I put her on a medicinal treatment, constitutionally and locally, and put her to bed for four weeks, and quiet for twice as many more, during which time the treatment was continued, but with negative results. June 25, 1901, I removed the left ovary and tube, both being badly diseased; the right ovary and tube and womb seemed normal. She had an uneventful recovery, and for a time seemed relieved; then her nervous condition returned and remained. She has repeatedly requested the right ovary and uterus removed, with hopes of relief; this was refused, because no conditions existed warranting such procedure, hence it is problematic how the case will terminate.

CASES 3 and 4.—Give similar histories of three and four years' standing and operations, by other gynecologists, of single and double oophorectomies failed to give relief, and the patients consulted me with a view of another operation, and, if I thought best, a complete hysterectomy. After receiving the full histories of the cases and making a thorough examination, and not finding pathologic changes warranting such a procedure, I declined to operate, and these, like the preceding two cases, must look for relief from other sources.

These cases go to show that relief in many cases is not secured from one or even two operations, yet many are benefited, and conservativeness should not be pushed too far, because cystic degeneration in many cases is progressive.

CONCLUSIONS.

1. Operations on the ovaries that preserve the menstrual and reproductive functions should be employed, when possible, in lieu of complete extirpation.
2. Healthy displaced ovaries may be anchored to posterior surface of the broad ligament or by shortening the infundibulo-pelvic ligament.
3. Sterile women and married women who are using means to avoid pregnancy are unfavorable subjects on which to do conservative operations on the ovaries.
4. Conservative operations should be avoided on all pus cases, as a general rule.

DISCUSSION.

DR. ROBERT T. MORRIS, New York City, said that the psychoses must be separate from the reflex neuroses. Patients have been operated on who should not have been operated on. Recently a surgeon said to a neurologist that he could clean out his office of patients if he were allowed to step in. To which the neurologist responded that he had no doubt of it. The fact of the matter is that neither was quite familiar with the work of the other. Many patients having a fundamental psychosis give pelvic symptoms. Patients classified as neurasthenias are often patients with a psychosis, with incipient melancholia and with pelvic pains. They must be classified carefully if physicians are not to be subjected to the humiliation of doing unnecessary and harmful surgery.

DR. A. GOLDSPOHN, Chicago, considers that the difficulty is one that is solved by making better diagnoses. The gynecologist, like all specialists, is often accused of finding too much in his sphere and, therefore, every other part of the body should be examined before the pelvis; of course, having

the history in detail. Gynecologic diagnosis begins, at least, with the mouth, and sometimes with the eye. The ophthalmoscope ought to be used occasionally to see whether there is an organic lesion of the eye, rather than to regularly use the uterine sound that leads the physician astray frequently in ordinary minor cases. Successful gynecologists must be general medical men first, and be able to distinguish the thoracic symptoms of abdominal or pelvic origin from those that arise from thoracic diseases. Likewise to distinguish the symptoms of kidney lesions, and of diseases of the bile passages and others which arise from traction on peritoneal structures, particularly the suspensory ligaments of the intra-abdominal organs, such as enteroptosis and gastroptosis, from the referred symptoms of pelvic disorders. After that, make a bimanual examination, but to do this thoroughly the physician needs practice quite as much as an average housewife needs to have practice on the piano in order to play that instrument respectably. This fact of cultivating the touch, of having developed eyes in the fingers, is not appreciated enough. It is not the size but the consistence of an ovary that is of importance. It may be twice as large as it should be and yet be healthy; and an ovary half the normal size may be the source of serious trouble and require extirpation more than many an ovarian tumor of the size of a fist. This examination should be impressed on the patient as being a difficult feat, for which she must be prepared. The surgeon should not stake his name and reputation on an examination which he makes on a case as it comes to him; with aggravated sensitiveness, with an abdomen full of feces and gas, and with the bladder distended. It is a mistake to attempt an examination under these conditions. Send the patient home with instructions to come prepared properly, and tell her that an anesthetic is sometimes necessary, although it is a disadvantage in that the physician can not tell when he hurts the patient or when he touches a tender spot. And, having enlisted her good will and intelligence to assist in this examination, try to elicit the facts. With such an examination, together with the subjective history and a complete knowledge of the patient's habits, occupation and surroundings, it is usually possible to discover the psychoses.

DR. W. H. HUMISTON, Cleveland, Ohio, stated that in cases of neuroses there is frequently found a leaky mitral valve, an enlarged heart, a prolapsed kidney or a dilated stomach, and the pelvic organs are found to be normal, although the patient may complain of backache and bearing-down sensations. The gynecologist shines in those cases of acquired insanity in women, with no family history of insanity. Repeated examinations have been made by men who have not the eye in the end of the finger, but when examined by a competent man it is found that the ovary is smaller than normal, hard, corrugated and occasioning continuous suffering. In these cases operative results are brilliant; the patient is restored to full mental faculties and her long suffering is relieved. Even in conjunction with the operation these other associated conditions are often found.

DR. F. F. LAWRENCE, Columbus, Ohio, said that this question seems to hinge on the meaning of the term conservatism. Every man who is doing operations tries to do what is right and what is for the best. The patient with a nervous disease should receive the advantage of exactly the same methods of treatment for relief as one who has no mental nor nervous disorder. The fact that a woman is insane is no reason why she should be denied relief from a gross lesion of any kind. In other words, the determination as to whether operative procedures should be adopted depends on the absence or presence of gross pathologic lesions, no matter what the lesion may be. True conservatism means to do promptly and thoroughly that which will replace a pathologic condition by a physiologic, or which will remove gross pathology.

DR. H. O. MARCY, Boston, emphasized the relation of pelvic disease to insanity. Several years ago he asked the late Dr. Bucke, who had charge of the insane asylum in Ontario, containing over 500 insane female patients, what he knew with reference to pelvic disease in these women. Dr. Bucke

said that he had never thought of that. Dr. Marcy advised him, on his return, to have all these patients examined carefully and to report results. Over one hundred of these women were operated on for serious pelvic disease, and over 70 per cent. were permanently restored to their normal mental condition.

DR. G. B. MASSEY, Philadelphia, called attention to the cataphoric diffusion through the vagina of mercuric ions, in inflammation in the pelvis. It does not matter whether this inflammation is in the uterus, in the tubes, in the ovaries or in the parametrium, it is still inflammation. There is something between these two alternatives of pelvic disease and psychosis that must be considered at times, and that is abdominal neurosis, not psychosis. Eliminate hysteria, exclude psychosis, and though hysteria is a manifold complex disease, it can seldom be mistaken, but do not treat cases of abdominal neurosis as hysterics. Do not put them in bed; it will make them worse. Correct the abdominal condition. Decide in every case the output of solids in the urine. See that there is no kidney constipation, and many of these cases will recover.

DR. D. H. CRAIG, Boston, said that in examining the ovaries of young women more healthy looking ovaries are found than in women a little older who have had nearly as smooth a life as the young women. On investigating the subject, it occurred to him that the ovary of a woman comparatively recently entered on her menstrual life is relatively sound, whereas the ovary of a woman who has menstruated for some years has a scar for each time an ovum has ripened and the follicle ruptured. At the middle or end of menstrual life, therefore, the ovary is a much scarred, contracted organ. In the average normal ovary there are from ten to eighteen graafian follicles in process of maturation, and many follicles attain a diameter of 2 cm. Dr. Craig has seen many a badly scarred ovary which gave no clinical symptoms but which was so apparently cystic that he put a cautery point or knife into the sacs of fluid and evacuated a great deal of material, dropped it back, and the woman went on comfortably. The question arises whether those scars were not the result of previously ruptured follicles and whether the "cysts" he evacuated were not maturing graafian follicles. After removing such ovaries, he has had them examined microscopically and in some instances his suspicions were confirmed. Many of the so-called cystic ovaries removed to-day, that have given rise to no clinical symptoms of ovarian disease, are not pathologic ovaries at all but are ovaries containing graafian follicles which are rather larger than common but are simply in process of maturation.

DR. COKENOWER does not believe that any one who has not been a general practitioner first should be a specialist in any line of work, especially gynecology, a fact that his consultation work with general practitioners and other gynecologists has verified. Physicians are too prone to limit their knowledge to their own subject, thus excluding much that is valuable in other subjects; hence, their observations should be more general and their work broader, thus producing better results.

MANAGEMENT OF THE ACUTE STAGES OF ABDOMINAL INFLAMMATION.*

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Differential diagnosis is of the first importance, and will first engage the attention of the surgeon. This paper is concerned with the management of acute stages after the diagnosis is made, especially with the question of immediate operation, and only acute conditions will be considered. It may be necessary, clinically, to distinguish the following: Suppurative cholangitis;

suppurative cholecystitis associated or not with gallstones; acute suppurative pyelophlebitis; various kidney inflammations; peritonitis following the perforation of viscera or of cystic tumors; acute hemorrhagic pancreatitis; ureteral calculus. Among intestinal conditions may be found strangulated hernia; obstruction due to bands; intussusception; volvulus of mesentery or of intestine; acute appendicitis; thrombosis or embolism of mesenteric vessels or those of the spleen. Salpingitis, ovaritis, metritis; postpuerperal, traumatic or due to such infecting agents as the tubercle bacillus or the gonococcus.

Of these conditions certain ones do not call for operation, and are, therefore, to be distinguished. Acute suppurative pyelophlebitis, for example, the septic inflammation of the veins of the liver, is an invariably fatal disease. Fortunately, it is usually secondary to an infection along the portal tract, and is, therefore, preventable. A case reported by me was due to acute appendicitis, and another to postperitoneal infection caused by a common pin in the appendix. The primary condition might call for operation, but not the secondary, as the hopeless multitude of liver abscesses and the widespread engorgement of veins by virulent thrombi make radical treatment or even drainage impossible.

Extensive thrombosis of the mesenteric vessels and spontaneous gangrene of the intestine is beyond operative relief, but inasmuch as the area involved may be small enough to make resection feasible, exploratory operation would be indicated were the diagnosis made. It shares with acute pancreatitis certain crucial symptoms. Very sudden agonizing pain, usually above the umbilicus, vomiting, collapse and muscle rigidity. There may also be copious, loose, bloody or coffee-ground stools. The pulse is high and meteorism is very marked. Should the probable diagnosis of acute pancreatitis be made, there is some hope from early operation and thorough drainage. Osler mentions two cases which recovered after partial or total sequestration of the pancreas within an abscess cavity. The mistaken diagnosis of acute intestinal obstruction is very apt to be made in these cases.

Should acute necrosis of the spleen occur from occlusion of its blood supply operative extirpation would be probably useless, but theoretically it would be indicated.

There is a simulation of abdominal inflammation which deserves to be carefully considered, namely, pain referred to the epigastrium or appendix region in the early stages of pneumonia. In most of these rather puzzling cases, however, the real origin of the disease is in the appendix, and the chest symptoms are due to a secondary diaphragmatic pleurisy or to a septic pneumonia. When the onset has been distinctly abdominal, the later development of lung symptoms must not be allowed to befog the diagnosis of appendicitis. We come, then, to a group of conditions in which the treatment, at least, of all the graver types is operative, but in which the indications are to avoid operation in the acute stage, if possible, relieving by simple drainage if compelled to intervene. Operate radically after the primary stages of infection are past. To this type belongs salpingitis in all its forms, gonorrhoeal, traumatic, tubercular, post-puerperal; also cholecystitis, except the fulminating or gangrenous forms. The gall bladder is, however, like the appendix, much more liable to the treacherous, rapidly fatal conditions of profound infection

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and will not bear at all a management which follows set rules and does not allow of variations.

There remains, then, by far the largest group, namely, that in which operation is indicated at the earliest possible moment of an acute onset. Appendicitis is here included, with some modifications in cases first seen in later stages, also intestinal obstruction, perforation of all viscera, and strangulated hernia. After perforation of any of the viscera, immediate and radical operation is indicated as soon as the diagnosis can be made, or, in severe cases, with very suspicious symptoms, even before the diagnosis is certain. The repair is to be made with as little handling of bowel as possible, the peritoneal cavity being carefully cleaned by sponging if the affected area is small, or by copious irrigation if there are no limiting adhesions and contamination is extensive. Drainage by tube and gauze follows, of the region affected and of dependent points.

Strangulated hernia, or inflamed irreducible hernia, both call for immediate operation, day or night. Patients with such disorders do not bear transportation well, especially if advanced in years. It is often wiser to operate in the patient's home than to invite disaster by transporting him to a hospital. Space forbids here any consideration of operative technic. The truest conservatism almost always calls for the total removal of the appendix as contrasted with a drainage operation in acute attacks. Gonorrheal tubes, if operated on at all, should both be removed into the cornu of the uterus.

MEDICINAL TREATMENT.

In cases where it has been decided not to operate, vomiting is best controlled by withholding all food, and, if necessary, by lavage of the stomach. Feeding by the rectum sustains the strength and rests the disordered digestive tract. Tympany may be relieved by hypodermic injection of salicylate of eserin, 1/100 gr., among other measures. Normal salt solution by the rectum or under the skin flushes the kidneys, relieves thirst, sustains the pulse and assists in the elimination of toxins.

The ice bag is probably the most useful local agent we have. Ichthyol may be applied to the skin under it. Flannel should always intervene to take away the sense of chill. My custom is not to use ice continuously, but two hours out of every three. Local sloughs have been reported as caused by its continuous use.

Opium in acute conditions is dangerous, because it masks the symptoms and has thus caused many deaths.

Acute cholecystitis, whether due to gallstone disease or to infection by specific organisms, such as the typhoid bacillus, may be cautiously watched through acute stages with everything ready for immediate interference if called for. Gangrene and perforation are not common, but they call for immediate operation at any time when they may be discovered.

APPENDICITIS.

Next to inflammatory disease of the pelvic organs in women, quite the most frequent cause of acute abdominal inflammation is appendicitis. As is well known, the pain and tenderness may be referred to the epigastrium or liver region, to the pelvis, or even to the left side of the lower abdomen. Should a patient have sudden severe pain in these regions, with chilliness, vomiting, a little fever and an anxious expression of the face, with muscular rigidity over the right abdomen in the lower quadrant, appendicitis is probably present. No matter where the pain may be referred, the muscular rigidity is always over the diseased organ.

When the attack of acute appendicitis is serious and decided, there is general agreement that the appendix should be at once removed. No time should be lost in obtaining a blood count, which can only corroborate what the clinical picture teaches. If taken, however, it will probably show a leucocytosis above 15,000, with a tendency to increase; but a high white cell count alone is not a good guide for or against operation, though it furnishes valuable corroborative evidence. Its absence need not be too highly regarded if other symptoms of gravity are present, especially an unsatisfactory pulse and a facies which shows anxiety, associated with sallowness or slight jaundice and duskiess. In profound toxemia the facial expression may be dull and listless.

Micro-organisms.—The organisms most frequently met in abdominal inflammations are the gonococcus, the colon bacillus, the streptococcus, the tubercle bacillus and staphylococci. The typhoid bacillus is occasionally found in pure culture in the gall bladder, as in one of my cases.

However difficult it may be to demonstrate it in the laboratory, there are undoubtedly stages of growth in which organisms vary greatly in their power to produce toxemias. Widespread as the colon bacillus is, it is only in some stages that it forms a highly dangerous infective agent. For example, in gunshot wounds of the healthy intestine, these bacilli escape into the peritoneal cavity without doing harm, if reasonably prompt suture of the openings and the toilet of the peritoneum is carried out. A similar amount of implantation of the same bacillus as it appears when migrating through the walls of a gangrenous volvulus gives rise to a rapid form of infection after an equivalent number of hours' residence in the peritoneum, which no amount of irrigation or cleansing is able to offset.

The comparison intended is the same as that which may be made between the organism of diphtheria demonstrable in the discharges of ozena, as compared with the same organism appearing in the infectious stages of true diphtheria. The same difference holds good in regard to stages of virulence in streptococci and the pus-forming organisms.

The deduction is this, that under the conditions which obtain when the bowel wall is acutely inflamed, especially where the blood supply is suddenly cut off, virulent states of previously benign organisms rapidly develop.

Most important in the case of appendicitis is the concealment under which this process at times proceeds. A history such as this is well known in the experience of every operating surgeon. A patient has appeared perfectly well till within thirty-six or forty-eight hours of the time he is brought for operation. For the first twenty-four hours of that time symptoms have been so mild as not to confine him to bed, and to his friends, or even to his physician, there has seemed little cause for anxiety. The temperature was not above 99, and there was little pain, though for a few hours in the beginning it had been severe. Only the pulse was suspiciously high. Twelve hours later the patient's condition had obviously changed for the worse; the pulse was 120 to 130 and feeble, the tongue dry, the face anxious and slightly jaundiced, or with a sickly pallor. In such a case the temperature may be from 99 to 101. Tenderness of the abdomen may be slight or severe, according to whether the entire area involved is gangrenous, or whether surrounding peritoneal areas are only inflamed. The skin becomes leaky, the pulse thready, rapid and running, the voice weak. The subcutaneous capillaries

are irregularly distended; there are mottled bluish patches about the abdomen and thighs; the mind, at first clear, becomes dull. The patient, who seemed so well after the first twenty-four hours, is at the end of forty-eight hours on the verge of the grave.

What has happened here is that profound toxemia has developed quietly, while the absence of marked pain or extreme degrees of temperature, vomiting or tympany has given the attendants a false sense of security. There may or may not have been a rupture of the appendix. There has been here the development of a highly virulent condition of the ordinary bacilli of the intestine. The products which accompany their growth are intensely poisonous. Absorption has taken place through portal vein radicles and has reached the liver, or post-peritoneal lymphatic channels have poured it into the great lymph streams. Whatever the route, the toxic dose received by the patient was sudden and overwhelming. In spite of operative removal of the appendix and drainage at this time, early in days but late in infection, there is little hope for the patient. It is the treacherous character of infection of the appendix, its power of remaining latent or concealed, and bursting forth into an overwhelming toxemia, that furnishes the keynote for the management of the disease.

If seen early, operate early and radically, in all except the simplest cases, without waiting for dangerous symptoms, when it may be too late. The management of late stages, seen only when late, presents special problems.

INFLAMMATORY CONDITIONS IN THE PELVIS.

The second most formidable infecting organism met with in acute conditions is the streptococcus. Especially as found in post-puerperal inflammations, it gives rise to many fatalities. The cardinal principles of management of such infections may be briefly summarized as follows: Avoid, if possible, opening the general peritoneal cavity. Thoroughly cleanse the vaginal and uterine field by gentle mechanical removal of debris without abrading fresh surfaces. Use tincture of iodine and loosely pack uterus and vagina with iodoform gauze.

If the conditions be not promptly arrested, open the vaginal cul-de-sac and isolate the uterine field by iodoform gauze, as advocated by Pryor. Should pus form in the pelvis, every effort should be made to drain it from the vaginal side to tide over the acute stages. Operate radically weeks or months later, if necessary, when much of the danger of peritoneal operative infection will have passed away. Acute symptoms, due to tuberculosis of the tubes and ovaries or of the urinary tract, are, if severe, apt to be due to mixed infection. It is wiser not to operate radically in the height of an inflammatory attack, but to tide over the acute period by ice externally and general measures, including good care and nursing. Pus is to be immediately drained away, for example, from the kidney, reserving nephrectomy for a later period.

Gonorrhea is the most common, and to life least dangerous, of the causes of acute abdominal inflammation, especially in women. Its results in producing permanent ill health are, however, appalling, and many deaths follow more or less indirectly. Immediately after a menstrual period, or immediately after childbirth, a fresh infection appears more liable than at other times to spread to the peritoneum and to give rise to serious lesions.

In the acute stage prompt attention will greatly modify the destructive process. Rest in bed, liquid diet,

saline laxatives, external cleanliness, gentle irrigation with lysol or potass. permanganate, 5 per cent. protargol solution to the urethra, will promptly ameliorate the external symptoms, and while these measures do not cure the tubal conditions, they lessen the tendency to reinfection and extension. Prompt amelioration of pain, temperature and tenderness should follow. According to Pryor, opening the vaginal cul-de-sac and packing the pelvic cavity with properly prepared iodoform gauze will prevent serious lesions of the tubes in nearly all cases if done promptly. Radical extirpating operations should never be done in the acute stages, especially of first attacks. Too long delay, however, may be worse, and if pus forms in quantity it must be evacuated by the nearest route; otherwise it may burrow or perforate into bowel or bladder. Gonorrheal cases are not favorable for partial operations, which aim to preserve organs. No greater contrast in the management of acute conditions exists than between that of acute appendicitis and acute gonorrheal salpingitis, or salpingitis due to cold or dampness while menstruating. In appendicitis, owing to the treacherous nature of the disease, operation is usually safer than waiting, and, except in the simpler cases, it should be done as early and as completely as possible, being followed by free drainage. The appendix can be removed in all but the most exceptional cases, and it should be done.

In salpingitis all palliative measures should be employed during the acute stage, and operation never undertaken then except for good reason. If necessary to drain a large pus collection, do it preferably by the vagina. In gonorrhea a few cures will be accomplished in this way, though the mortality of the subsequent major operations will be greatly lessened. It is possible thus to handle a series of pus cases with a mortality of 4 or 5 per cent. As bad pus cases formerly constituted the chief element in mortality in any series of unselected cases, a great gain has been made by the adoption of this plan of management, so that it is now possible to keep a general operating mortality well under 6 per cent. and to have a long series of cases without a death. The mortality in the simpler chronic gonorrheal salpingitis cases is almost nothing.

REMARKS.

No greater mistake can be made, however, than to make these rules apply rigidly to all cases. The surgeon must ever be on the alert for signs which call for immediate operative interference.

Of danger signals, the most important is the pulse. A rate high in proportion to the severity of other symptoms is very suspicious and should lead to the utmost vigilance. An ascending rate with a diminishing quality means danger, and this no amelioration of other symptoms should outweigh. The temperature is an unsafe guide in abdominal inflammation, as the gravest lesions may be accompanied by little rise and a fall may be deceptive. A simultaneous and continued rise of both pulse and temperature is always unfavorable. Leucocytosis above 15,000 with a tendency to rise usually points to operation. A decided fall in a patient evidently very ill is not a good sign. Other unfavorable signs are persistent vomiting, increasing tympany, sweating, thoracic respiration, increasing muscular rigidity, failure of peristalsis, local edema. Pain generally improves with the patient's condition. A sudden cessation in an otherwise ill patient may point to gangrene.

DISCUSSION.

DR. JOHN H. FISHER, Philadelphia, indorsed all that Dr. Shoemaker said on the management of acute inflammatory conditions in the abdominal and pelvic cavities, but emphasized that the tolerance of the peritoneum differs in various portions of the abdomen. It is more tolerant in the pelvis than in the upper portion. In acute inflammations in the pelvis acute symptoms should subside before operation. No risk should be run in appendicitis. The patient's life is not jeopardized by an early operation. In a gonorrhoeal case Dr. Fisher recently removed a large pus tube from one side. He thought of removing the other tube, but a physician present said that it was healthy and suggested that it be left. Dr. Fisher left it and the patient has since returned to have it removed. Gonorrhoea in a female, although it may appear to involve only the appendage of one side at first, always becomes bilateral, and during an operation, when one side appears to be healthy, it is best to remove the tube, leaving, if possible, an uninvolved ovary.

DR. F. B. DORSEY, Keokuk, Iowa, said that for a number of years it was his practice in gonorrhoeal patients to remove the tubes and to consider the patients cured, but on investigation he found that they have constant leucorrhoea. For the last four or five years, whether the trouble is unilateral or bilateral, he removes the uterus also, and the results have been very satisfactory. He can not recall a single death from a gonorrhoeal inflammation during the acute stage, except those who were operated on by other men during the acute stage. The acute symptoms should subside before operation. If there is a mixed infection, drain through the vagina until the primary attack has subsided, and then do a radical operation. In mixed infection there is trouble outside of the tubes, involving, perhaps, the broad ligament or some of the other tissues. We are not yet able to differentiate between a return to the normal and gangrene; nor can we diagnose, in some cases, the presence of pus in or about the appendix. Within the last three months in four patients with normal temperature he found pus.

DR. CHARLES L. BONIFIELD, Cincinnati, Ohio, declared it bad practice to remove both tubes and the uterus in every case because one tube is infected with the gonococcus. In the later cases he believes that one tube should be removed and the uterus curetted; part of the other tube and ovary may be removed and the woman will still be able to give birth to healthy children. In some cases, one appendage is removed and the woman is apparently cured of the gonorrhoeal discharge. Afterward she has another gonorrhoeal discharge and infection of the other tube. There is no proof that this came from the original infection, because one of two things is taking place—either the woman is a prostitute and has been exposed to gonorrhoea since the operation, or she is married and her husband has gonorrhoea. Dr. Bonifield has seen a number of such cases where a woman was infected several weeks after coming from the hospital. Many of these instances of persistent discharge from the uterus are due to the fact that the removal of the tubes was imperfect. In the early days the tube was tied off anywhere near the uterus. Now, the careful surgeon will not only cut off the tubes close to the uterus, but he will dissect out the horns and thus prevent secondary infection. The inflammation inside the uterus can be cured by repeated curettage and prolonged local application. Gynecologists make a mistake when they curette and promise the woman she will be well. She should be instructed to come back to the office for inspection a few weeks after the curettage, and often it is necessary to continue the local applications.

DR. SHOEMAKER said that in his service in the Presbyterian Hospital, Philadelphia, he had 83 consecutive operations with only one death. These included several cases of bad pelvic abscess, two from gonorrhoea with gangrene of the intestine, just on the point of perforation; but both cases got well, although they would have died if they had not been operated on. Sometimes he removes the uterus and sometimes he does not, but the cornua should always be removed. Leaving one tube

in the presence of the gonococcus is bad policy, unless there is a strong reason for making the effort, and we explain to the patient that she may require a secondary operation. He has tried the conservative method a number of times on gonorrhoeal cases and has been disappointed. Almost invariably he had to do a secondary operation later. An uninvolved ovary will not very often become infected.

ENURESIS IN CHILDHOOD.*

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Experience has taught that incontinence of urine, while not uncommon in adults, in women especially, is constantly noted in institutions for the treatment of children. During the past five years at the children's dispensary, University Hospital, we have found 85 cases of enuresis among 1,657 new patients treated, one out of almost every twenty children manifesting this condition, about 5 per cent. These figures tend to corroborate the statement made by Townsend¹ that, when the families of children applying for treatment at the Children's Hospital, Boston, were questioned, 21.5 per cent. of all children were found to have or to have had enuresis. Out of 1,500 children, however, he found but 25 with incontinence of urine, about 1.6 per cent, while Adams² reported 55 cases out of 19,261 children, about .25 per cent. It is probable that more of the children whom we saw suffered from enuresis, although the limited history taken failed to elicit this fact. Adding to these five cases recently observed in private practice, we have the honor to present 90 cases of enuresis in children, detailing our plan of treatment.

The incontinence occurred at night only in 53 cases; was both diurnal and nocturnal in 35 cases; and was diurnal only in two cases. Forty-seven patients were boys and 43 were girls. In 59 children the enuresis persisted from infancy, called by Townsend "primary" cases; in 11 cases it was first noted at 3 years; in four at 4, 5 and 6 years; in three at 9 years; in two at 7 years, and at 8 and 12 years, respectively, in one child, making 30 "secondary" cases. In one case the time of onset is unknown.

Twelve of the 90 children treated were of Jewish ancestry, six boys and six girls. All these boys were circumcised in infancy. Four other boys had also been circumcised, in only one of whom did the operation result in permanent recovery. Five children, four boys and one girl, made up an entire German family, two of the boys being twins. One boy was a Syrian, one girl Italian, and two boys were French; the others were all American born. The mother and six sisters of one boy were epileptics, and he also had epilepsy. It is interesting to note here that Trousseau³ believed enu-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

1. Archives of Pediatrics, 1887, vol. iv, p. 744.

2. THE JOURNAL A. M. A., 1885, vol. iv, p. 6.

3. Journal de Médecine et de Chirurgie Pratiques, 1860, 2 a., vol. xxxi, p. 106.

resis to be more frequent among epileptics. The history of two boys showed tuberculosis, of two alcoholism, and of two hereditary syphilis, while one boy and three girls gave a decidedly neurotic family history.

Of the complications noted, chronic gastrointestinal indigestion was by far the most common, occurring in 38 cases, sixteen boys and twenty-two girls. Nasopharyngeal catarrh was noted in 17 cases, ten boys and seven girls; hypertrophied tonsils or tonsillitis in 8 cases, five boys and three girls; adenoids in 8 cases, four girls and four boys; enlarged cervical glands in four boys; otitis in one boy and three girls; eczema in two boys and one girl; hereditary syphilis in two boys; chorea in one boy and one girl; vulvovaginitis in two girls; oxuris in one boy and one girl; ascariides in one boy; asthma in one girl, and undescended right testicle in one boy. Masturbation is known to have been present in one boy only. Besides, two of the girls treated had recently been discharged from institutions in which enuresis is notably frequent.⁴ Morris⁵ says it occurs in one out of every twenty boys in reformatories, and is more common among colored than white children. This we cannot confirm, as only two of our cases occurred in colored children. But we should state that the ratio of white to colored children at the children's dispensary, University Hospital, is about 40 to 1. One girl had a rectal polyp, but its removal did not cure the incontinence, as occurred in Townsend's case.⁶ Of the eight children with adenoids, six had undergone operations for their removal without more than temporary improvement of the enuresis.

The question of the etiology of enuresis has received much discussion. Yet, in the majority of cases, the cause remains unknown. In many cases the condition was first noticed after some debilitating illness, such as the infectious diseases. In 27 of our 30 "secondary" cases, the cause of the enuresis was known. In these cases, as in the majority of cases in which the cause remains unknown, it seems probable that the tonicity of the vesical sphincter muscles is lowered; in some cases the entire musculature of the bladder walls decidedly needs toning. That, out of 90 cases, we only had 27 in which the cause was known, is directly contrary to the figures quoted by Townsend, who found some cause which could reasonably be held responsible in 69 per cent. of cases. Two of our cases resulted from being accidentally run over; 3 were due to cystitis, with osteoma and congenital malformation of the sacrum in one; one to diabetes mellitus; one to an old hemiplegia; and one to excessive acidity of the urine. Of the 19 cases in which enuresis followed some infectious disease, 8 appeared after measles, 5 after pertussis, 3 after scarlet fever, 2 after typhoid fever, and one after diphtheria.

In every case we attempted first to correct all errors in diet. Tea and coffee, fresh bread and cake and fried things were forbidden absolutely; nothing was allowed between meals except milk; no liquids were permitted after supper, and the fluid taken at that meal was limited to one cup or glassful. Cold sponge baths of two minutes' duration, followed by rubbing the entire body with a Turkish towel, were ordered daily on rising; and associated conditions, such as gastrointestinal or nasopharyngeal catarrh, otitis, tonsillitis, eczema, worms, etc.,

were given special attention. In a few cases a folded towel was fastened to the child's back, preventing sleeping on the back; in some cases, too, the foot of the bed was elevated, according to Stumpf's method.⁷ If analysis of the urine showed hyperacidity, potassium citrate was given. In all the boys the foreskin was stripped back regularly and adhesions freed, when this was possible; when there was phimosis circumcision was advised. In every case in which the presence of vesical calculus was suspected, skiagraphs were made or sounds introduced. Yet no calculi were discovered among our 90 cases, in spite of their recorded frequency. The one case in which vesical calculus seemed the most probable cause of enuresis failed to return for further treatment.

Tincture of belladonna was first prescribed, in ascending drop doses, beginning with three drops three times daily, increasing one drop a day. With this a bitter alkaline tonic was given before meals.

When as many as ten or fifteen drops of tincture of belladonna thrice daily failed to control the enuresis, aromatic tincture of rhus was tried, increasing gradually up to 30 minims a day. If this also failed, as it usually did, a solution containing 1/240 gr. of atropin and 1/480 gr. of strychnin to the drop was given. The initial dose was one drop a day, increased one drop daily until symptoms of the physiologic action of atropin or strychnin appeared, or the enuresis ceased. In one or two of these cases potassium bromid was also given. In a few cases the medicine was given after supper only; in some after dinner and after supper; but in the majority of cases, three times a day, with the largest dose always in the evening. In 13 cases electricity was tried, with or after aromatic tincture of rhus, with success in but one case.

On this treatment 67 out of 90 cases recovered, almost 75 per cent., in 53 of whom recovery is known to have been permanent. From the 14 other patients who recovered, nothing has been heard for varying intervals of time, though they had recovered when we last saw them. Nine patients were recorded as improved and seven as unimproved, three of whom had cystitis. In 6 cases the result of treatment remains unknown; one death occurred, from diabetes mellitus, almost sixteen months after symptoms were first noticed.

Of the 67 cases cured, 37 followed the administration of tincture of belladonna, in doses ranging from six to fifty-seven drops daily, and 23 the administration of the atropin-strychnin mixture, in doses varying from one drop (atropin gr. 1/240 and strychnin gr. 1/480) to thirty-three drops (atropin gr. 1/7 and strychnin gr. 1/14). In the last case no physiologic symptoms appeared, in spite of the massive dose. In two patients recovery resulted from diet and hygiene alone; in one it followed 15 grains of potassium citrate daily, besides; in another, 27 minims of aromatic tincture of rhus daily; in another, circumcision; in another, tincture of belladonna with potassium bromid; in still another, the atropin-strychnin solution, together with potassium bromid. In the children with chorea, one boy and one girl, no strychnin was given, but the dose of potassium bromid was greatly increased.

Of the 9 patients who only showed improvement, 5 were taking tincture of belladonna, 2 the atropin-strychnin mixture, one aromatic tincture of rhus, together with the application of electricity, and another the

4. A. Hewson: Amer. Jour. Med. Sci., 1858, n. s., vol. xxxv, p. 379.

5. Med. and Surg. Reporter, 1881, vol. xlv, p. 652.

6. Boston Med. and Surg. Jour., 1892, vol. cxxvii, p. 592.

7. Münchener med. Woch., 1895, vol. vi, p. 265.

atropin-strychnin mixture with potassium bromid. Of the 7 cases marked unimproved, 3 had cystitis, 2 were on tincture of belladonna only, 1 was taking the atropin-strychnin mixture, and 1 the tincture of belladonna and aromatic tincture of rhus.

The duration of treatment in the 67 cases which recovered was as follows:

Cases.		Cases.	
3 weeks in.....	16	16 weeks in.....	3
6 weeks in.....	11	1 week or less.....	2
2 weeks in.....	10	7 weeks in.....	2
8 weeks in.....	6	12 weeks in.....	2
4 weeks in.....	4	11 weeks in.....	1
5 weeks in.....	3	20 weeks in.....	1
9 weeks in.....	3	Unknown.....	2

Omitting the 2 cases in which the duration of treatment was unknown, this gives an average of five and one-half weeks of treatment for each child.

There was recurrence in 17 of the 67 cases which recovered, generally with the first cool nights in the fall; sometimes, too, whenever too great a quantity of fluid was ingested. In these cases some drops of the tincture of belladonna, aromatic tincture of rhus, or the atropin-strychnin mixture cured the condition in a few days.

Of the two boys with diurnal enuresis, one was cured on the atropin-strychnin mixture; in the other the result remains unknown. Of the 35 with both diurnal and nocturnal enuresis, 22 were cured, 2 improved and 5 unimproved, including 3 with cystitis, while the result was unknown in 2 and in 1 death occurred, from diabetes mellitus. Of the 53 with nocturnal enuresis, 43 were cured, 7 improved, 1 unimproved, and in 2 the result was unknown.

A review of the prolific literature on enuresis, now over three times as long as that reviewed by Adams⁸ in 1884, brought to light many ancient and modern methods of treatment. The majority of writers rely on belladonna or atropin, with or without strychnin, yet the lack of any uniform, routine mode of treatment for those cases in which the cause is unknown is a possible reason for failure. Thiemich,⁹ Reinach,¹⁰ Hippus,¹¹ and others consider the condition hysterical and urge suggestion and hypnotism in the treatment; Rousseau St. Philippe,¹² Gundobin,¹³ Perles,¹⁴ Freyberger,¹⁵ and others rely on aromatic tincture of rhus, while Thomson,¹⁶ Leonardi,¹⁷ Marchionneschi,¹⁸ Becchietti,¹⁹ Ademollo,²⁰ and others employ chloral. Electricity, quinin, other drugs and various operations have all been in vogue.

The idea that the child will outgrow the condition appears to us erroneous, especially as our oldest patient reached the age of 19 years before being cured. Circumcision has been advised in all cases with preputial adhesions of phimosis, but is very rarely permanently curative. More recently epidural injections²¹ have been employed with success. We tried to secure a patient

for this operation among those in whom our treatment failed, but were unsuccessful. The many other modes of treatment, subcutaneous injections of normal salt solution, cocaine, air, blisters to the perineum, rectal massage, etc., seem to us useless.

We conclude, then, from our results—almost 75 per cent. of recoveries—that our routine method of treatment is of decided value in enuresis. We would add, as a further step, based on the results achieved by others, epidural injections, when negative results have been obtained on the plan of treatment outlined above.

DISCUSSION.

DR. EDWIN E. GRAHAM, Philadelphia, emphasized the fact that treatment in enuresis should be kept up for a long time. These cases often drift from one clinic to another, and remain un cured because the treatment is not carried out systematically. The belladonna and strychnia are usually given in too small doses and not continued long enough; they should be given in increasing doses, and continued for weeks and even months and should not be discontinued as soon as an improvement or apparent cure takes place. After the cure has lasted for two or three weeks the dose can be gradually reduced.

DR. ISAAC A. ABR, Chicago, had an experience during the past winter in the treatment of enuresis which has been instructive to him. A little girl of 7 years had been under his care for a long time, suffering from nocturnal enuresis. The child was in excellent health, the urinary examination was negative and for the enuresis she was given 1/200 grain of atropin twice daily. She took this from the first of January until the middle of April. The enuresis improved very much, and the use of the medicine was continued. After the child had taken the drug for a long time, she complained one day at school of dizziness, and the mother noticed that she blushed frequently. About 2 o'clock one morning Dr. Abr was called to see her. The parents told him that for several hours she had been actively delirious. She was dreadfully excited, very voluble, and labored under the hallucination that the neighbor's house was on fire, and no amount of persuasion could convince her that her own home was not already aflame. Her pulse was between 80 and 90, and of good quality, the respirations were from 24 to 26 a minute, temperature normal; the pupils were dilated and reacted slowly to light, and the tongue and mouth were dry. After leaving the case that night it occurred to him that she had been taking atropin for her enuresis and that this might bear a causal relation to her delirium. The delirious condition continued more or less for four days, at the end of which time no further disturbances occurred. The case was undoubtedly a toxic delirium caused by the continuous use of atropin. He believes that this is a valuable point to be borne in mind in connection with atropin treatment of enuresis.

DR. MAURICE OSTHEIMER said that while symptoms of poisoning from the use of atropin in these cases are not at all uncommon, they never do much harm. In one instance a nurse accidentally gave a child a dram of a mixture containing 1/120 of a grain of atropin to the drop. The child recovered entirely from the effects of the overdose within twenty-four hours.

Antagonism of Alcohol and Strychnin.—Dr. J. M. French, in an article in *Merek's Archives*, says that few physicians recognize that there is an antagonism between alcohol and strychnin. He says that the keynote of strychnin is stimulation and that of alcohol paralysis. Strychnin increases the acuteness of touch, perception and also muscular resistance, while alcohol lessens the ability to distinguish heat and cold and makes the touch defective. Strychnin renders the sense of smell abnormally acute, while alcohol renders it defective. Dr. French concludes that, as the two substances are directly opposed in their therapeutic effects, their conjoint use is an absurdity and that whatever benefits may result from administration of strychnin are not observed when it is used as an adjuvant of alcohol.

8. Amer. Jour. of Obstet., 1884, vol. xvii, p. 657.
 9. Berliner klin. Woch., 1901, 31; Jahrbuch für Kinderheilkunde, 1903, vol. lviii, p. 890.
 10. Jahrbuch für Kinderheilkunde, 1903, vol. lviii, p. 795.
 11. Medicinskole Obosrenie, 1893, vol. xxxix, p. 359.
 12. Journal de Médecine de Bordeaux, 1892, vol. xii, p. 389; Gazette des Hôpitaux de Toulouse, 1893, vol. vii, p. 4.
 13. Medicinskole Obosrenie, 1888, vol. xxix, p. 709.
 14. Thèse de Paris, 1900.
 15. Treatment, 1898, vol. ii, p. 129.
 16. W. Thomson: Lancet, 1870, vol. ii, 703; 1872, vol. ii, 766; 1873, vol. ii, 414.
 17. L'Ipocrate, 1872, vol. xxiii, 3 s., p. 54.
 18. L'Indépendente, 1878, vol. xxix, p. 391.
 19. L'Imparziale, 1874, vol. xiv, p. 4.
 20. L'Imparziale, 1875, vol. xv, p. 171.
 21. F. Cathelin: "Les Injections Epidurales," Ballière, Paris, 1903; F. C. Valentine and T. M. Townsend: Medical Record, Sept. 26, 1903.

HEMATURIA AS THE EARLIEST OR ONLY SYMPTOM OF INFANTILE SCURVY.*

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Very soon after the existence of infantile scurvy as a clinical entity was established, it was recognized that hematuria was a not uncommon symptom. All writers on the subject refer to hematuria as one of the symptoms, but very few lay any stress on it or emphasize its importance. Holt¹ says that it is seen in about 5 per cent. of the cases while Rotch² says that it has been noticed in a certain number and that it is well to examine the urine when this disease is suspected.

While all writers mention hematuria as one of the symptoms of scurvy, most of them give the impression that it is rather an unusual symptom and certainly not an important one. Very few call attention to the fact that it may be the earliest symptom, and hence, for a time, the only symptom. Holt¹ says that in rare cases hematuria has been the first symptom noticed; Williams,³ that hematuria may be the solitary sign of scurvy; and Barlow,⁴ that it may occur without limb symptoms and respond immediately to the addition of living food to the dietary. Carpenter⁵ has also referred to it a number of times in discussions.

It seems strange that the importance of hematuria as an early sign of scurvy has been so little appreciated, as some of the earliest writers called attention to it. Gee,⁶ in 1889, in a paper entitled "Bloody Urine of the Only Sign of Infantile Scurvy," reported two cases. Thomson,⁷ in 1892, reported a case of hematuria of a month's duration in a child of seven months. No other symptoms beside lassitude were noted, and recovery was rapid under antiscorbutic treatment. Barlow,⁴ in 1894, reported two cases of hematuria in infants in which there were no bone lesions, but excessive irritability, resentment to the slightest touch of the lower limbs and a certain amount of anemia. Both recovered rapidly under antiscorbutic treatment. A few similar cases have been reported since then, but in none has the importance of hematuria as an early or as the sole sign of scurvy been fully emphasized.

My experience leads me to believe that hematuria is not only a more common symptom of infantile scurvy than is generally supposed, but that it is comparatively often one of the earliest symptoms, if not the earliest, of the disease, and that it may be for a considerable time the only symptom. The following cases are examples:

CASE 1.—J. W. was an eight months' baby. He was never nursed, but was fed from the first on a pasteurized, modified milk, prepared at the Walker-Gordon laboratory. He did very well until he was about 8 months old, when he ceased to gain, and began to lose in color. September 27, when 9 months old, he began to pass bloody urine. It was red, slightly acid, of a specific gravity of 1008, and contained $\frac{1}{8}$ per cent.

of albumin. The sediment contained normal blood and a few small, round cells. There were no other symptoms except that he was rather more fussy than before. Nothing was found on physical examination to account for the condition of the urine. The hematuria persisted in spite of alkalies and urotropin. On October 17, nearly three weeks after the onset of the bloody urine, the nurse reported that his back seemed to hurt him and that he disliked to be bathed or handled. Physical examination failed to reveal any other signs of scurvy, but, as the combination of hematuria and tenderness suggested this disease, he was given orange juice. The tenderness disappeared in a few days and the urine was entirely free from blood by the first of November.

CASE 2.—Baby S. was the second child of healthy parents. She was healthy at birth and weighed about 10 pounds. She was fed on the breast for a few weeks, then on cereal milk for three or four months, and after that on Eskay's food. This was prepared with scalded milk. She was perfectly well up to eight months, except for occasional regurgitation. She had not vomited for three months. Her movements had always been normal in character, although she had recently been slightly constipated.

When she was 8 months old it was noticed that the urine stained the diapers. A month later a small specimen was taken to her physician, who found a little blood in it. The urine was not examined again until four days before I saw her, when she was 11 months old. At that time it was reddish, and undoubtedly contained blood, but as it was decomposed no microscopic examination was made. The parents said that the redness of the urine varied from time to time. She passed water frequently, but micturition was not painful. Her parents thought that the quantity of urine was not diminished and said that she drank a great deal of water. She perspired considerably, but had no fever. Tuberculosis of the bladder had been suspected and the urine examined for tubercle bacilli. None was found. Chronic arsenical poisoning had also been suspected. No examination of the urine for arsenic had been made, however. She had been pale for four or five weeks, and had not gained in weight for a number of months. During the last week her legs had been tender, and she had cried out when handled. She had been afraid of being touched for two days.

Physical Examination.—She was fairly developed and nourished, but markedly pale. There were no subcutaneous hemorrhages. She was very much afraid of being touched, and screamed when approached. The gums were not at all inflamed about the teeth. There was some tendency to hold the legs flexed at the hips and knees. Passive motions caused some pain, but were not limited. No enlargement of the bones was made out, and no local tenderness.

Treatment.—She was put on fresh milk, with lime water, and given two tablespoonfuls of orange juice daily. She began to improve almost immediately and was well in a few days. There was no recurrence of the hematuria.

CASE 3.—K. P., 15 months old, was the first child of healthy parents. He had never nursed and had never been able to take milk. Although large and fat, he had always been a little backward in development. For some months he had been fed on condensed milk and barley, with occasionally a little bread and cracker. About six weeks before I saw him micturition was said to have been painful for a day. The urine was examined a week later and a trace of albumin, a small amount of normal blood, and a very few fine granular casts found. He was given citrate of potassium, but there was no improvement in the urine, which continued to contain a trace of albumin and normal blood. Casts were never found again, and no bladder elements were ever seen. During the last two days the amount of blood had increased so much that the diapers were stained red. The urine was passed in sufficient quantity. Benzoate of soda and cystogen had been tried without relief. Acute nephritis or tumor of the bladder was suspected. Further questioning elicited the information that the legs had been a little tender since the beginning and that he had given up trying to stand. His appetite had been good.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

1. Holt: Diseases of Infancy and Childhood, 1902, p. 242.
2. Rotch: Pediatrics, 1901, p. 344.
3. Williams: Diseases of Children, 1900, p. 242.
4. Barlow: British Medical Journal, 1894, vol. II, p. 1029; Keating's Cyclopedia of the Diseases of Children, 1890, vol. II, p. 265, and Supplement, p. 339.
5. Carpenter: Reports of the Society for the Study of Diseases in Children, I (1900-1), II (1902-3).
6. Gee: St. Barthol. Hosp. Reports, 1889, vol. xxv, p. 85.
7. Thomson: Lancet, 1892, vol. I, p. 1292.

There had been no vomiting and the movements had been normal. He had lost a little weight and much color. He had had no fever at any time.

Physical Examination.—He was well developed and nourished. There was moderate pallor. The anterior fontanelle was widely open, the head somewhat square. There was a marked rosary and moderate enlargement of the epiphyses at the wrists. There were two lower incisors. The gums were normal. The kidneys were not palpable. The genitals were normal. No evidence of tumor of the bladder could be made out. He cried when his legs were handled. Both active and passive motions were free, however, and there was no enlargement of the bones. His eyelids were slightly puffy. Numerous ecchymoses, which had previously escaped notice, were present on the knees, forehead and body.

Treatment.—The diagnosis of scurvy was made and antiscorbutic treatment instituted. Recovery was almost immediate.

CASE 4.—J. S., 10 months old, had been fed for some months on a home-modified milk, pasteurized, and on the whole had done very well. About two-weeks before I saw him his mother noticed that the urine was bloody. She took it to her family physician, who examined it and found fresh blood, but nothing else abnormal. He did not understand the condition and gave nux vomica as a tonic. The urine continued to contain blood, the amount varying from time to time. About a week after the urine became bloody, the mother noticed that he disliked to be handled during his bath. She soon discovered that his legs and back were tender. This tenderness increased. The diagnosis of rheumatism was then made by the attending physician and tonics prescribed. The swelling of the gums had not been noticed.

Physical Examination.—He was rather pale. The gums were somewhat swollen and a little purplish about the four lower teeth. He held both legs slightly flexed at the knees and thighs. Passive motions were not limited, but caused considerable pain. There were no subcutaneous hemorrhages. The physical examination was otherwise negative.

Treatment.—The diagnosis of scurvy was made, and un-pasteurized milk, orange juice and beef juice ordered.

He was very much better in two days, and well in a week. The blood quickly disappeared from the urine and did not recur.

In these cases other symptoms of scurvy were present and revealed the nature of the hematuria. In the following cases hematuria was the only symptom. Their rapid response to antiscorbutic treatment, however, justifies the diagnosis of scorbutic hematuria in them also.

CASE 5.—L. P. was the first child of healthy parents. She had always been fed on pasteurized milk prepared at the Walker-Gordon laboratory. She had done very well until she was 6 months old, when she ceased to gain and lost her appetite. When she was 7 months old her mother noticed that at times the urine stained the diapers red. This staining was attributed by the physician in charge to uric acid. It continued intermittently for a month, when the urine was examined and found to contain fresh blood, but no casts. There were no other symptoms whatever, except failure to gain in weight. Orange juice was begun the next day. The urine was clear in less than two weeks and has so remained. The child also at once began to gain in weight.

CASE 6.—S. T., 6½ months old, had been fed for two months on a modified milk prepared with Mellin's food. She had lost her appetite and had not gained for over a month. Otherwise she had seemed perfectly well. When she was about 6 months old her mother noticed that the urine stained the diapers red or brown. She did not report it, however, until two weeks later. The urine was then red, alkaline, and contained ¼ per cent. of albumin. The sediment showed much normal blood, with an occasional hyaline cast and small, round cell.

The physical examination was entirely negative except for a slight rosary. Orange juice was begun at once. Improvement in the color of the urine was noticed in twenty-four

hours. It was clear in five days and so remained. The appetite also improved at once, and gain in weight began and continued.

CASE 7.—F. F., 10 months old, had been fed on Eskay's food for some months. The Eskay's food was boiled in water and then milk was added to the boiling mixture. This undoubtedly sterilized the milk. He had apparently done very well on this food, except that his bowels had been somewhat constipated. He had been unusually fussy for two or three days, and the day before had passed bloody urine in small amounts. The urine had continued bloody, and that morning there was a little puffiness about the right eye. Acute nephritis was suspected by his father, who was an apothecary, and by the attending physician.

Examination.—Physical examination showed nothing whatever abnormal, except a slight rosary and a slight swelling above the right eye. There were four teeth, but the gums were healthy. There was no tenderness of the extremities or pain on motion. The urine was red, acid, of a specific gravity of 1008, and contained ¼ per cent. of albumin. The sediment showed much normal blood and an occasional leucocyte.

Treatment.—The Eskay's food was continued, but was cooled before the milk was added. He was ordered orange juice and beef juice. He refused the orange juice, but took the beef juice very well. The urine was clear in five days.

In one of these cases the onset of the hematuria was accompanied by pain and tenderness in the extremities. In one the hematuria preceded any other symptom of scurvy by three months; in another by three weeks, and in another by one week. In three others in which the hematuria had been present for one month, two weeks and two days respectively, without any other symptoms, recovery was almost immediate under antiscorbutic treatment. These cases seem amply sufficient to prove that hematuria may be the earliest, and for a time the only symptom of scurvy.

The fact that all these cases were seen within three years goes to show that they can not be very uncommon. During the same period only one case of hematuria in an infant from any other cause was observed. This shows that scurvy must be one of the more common causes of hematuria in infancy. In fact, my experience leads me to believe that it is the most common cause of hematuria in infancy.

Few physicians realize, I think, that an uncomplicated hematuria in infancy may be due to scurvy or take it into consideration when seeking the cause of a hematuria. Certainly no one of those who saw the cases just reported had considered or even suspected scurvy as an etiologic factor. It is with the hope of again bringing the importance of scurvy as a cause of hematuria in infancy to the attention of the profession that these cases are reported.

CONCLUSIONS.

Hematuria may be the earliest symptom of infantile scurvy, and therefore for a time the only symptom. Scurvy is the most common cause of uncomplicated hematuria in infancy.⁵

DISCUSSION.

DR. LOUIS CURTIS AGER, Brooklyn, asked Dr. Morse which method of collecting urine from small children he recommends. There are various ways of doing it, but none is very satisfactory.

DR. WILLIAM L. STOWELL, New York City, said that the best method of obtaining urine from very young children is to pass a small catheter. He considers that the whole subject of disturbances of the blood, including cases of scorbutus and hemophilia, is still very much confused. It is very difficult to say which form of blood disorder we have to deal with, and what

the cause of it is. If there is a special germ it has not been found. Neither has a special remedy been found. Hemorrhage is an important symptom in most of these cases; the bleeding usually occurs in the skin or in the internal organs. The urine of young infants is too frequently neglected. If it was systematically examined in all cases, this symptom of hematuria would no doubt be more frequently seen. Hematuria in the adult may be caused by stone, but as this is comparatively infrequent in infants, the bleeding usually can be traced to one of these blood disturbances. Dr. Stowell's impression is that these blood disorders are due to a specific germ. Although one or two such micro-organisms have been claimed to be discovered, the findings lack confirmation. At present adrenalin seems to give the best curative results.

Dr. H. M. McCLANAHAN, Omaha, stated that hematuria may be the first and only symptom of infantile scurvy for a considerable time. This disease is wholly curable if it is recognized within a reasonable time, before secondary changes have taken place.

Dr. J. ROSS SNYDER, Birmingham, Ala., thinks that this symptom is likely to be overlooked unless careful search is made for it.

Dr. J. L. MORSE said that he had never found any difficulty in collecting the urine of babies. For little boys he uses a bottle with a wide mouth, which is tied around the waist with a band. In little girls one method is to place a rubber basin in the diaper. Another is to place the child on a Bradford frame with a vessel underneath to catch the urine, and a third is to fasten a tin cup against the vulva. In private practice he has found that if a child has not passed urine for a number of hours and is then held over a vessel, it will almost always be ready to urinate. The old-time method was to place absorbent cotton in the diaper. If it is absolutely necessary to find out about the urine he does not hesitate to pass a catheter.

important contribution to our knowledge of summer diarrhea has been made. Dr. Bassett will report the results of his laboratory studies separately. Dr. Winne, clinical assistant at the sanitarium, will discuss the results of a long series of observations made on the agglutination reaction of the organisms isolated, and of dysentery bacilli from other sources with the blood of the patient and with antidyenteric serum. In this paper attention is particularly directed to the clinical side of the problem, the causes predisposing to this malady, the nature and severity of the attack, and the more hopeful methods of prophylaxis and treatment. Especial reference is made to the use of antidyenteric serum. This study is confined to a consideration of positive cases; that is, to those in which the dysentery bacillus was successfully demonstrated in the stools. Other cases were treated during the summer, presenting similar symptoms, and which were, in all probability, infected with the same organism. However, it is thought that more convincing deductions can be drawn when only those instances are considered in which the etiology of the disease has been definitely determined. There were 43 of such positive cases. As is brought out in Dr. Bassett's report, they were all infected with the so-called "acid type" of the bacillus; that is, with the variety of organism which ferments mannite with acid production.² The more important features brought out in this study are presented as succinctly as possible in short tables.

AGE AND SEASON.

The ages of the patients in periods of six months have been averaged in the following table and grouped according to the season (fortnight) of the summer in which they have occurred.

A SUMMER'S EXPERIENCE WITH INFANTILE DYSENTERY.*

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BALTIMORE.

INTRODUCTORY.

During the summer of 1902, C. W. Duval and V. H. Bassett, working in the laboratory of The Thomas Wilson Sanitarium under a grant from the Rockefeller Institute for Medical Research, were able to isolate the *Bacillus dysenteriae* (Shiga) from the dejecta of 42 infants suffering from diarrheal disorders. A careful review of the histories of these patients¹ led to the conclusion that this series of cases were identical clinically with several well-recognized types of intestinal diseases prevalent among infants during the summer months, and that this organism was associated with a considerable proportion of cases of so-called summer diarrhea. It was then hoped that further investigation would confirm these findings and establish a connection between this bacillus, for several years known to produce intestinal diseases in adults, and this widespread yearly epidemic among young children.

Last summer similar studies were carried on in several of our large cities, and again at The Thomas Wilson Sanitarium Bassett succeeded in finding the dysentery bacillus in the stools of a series of upward of forty babies. In general, the work of Duval and Bassett has received abundant verification, and it is felt that an im-

Age in months.	June.		July.		August.	
	1-15	15-30	1-15	15-30	1-15	15-30
Birth to 6.....17	0	3	5	7	2	0
6 to 12.....18	1	2	4	6	5	0
12 to 18.....6	0	3	1	2	0	0
18 to 24.....1	0	0	0	1	0	0
Older than 24... 1	0	1	0	0	0	0
	43	1	9	16	7	0

The tabulation indicates emphatically the great susceptibility of children during the first year to the invasion of the dysentery bacillus. The number of cases under six months about equal those in the second half of the year, while those under twelve months of age comprise 80 per cent. of the whole number. After the first year the susceptibility to these disorders is rapidly reduced, although the exposure to the infection is probably as great. The youngest patient in the series was six weeks and the oldest three years. In general, it may be said that the resistance of the body to the progress of the disease is somewhat increased in the later months of the first year.

A review of our cases indicates that the very young infant more often succumbs to the intoxication of the first infection, while a child a few months older may resist this danger only to yield finally to a severe inflammatory lesion of the intestinal wall. Certainly, other things being equal, the prognosis is materially better after the first year. That portion of the table which indicates the number of cases admitted each fortnight during the summer needs no comment. The summer of 1903, because of the absence of any excessive or continuous heat, was possibly not a fair average of the climatic conditions in Baltimore from June to September. Nevertheless, the times of greatest pressure for admission of diarrheal cases to the sanitarium corresponded

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

1. Knox: The JOURNAL A. M. A., July 18, 1903.

2. Lentz: Zelt. für Hygiene, vol. xli, p. 3.

closely to those in much warmer seasons. It is seen from this series that comparatively few infants are infected until the latter part of June, that the number increases through July, reaching its maximum in the second half of that month, and that in August there is a decline in the number of cases. These positive cases are far too few to admit of much generalization. It may be affirmed, however, that they agree closely with a similar series obtained in 1902,⁴ and it is of some interest to point out that both in the period of life in which the child is most susceptible and in the time of the year most favorable to the outbreak and spread of these specific disorders, there is entire accord between this illness due to the dysentery bacillus and the so-called summer diarrheas in general.

FOOD AND HYGIENIC SURROUNDINGS.

It has long been emphasized by physicians that the character of the baby's food and the care the child receives in the home have most to do with the presence or absence of diarrheal diseases. The importance of these factors has been clearly pointed out by Park and Holt in their extensive investigations in New York City during the past two years.⁵ In each case in the present series an especial effort was made to ascertain the nature of the previous surroundings of the patient, the kind of attention it had received and the character of its diet. This knowledge of the hygienic condition

of them belong to families having their own houses. There are but few large tenement buildings in Baltimore, and crowding usually takes place when several families live in one small house. (See the table below.)

The cow's milk "fair" referred to in the table was delivered at the home from a wagon or bought at a dairy store. In but few instances was bottled milk sold. Usually it was ladled out of a large can into a pitcher. This milk will average at the wagon about 500,000 bacteria to each cubic centimeter. The cow's milk "store" is milk bought for the patients at small grocery stores where there is no suitable refrigeration and where frequent contamination from dirty utensils takes place. This milk was found, in an investigation in Baltimore in 1901 by Bassett and myself,⁴ and in 1902 by Schorer,⁵ to contain from 500,000 to 25,000,000 bacteria to the cubic centimeter, and this number doubtless rapidly increases in the homes.⁶ The frequent use of preservatives in milk of this grade is well known. The "heating" mentioned usually means that the milk is scalded or just brought to a boil over the fire. In no case was steam sterilization or pasteurization employed. As would be expected, better hygienic surroundings, some refrigeration and an improved quality of milk were generally found in the same families. Several points suggested by the table are worthy of consideration, and are as follows:

FOOD AND HYGIENE.

Food at time of illness.	Total.	Hygienic condition.			Refrigeration.		Water with or between nourishment.		
		Good.	Fair.	Bad.	Ice.	No ice.	Boiled.	Unboiled.	Never given.
Breast, exclusive.	11	0	0	2	0	0	0	1	1
Cow's milk (fair) heated.	2	5	5	1	7	2	2	7	2
Cow's milk (fair) raw.	6	1	3	2	1	3	2	5	1
Cow's milk (store) heated.	4	0	0	2	0	3	2	0	0
Cow's milk (store) raw.	5	0	0	2	0	5	0	4	1
Condensed milk.	14	5	5	4	1	6	4	10	0
Table diet.	1	1	0	0	0	0	0	1	0
	43	12	18	13	10	19	8	30	5

in which the baby lived was acquired by questioning the mother as to the size of her house, the number of people sleeping in the room with the baby, her methods of bathing the patient and the preparation of its bottle. This information was compared with the appearance of the mother and child at the sanitarium and the care given to the baby by the mother during their stay. In many instances direct reports were also obtained from the district nurses employed by the sanitarium in the city. All these factors have been grouped under three grades—good, fair and bad. When these conditions are said to be "good," it is meant that the house is well kept and clean, that the child receives sufficient attention, and that the food is prepared in a cleanly manner. In this class are included several infants whose food was not suited in quantity or quality to their needs and who were fed irregularly. In the group called "fair," although there was some endeavor to care for and feed the baby, it suffered evidently from some form of neglect. When the conditions were designated "bad," the home was judged to be extremely dirty, ill-ventilated, and the attention given the baby reduced to a minimum.

It should be said that our patients as a rule did not come from the criminal or degraded classes found in our large cities. For the most part they were the children of the poorer working people, while about 20 per

cent. of them belong to families having their own houses. There are but few large tenement buildings in Baltimore, and crowding usually takes place when several families live in one small house. (See the table below.)

First, infants exclusively breast-fed seldom succumb to the dysentery bacillus, there being but two such cases in our series. Again, the division of the babies into groups according to the form of nourishment antecedent to their illness gives rather surprising results. Thus the number of infected infants in our series who received milk of a fair quality is 17, while there were but 9 who were given notoriously bad milk. These figures are in part accounted for by the fact that mothers of the better classes—those who procure fair milk for their children—are more apt to avail themselves of a distant sanitarium when their children fall ill than are the very poor.

That the number of the cases who were given their milk *boiled* should be greater than those who received it raw, is also unexpected and probably would not be the result in a larger series. It does suggest the possibility, however, that the infective agent may reach the baby by other means than in its milk.

Although but one child was fed exclusively at the table, crackers, bread, cake, often tea or coffee, were occasionally given to a dozen others.

The largest single group of cases—one-third of the whole number—had been nourished on condensed milk.

4. Maryland Med. Jour., xlv, 1902, p. 241.

5. Maryland Med. Jour., xlvi, 1903, p. 213.

6. Compare investigations made by Park and Holt, loc. cit.

In Baltimore condensed milk is largely used among the lower and middle classes as an infant food because of its cheapness. Fully one-half of the children admitted to the sanitarium have been fed on condensed milk during a large part of their infancy. The experience at Mt. Wilson lends support to the generally accepted decision that the resistance of children so nourished against many untoward influences is materially lessened.

The data under the head of "refrigeration" resolves itself into an inquiry as to whether the milk was kept on or near ice. It was impossible to ascertain the temperature of the milk, and it is quite possible that the association between it and the ice when present, may not have been an intimate one. The fact, however, that in a quarter of all the cases ice was provided in the home, indicates again that our patients did not come from the very poorest families.

The results of the tabulation of these cases with respect to the hygienic conditions pertaining at the homes, as this could be ascertained from the account and appearance of the mother, was also surprising, in that the number of ill babies brought up under good, fair and bad surroundings, respectively, was so nearly equal. It must be recalled, however, that these were all children of parents of moderate means, and in no case were the conditions of life so ideal as they may be in the homes of the rich. But after due weight is attached to these partial explanations, this discrepancy between the number of cases on the one hand, and the quality of the milk and the character of the hygienic surroundings on the other, makes it difficult to charge either to the milk or to the daily care of the infant alone this outbreak of diarrheal diseases due to the dysentery bacillus. A primary infection of the whole milk supply of the community with the specific organism is an impossible hypothesis, as our patients entered the sanitarium already ill from widely separated sections of the city and obtained their milk from a large number of remote sources. Moreover, most of it was boiled before using, and many fed exclusively on condensed milk received no fresh milk at all.

Negligence in the care of the baby, although a factor, is not a satisfactory explanation, in view of the fact that a considerable number of the ill children in the series had been well cared for. The nature of the disease itself predisposes an invasion of the intestines by the dysentery bacillus, the mouth being the chief portal of entry and food and drink the most probable means of conveying infection. Further evidence in this direction is evinced by the fact that in the homes of our little patients there were no others suffering from diarrheal diseases; that is, in almost every instance the illness of the baby was the first and usually the only case of intestinal disorder in the family.

If the disease were spread primarily by contact, either direct or indirect, from patient to patient, surely in a large percentage of cases similar antecedent illnesses in the household could be discovered. The nature of the outbreak of the disease suggests rather that the causal organism reaches the individual through a common carrier. Practically in large cities the water is the only material ingested by the whole population from a common source. This is particularly true of infants whose only food, milk of some sort, is derived, as has been said, from widely separated herds. Moreover, the biologic character of the specific organism places it in the typhoid-colon group of bacilli, which are introduced into the

human body most frequently by means of drinking water, and clinical experience indicates that diarrheal disorders among infants can best be controlled by certain precautions such as are found most efficacious in typhoid fever, without resort to the complete isolation necessary in the so-called contagious diseases.

An especial endeavor was, therefore, made to ascertain whether the water supplied to ill babies could possibly be charged with the carrying of the infection; that is, if all of it was boiled or unboiled. The results of the investigation for 1903 are tabulated in the third column of the table. This indicates that to 29 infants, out of a total of 43, or about 70 per cent., *unboiled* water was supplied regularly in the intervals between nourishments, or was used as a diluent of the milk. Eight infected babies, or 19 per cent. of all the cases, were said by their mothers never to have received any other than boiled water, while in the case of five infants it was denied that water of any kind was given. Of the eight cases given, according to the mothers' account, only boiled water, two lived under "good," four "fair," and two amid "bad" hygienic conditions. By careful questioning concerning the diet, it was discovered that four of the eight babies were given crackers or bread from the table, hence it is probable that in these instances unboiled water was also occasionally obtained. These results corroborate the experience of the previous summer, where, in twenty-eight instances in which definite information was obtained, unboiled water was supplied to twenty-six infants infected with the dysentery bacillus, four of whom were fed exclusively at the breast and four on condensed milk. While these cases are too few to warrant any sweeping conclusions as to the manner of the spread of these disorders, especially in the absence of a demonstration of the specific organism in drinking water, so far as they go they do suggest the possibility that the disease may be in large part water borne, and justify the adoption of stringent regulations preventing any but sterile water being supplied to babies, especially in the summer. The difficulty of isolating the typhoid bacillus in water shown to be contaminated is well known, and it is quite possible that the dysentery bacillus present in the water in small numbers has thus far escaped detection.

OTHER METHODS OF INFECTION.

Other methods of infection are of course recognized. Thus in hospitals where many sick infants are cared for, specific organisms may be conveyed from case to case by fomites or careless attendance. Sufficient attention has not been directed to the part played by insects, particularly the common house fly, in the spread of this malady in institutions and crowded communities. One can easily be convinced of this danger by an hour's observation in any children's ward where these pests are numerous. Without the most rigid surveillance by numerous care-takers, these flies often find access to the napkins of the infants, whence carrying the organism they may light next on the face, hands or bottle of a neighboring child. Two cases during the last two years, admitted to the sanitarium for other causes, became infected with the dysentery bacillus through flies.

CONDITION OF PATIENTS PREVIOUS TO ILLNESS.

Turning now from the home diet and environment of the patients, let us consider their actual physical condition before the onset of the specific illness. In reviewing the histories one is surprised at the small number of instances recorded in which acute sickness had anteceded the diarrheal attack. Thus bronchitis and

pneumonia were each noted twice and gastric colic once. These disorders all occurred several months before the intestinal disease and apparently had no association with it. There was but a single instance in which there had been an attack of diarrhea previous to the one from which the patient was suffering on admission; that is to say, the children were brought to the sanitarium during the course of their first illness.

The nutritional condition of the patients is not indicated by their freedom from previous acute illness. A small percentage only of the patients were "well nourished," 25 of the series showed pronounced stigmata of rickets, and 10 were markedly emaciated. These conditions had been brought about by food, improper either in kind or quantity, or both, and by insufficient care.

In but two instances could a history be obtained of any special indiscretion in diet before the onset of symptoms. In one of these, vomiting and purging began in a boy of 3 years, the oldest of our cases, after a meal of peanuts. This child was desperately ill with ileocolitis. The other instance was in a seven months' infant whose acute symptoms, ending in convulsions and death, followed the eating of a piece of banana.

In none of the other cases was there a history of any alteration in the diet of the patient to be obtained from the mother. Frequently the babies had not been thriving and had been losing weight, when, without any cause to which the mother could attribute it, the symptoms pointing to intestinal disorder set in. It would seem, then, that all young children are susceptible to infection with dysentery bacillus, but that its most numerous and least resisting victims are the infants whose vitality has been lowered by improper food and insufficient care.

TEMPERATURE.

A factor of undoubted importance in the spread of the disease in a community is the degree of atmospheric heat. It was found that the number of our specific cases was almost in direct relation to the height of the thermometer; that it could be predicted certainly that an increased number of babies infected with the dysentery bacillus would apply for admission after an unusually heated term. In this respect and in regard also to the nature of the cases most susceptible, our experience was identical with that of the great mass of clinical data for summer diarrheas in general.

DURATION OF SYMPTOMS BEFORE ADMISSION.

The difficulty of securing the admission of patients immediately after the onset of symptoms in any sanitarium distant from the city has already been pointed out. The tendency is for the mothers to attempt home remedies before medical aid is sought, unless the initial symptoms are very alarming. On account of this delay and the serious nature of the majority of the cases under observation, all methods of treatment are under considerable disadvantage. The series of cases have been divided into three groups, in reference to the duration of disease before admission, as follows:

1-10 days.	10-20 days.	More than 20 days.
13	11	19

But one case was seen on the first day and but four before the sixth day. Nearly half of the whole series came under treatment after three weeks of illness. Most of these were admitted in the latter half of July and in August.

LENGTH OF TIME UNDER OBSERVATION.

There was no fixed duration to the stay of the patients at the sanitarium. They were kept until it was

thought they were able to go home safely. Occasionally circumstances in the city required a return sooner than was advised. As a rule, the mothers preferred to have the desperately ill babies remain at the sanitarium until the end, notwithstanding a grave prognosis had been given. The time these 43 cases were under observation at Mt. Wilson varied from one day, in the case of a baby admitted in a comatose condition and which died the following morning, to forty-seven days, the average for the 43 cases being seventeen days. The more protracted cases occurred, as a rule, late in the summer.

CONDITION OF THE PATIENTS ON ADMISSION.

The condition of the infants admitted presented wide variations, and is of sufficient importance to tabulate:

CONDITION ON ADMISSION.				
Good.	Fair	Toxic.	Marantic.	Collapsed.
5	10	14	10	4

The cases whose condition was "good" presented few symptoms on admission other than diarrhea. Where the infants showed in addition slight constitutional disturbance, their condition was called "fair." The cases "toxic" on admission showed very marked symptoms of infection. The large marantic group has already been referred to. Four infants were admitted, pulseless at the wrist, and unconscious in profound collapse.

TYPES OF THE DISEASE.

A persistent effort was made during the last two summers to detect some signs or symptoms at the bedside that would differentiate the infants infected by the dysentery bacillus from other cases of summer diarrhea. Thus far, this effort has been quite futile, for the babies whose stools contained the specific organism presented no uniform clinical picture, but included rather all the varieties of illness that are commonly included under the designation "summer diarrhea." As was found also during the preceding summer, the cases could be divided broadly into two groups—one in which the chief symptoms were apparently due to the absorption of toxins from the intestinal tract, while in another form, in addition, the character of the stools or the autopsy findings indicated marked inflammatory lesions of the bowels.

The cases in the first group presented great variations in the degree of the toxemia, some exhibiting symptoms only of mild gastro-intestinal disorder, while in others the condition was one of profound poisoning associated with convulsions and ending in coma and death. No instance of typical cholera infantum was encountered.

A sharp line of separation can not be drawn between the two groups of cases above indicated. Usually the typical instances of ulcerative ileocolitis began as dyspeptic diarrhea. It was thought well to make use of the grouping, however, as it illustrates that the dysentery bacillus in the intestinal tract does not produce a simple, clear-cut, clinical disease entity, but rather that its manifestations are manifold, that it is responsible for a large train of symptoms which correspond accurately to those of the various diarrheal disorders common among children in the summer.

Our cases may be divided in accordance with the foregoing remarks, as follows:

	Mild.	Moderate.	Severe.
Cases presenting chiefly toxic symptoms,			
"dyspeptic diarrhea"	5	6	10
Cases of inflammatory or destructive lesion of the intestine, "ileocolitis"	0	8	15

To detail the clinical history and the bedside notes in each of our series would involve much valueless repetition. Later, in discussing the serum treatment, sev-

eral cases which serve as fair representatives of larger groups will be presented in full. Nearly all the babies exhibited nervous symptoms, as indicated by irregular and insufficient periods of sleep and by fretfulness. Less frequently increased drowsiness ending in coma was observed. Symptoms pointing to functional derangement of heart or lungs were not present, except when the child was *in extremis*. On the other hand, tympanites, usually of a moderate grade, was frequently observed, and tenesmus was a troublesome feature of the severer forms with ulceration. The symptoms fairly constant in all forms of these disorders were vomiting, diarrhea and elevation of temperature. A tabulation showing their frequency and severity has been arranged:

	Absent.	Moderate.	Severe.
Vomiting	9	22	12
Diarrhea	(1) 0	(2) 25	(3) 18
Fever	(4) 0	(5) 17	(6) 26

(1) Less than 4 stools in 24 hours.
 (2) Four to 15 stools in 24 hours.
 (3) More than 15 stools in 24 hours.
 (4) Temperature not over 99.
 (5) Temperature between 99 and 101.
 (6) Temperature higher than 101.

Of the group in which the fever was high,⁶ in thirteen instances the temperature showed marked daily variations. The nausea and vomiting was a frequent symptom at onset, but was also a troublesome feature in many of the severe cases throughout their illness.

There was always some elevation of temperature above normal, but the height of fever was of itself not a sure index of the condition of the patient. In many of the toxic cases the temperature curve remained continuously high unless reduced by sponging. Most of the instances in which the fever showed the marked daily intermission belonged to the "ileocolitis" group, having blood and pus in the stools. It is quite possible that the hectic character of the fever in these cases was due to a secondary infection. There is ground for the view that the destructive lesions, ulceration in the bowel in this form of the disease, are due to streptococci⁷ and other organisms superimposed on a primary infection with the dysentery bacillus. Much interest attaches also to the character of the stools of these cases, because from them information is obtained concerning the condition of the intestinal wall.

All the children exhibited more or less looseness of the bowels. The average number of stools in twenty-four hours in the cases where the diarrhea is described as "moderate" was about ten. In but one case was there but four stools, and in this instance the child passed shortly out of observation. In several children the number of stools reached forty in twenty-four hours.

A brief summary has been made of the presence in the dejecta of mucus, blood and pus as follows:

CHARACTER OF STOOLS.

	None.	Trace.	Moderate.	Much.
Mucus	9	4	20	9
Blood	15	10	16	2
Pus	10	11	15	8

It is, of course, recognized that such a division must be largely arbitrary, but it is thought that with a word of explanation it may serve to indicate the general nature of the discharges. The naked eye appearance of the fresh stools on the napkin, supported in most instances by a microscopic examination, formed the basis of the division. Thus when blood and pus are said to be "absent," it is not contended that no red blood cells or polymorphonuclear leucocytes whatever are present, but that neither of these elements could be detected macroscopically, and that they were only very sparingly found with the microscope. A "trace" of a "moderate"

amount of, or "much" mucus, pus or blood, on the other hand, indicates the detection by a simple inspection of increasing quantities of these materials, respectively, the naked eye appearance being corroborated with the microscope. Epithelial cells, swarms of bacteria, various crystals, curds and undigested food residue, fat droplets, and other elements found in normal stools were likewise noted in our examinations. Mucus was present in all cases, both mild and severe, whether belonging to the so-called inflammatory or toxic types. In the majority of instances it was present in considerable quantities. Blood, on the other hand, was not noticed during the entire course of the illness, either at home or at the sanitarium, in 15 cases, or 35 per cent. of the whole number, and only a "trace," often a mere fleck on the napkin, such as could result from a simple congestion of the mucosa, was present in ten additional instances. Blood frequently stained the napkins in 16 cases, but was present in large amount in but two instances. In no case was there active hemorrhage. No pus was present macroscopically in 10 cases throughout their sickness, and only a trace was noticed in the stools of eleven other babies.

These results substantiate the contention that the infection of infants with the dysentery bacillus does not necessitate a disease comparable with adult dysentery, but rather that not exceptionally, but frequently, this organism may produce a mild disorder.

COMPLICATIONS.

Complications were comparatively rare. Eclampsia occurred at the terminal event in three cases—one of severe dyspeptic diarrhea and two of ileocolitis. Bronchopneumonia was recognized but twice in our series; each time it proved fatal, in malnourished infants. One baby of two months died with symptoms of intestinal obstruction. No necropsy was allowed. A general pyemia proved in one instance a fatal complication. Frequent urine examinations and an occasional autopsy failed to disclose a definite nephritis in any of our cases.

RELAPSE.

In six instances a return of the disease occurred after the patient, being apparently well or improved, had been discharged from the sanitarium.

These relapses took place in the latter part of the summer, and after periods of from five days to three weeks from the return of the child to its home. In each case pure milk was provided at the house, and the environment of the baby made as healthful, by a visiting nurse, as the conditions at the home permitted.

The occurrence of relapse in these disorders is of the utmost importance, as it indicates the difficulty of setting a time when a case may be considered cured and become of no further danger to the patient or to others, and at the same time it suggests that one attack confers on the infant no immunity against a subsequent infection. In all six of the instances cited the second illness was more severe than the first. Three cases seemingly recovered from dyspeptic diarrhea, returned with symptoms of severe ulcerative lesions of the intestine. Probably from these infants the dysentery bacillus had never been completely removed from the intestinal tract, although present in too small numbers to produce symptoms, and only needed an opportunity to again set up the disease.

When we consider that the purest milk affords excellent culture material for the development of specific organisms already in the bowel, and also that because of the technical difficulties of their isolation a single negative examination of the stools is of little significance,

7. Blum: Arch. of Pediatrics, xxi, January, 1904.

the practical difficulties of dealing wisely with the question of relapse are greatly increased. Certainly it is true that a child once infected in hot weather should be carefully fed and kept under medical surveillance for several weeks after the abatement of all symptoms.

RESULTS.

The results of treatment in the series have been tabulated briefly with reference to the clinical forms of the disease which are still tentatively retained.

Toxic type—	Well.	Improved.	Unimproved.	Died.
Mild	3	2	0	0
Moderate	3	3	0	3
Severe	3	3	0	3
Inflammatory type—				
Mild	0	0	0	0
Moderate	3	1	0	4
Severe	2	1	1	10
	13	12	1	17

Of the 43 cases under treatment, 25, or 58 per cent., were cured or improved, and 18, or 42 per cent., died or were discharged unimproved, the mortality for the series being 39 per cent. It is striking that there should be such great disparity in the results obtained with the cases of the toxic type. Thus, of the 25 children improved at the sanitarium, in 18 were there no symptoms indicating marked intestinal ulceration, while these symptoms were present in 15 of the 18 fatal cases. Because of the established fact that the severer inflammatory forms begin often as mild toxic infections, the figures here tabulated argue strongly the importance of prompt abortive treatment.

The results can also be profitably tabulated with regard to the character of the diet previous to admission:

	Well.	Im- proved.	Unim- proved.	Died.
Cow's milk of all kinds, raw and heated	26	10	7	1
Condensed milk	14	1	5	0
Table diet	1	1	0	0
Breast exclusively	2	1	0	0
	43	13	12	1
				17

It is to be noted that of the 14 cases which had been previously fed on condensed milk, 8, or 57 per cent., died at the sanitarium in spite of treatment, and but one really recovered; while of the 26 cases given at their homes some form of cow's milk, but 8, or 29 per cent., died, 7 were improved and 10 were permanently cured.

It was found that the results of treatment were not appreciably affected by the character of the cow's milk supplied the babies before they came under observation; that is, that whether the milk had been "poor" or "fair," "raw" or "boiled" did not apparently alter the course of the illness after the disease was under way. On the other hand, these figures support the view already expressed that although condensed milk-fed infants may be less liable to become infected by the dysentery bacillus, especially if care is taken that all the water used is boiled, than are babies fed during the summer on cow's milk of poor quality; yet when the specific organism does find entrance into the body, the children reared on proprietary foods are more liable to succumb.

If future investigations should determine the dysentery bacillus to be, in small numbers even, a normal inhabitant of the intestinal tract of children, the danger of lowering the individual's resistance by condensed milk feeding will be still further emphasized. The fatal illness of the breast-fed child was that of a weak, emaciated baby nourished by an overworked, anemic mother.

The results of treatment with reference to the age of the patient may also have some interest:

	Well.	Im- proved.	Unim- proved.	Died.
Birth to 6 months	17	4	6	1
6 to 12 months	18	3	5	0
12 to 18 months	6	5	0	10
18 to 24 months	1	0	1	0
Two years +	1	1	0	0
	43	13	12	1
				17

Deductions must be warily drawn from such a small number of cases. Our experience would indicate that during the second six months of life the invasion with the dysentery bacillus is more likely to prove disastrous than at an earlier or later period. Thus, out of 17 cases under 6 months, 10 were bettered and 1 unimproved, with 6 deaths, a mortality of 34 per cent.; but of 18 cases between 6 and 12 months of age, only 8 were bettered, none improved, and 10 died, a death rate of 55 per cent. The difference is to be accounted for in part at least by the fact that the untoward effects of improper artificial feeding are most in evidence in cases with weakened constitutions, rickets and the like, during the second half year of an infant's life. For a large part of the period preceding the mother is able to nurse the child and so carry it along for several months in good nutritive condition. Should the infant survive the first year it can then assimilate more readily the ill-assorted mixtures often provided for it as food. Of the 18 cases older than one year, but one, aged 13 months, resulted fatally, of ileocolitis.

(To be Continued.)

THE TREATMENT OF PURULENT CONJUNCTIVITIS.*

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The treatment of purulent conjunctivitis will always be of great interest to every practitioner in ophthalmology, and when the chairman of this Section asked me to read a paper on this subject I acceded, and the more willingly because the Massachusetts Charitable Eye and Ear Infirmary has a separate building, isolated from the main structure, which is devoted exclusively to the treatment of contagious diseases of the eye. For five years all cases of purulent ophthalmia applying to the institution for treatment have been promptly admitted to this building. The result has been that there has been brought together in the records of this pavilion a large number of cases, and this paper is chiefly a study of these records, to ascertain if possible which methods of treatment have been the more successful.

In looking over thirteen text-books published in the last twenty years, I find recommended the following measures for the treatment of purulent conjunctivitis: Cleanliness, iced compresses in the stage of swelling, with topical applications of nitrate of silver, solutions of the bichlorid of mercury, solutions of permanganate of potash, chlorinated water, iodoform and boric acid. Can these methods of treatment be improved? If so, by what means? This paper is an attempt to answer these questions.

Corrosive sublimate, permanganate of potash, iodo-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

form and chlorinated water have all been tried in the balance and found wanting. Therefore, for many years a solution of nitrate of silver has been the only topical application accepted for the treatment of this disease.

Purulent ophthalmia is due in the majority of cases to gonorrhæal infection. If sought for, the gonococcus will be found in from 60 to 65 per cent. of the cases.

A differential diagnosis in a case of purulent conjunctivitis between a typical gonorrhæal infection and one produced by the staphylococcus, streptococcus, or Klebs-Loeffer bacillus is not difficult, when the case has fully declared itself, but in the earlier stages absolute dependence must be placed on the bacteriologic examination, without which even the most expert are liable to be deceived. Thus in the last twenty months there have been admitted to the Gardner Building 91 cases under 5 years of age, in which it was thought probable that the infection might be gonorrhæal or diphtheritic. The bacteriologic examination on entrance showed the infection to be Klebs-Loeffer bacillus in 2 cases, streptococcus in 1 case, staphylococcus in 17 cases, and the gonococcus in 64 cases, and 6 cases in which the infection was not determined except in so far as to prove it was not gonorrhæal. In 1 case of staphylococcus infection there was ulcer of the cornea on entrance, and in another case a "steamy cornea" and a membrane on the palpebral conjunctiva. The diphtheritic cases under the use of antitoxin were both discharged with clear cornea. The cases of staphylococcal infection also did well, as is almost always the case under any rational treatment.

Our disasters occur in the treatment of cases in which the gonococcus is the causative agent. Therefore, this paper resolves itself practically into the treatment of gonorrhæal ophthalmia. It is a well-known fact that this infection is less difficult to manage in so-called cases of ophthalmia neonatorum than in the adult, but in both classes the virulence of the infections may vary greatly. It is not necessary for me to enter elaborately into the methods of caring for gonorrhæal ophthalmia. The first essential is cleanliness. This can only be obtained by frequent washing of the lids with the removal of the pus, so far as is practicable from the conjunctival sac.

When nitrate of silver was relied on for the direct treatment of the disease the manipulations necessary to properly apply it and to wash off the excess of the solution greatly favored injury of the cornea with subsequent infection and ulceration, and cases where eyes were lost or vision destroyed were often due to this process. Of late years there have been presented to the profession silver salts, not so irritating as nitrate of silver, and much more easy of application. A solution of protargol or argyrol can be applied by simply pouring the liquid between the opened lids; moreover, the specific gravity of these solutions is such that, sinking to the bottom of the cul-de-sac, pus and mucus are floated to the surface and can be removed much more easily without the manipulative dangers to which patients were formerly exposed.

Two years ago, in a paper read before the New York County Medical Society, I made a comparison of results obtained in cases of ophthalmia neonatorum treated by nitrate of silver and protargol. I was able at that time to find 50 cases in the records of the Gardner Building in which the nitrate of silver had been the agent relied on. Of these 50 cases, there were three that had clear cornea on admission, which subsequently

developed ulceration of the cornea sufficient to interfere with vision. This showed 6 per cent. of unsuccessful cases. I found on the records at that time 150 cases in which protargol was the only remedy used. Among this number there were also 3 admitted with clear cornea, which subsequently developed ulcers that greatly injured or destroyed sight. This gave 2 per cent. of unsuccessful cases. The protargol solution used was increased from 4 per cent. in the beginning to the habitual use of a solution of 20 per cent. and in the last 50 cases treated no baby with clear cornea on admission had any corneal complications.

The 50 cases in which nitrate of silver was used were in the hospital an average of twenty-three and one-half days, and the last 50 cases above referred to were in the hospital an average of sixteen and one-half days, making a difference of one week in the time of treatment. Since that paper was written argyrol as the local application in these cases has been largely used in the Gardner Building and I have been able to find on the records 64 cases of ophthalmia neonatorum with gonorrhæal infection, which entered with clear cornea in which it was depended on as the principal agency. All of the 64 cases were discharged with clear cornea, and the average stay in the hospital was eighteen and two-thirds days. I also found on the records 9 cases in which it was noted on entrance that the cornea was "hazy," in only one of which did any ulceration of the cornea follow. These cases, although naturally more serious, only remained in the hospital an average of twenty-two days. During the same period 9 cases entered which already had corneal lesions, in only one of which was the eye lost. From these cases it will appear that either of the modern silver salts gave much better results than was ever obtained from the use of nitrate of silver.

The routine treatment has been to wash the edges of the lids with a solution of boric acid once in half an hour, to put when necessary a little vaselin along the edges of the lids to prevent them from sticking together and to instill a solution of protargol or argyrol freely between the lids at intervals of from every hour to once in four hours. As has been before stated, the solution sinking to the bottom of the cul-de-sac floats to the surface the pus and mucus which can be easily removed with a very slight amount of manipulation. In no case has it been necessary to do a canthoplasty to relieve the pressure on the globe, and in no case has cold been applied at any time during the treatment. Cases in which there was "hazy" cornea as above noted have often had pilocarpin in 0.5 per cent. solution instilled once a day. Atropin has rarely been applied except in cases where the cornea was involved and no case was discharged until two negative smears had been examined under the microscope on successive days. From this it will be seen that in 114 consecutive cases admitted with clear cornea and treated with protargol or argyrol, no case has developed corneal ulcer, nor has any untoward incident occurred, and in 9 cases admitted with the cornea already threatened, only one ulcer developed. These results are surely brilliant as compared with those obtained before all the cases were admitted to the house and before modern silver salts were used.

The real value of any method of procedure in gonorrhæal ophthalmia is the result obtained in gonorrhæal infection in the adult. During this same period there have been admitted to the Gardner Building 89 cases of gonorrhæal ophthalmia in individuals over five years

of age, of whom 48 were treated with protargol and 37 were treated with argyrol exclusively. In studying the relative value of the agents used, it is necessary to divide these cases into two classes: 1. Those admitted with clear corneæ; 2, those in which the corneæ were involved on entrance. The latter group includes, of course, all degrees of corneal lesions from the smallest infiltration to almost total ulceration.

It is obvious that from results obtained in this latter group very few deductions can be drawn, therefore the results obtained in the first group are of the most importance.

In the 48 cases treated with protargol the solutions used were 10 per cent. in 28 cases; 20 per cent. in 18 cases, and 30 and 40 per cent. in one case each. Of the 33 adult cases which were admitted with clear corneæ, 21 were discharged without corneal lesion, or 66 per cent., and of the 27 cases which were admitted with corneal lesions, or developed ulceration of the cornea, four eyes were lost.

It will be seen from the accompanying tables that the percentage of successful cases was much greater with the 10 per cent. solution of protargol than in any other group. In this group there were 28 cases, 18 of which were admitted with clear corneæ, 14 being discharged without complication—about 78 per cent.—and of the 14 cases in which the corneæ became involved only one eye

RESULTS OF TREATMENT OF GONORRHEAL OPHTHALMIA WITH PROTARGOL AND ARGYROL.

Per cent. used	Entered with clear cornea	Discharged with clear cornea	Entered with corneal lesion	Discharged with leucoma	Lost or total leucoma
Protargol.....10	18	14	10	13	1
Protargol.....20	12	5	6	10	3
Protargol.....30	1	1	..	..	..
Protargol.....40	1	1	..	..	..
	32	21	16	23	4
Argyrol.....13	2	2	..	..	..
Argyrol.....25	12	8	7	6	5
Argyrol.....50	9	6	7	7	3
	23	16	14	13	8

was lost. With the 20 per cent. solution 12 entered with clear corneæ and 5 only escaped corneal infection, or 42 per cent., while of the 13 cases in which the cornea was attacked three eyes were lost, or had total leucoma. It is perhaps interesting to note that all four of the eyes lost entered with clear corneæ.

Of the 37 cases in which argyrol was used, the solutions were 15 per cent. in 2 cases; 25 per cent. in 19 cases, and 50 per cent. in 16 cases. Of 23 admitted with clear corneæ, 16 were discharged without corneal lesion, or 69.5 per cent., and of 21 cases in which corneal lesions were present on entrance, or subsequently developed, eight eyes were lost, three of which entered with clear corneæ. It will be noticed that the results obtained with the 50 per cent. solution were no better than with the 25 per cent. solution.

It would appear from the above tables that while the percentage of successful results with the two agents was not materially different in cases which entered with clear corneæ, that once the cornea has become involved, protargol seems to control the case more effectively. The advantage of argyrol is that it is practically unirritating and is much better borne by the patient.

One other factor in the treatment of gonorrhœal ophthalmia to which I wish to direct your attention is the inadvisability of cold at any stage of the disease. Of the before mentioned thirteen text-books published in

the last twenty years, ten advise the application of cold during the stage of swelling as a routine procedure. The statements made were generally of the following character:

"Iced compresses should be used during the stage of swelling;" "cold during the stage of swelling, then heat;" "iced compresses during the stage of swelling for an hour at a time, omitting an hour, and so on continuously;" "cold applications should be abandoned when the cornea has a steamy look; heat is then resorted to;" "iced compresses should be used until the discharge begins," that is until the growth of the gonococci has been well developed. And it was a fair inference from the context that the limited time allowed for the use of the iced compresses was due in each instance to the opinion of the author that cold was inimical to the nutrition of the cornea. If this is true a strong case must be made in favor of their use before they should be habitually employed. In these cases, as in the preceding, the value or detrimental effects of cold can only be determined by considering the cases that were admitted to the hospital with clear corneæ. Among the 85 cases which I have reported above as treated with protargol or argyrol, there were 17 cases admitted with clear corneæ which had cold applications made, of which 10 were discharged without corneal lesion, which gives 59 per cent. of successful cases. During the same period 38 other cases entered with clear corneæ and were treated without the applications of cold, of which number 28 were discharged without corneal lesion. This gives about 74 per cent. of successful cases. If the difference between 59 per cent. and 74 per cent. was due to the application of cold, it is surely inadvisable.

These cases were treated with cold, not because they were more virulent, but because the physician treating them habitually used cold applications in the initial stages of gonorrhœal ophthalmia. The records do not state in every case the length of time the cold was employed, but the average time in which a definite statement was made was three and three-eighths days. There is no reason to suppose that it was continued over a longer period in the remaining cases. I have taken considerable trouble and time to ascertain the fact that the treatment otherwise than the application of cold was practically the same in all the 55 above cases. The ages of the patients were four between 5 and 20, ten between 20 and 30, one between 30 and 40, and two between 40 and 50. In each decade of life, it is roughly 25 per cent. of patients admitted with gonorrhœal ophthalmia having clear corneæ, therefore the results can not depend on any difference in corneal nutrition between youth and middle life.

The rationale of the cold applications is somewhat difficult to see. If it is done merely to reduce swelling of the lids, ought not heat to be employed instead? Elsewhere heat promotes absorption in edematous conditions. If it is done, as I have heard it stated, for the sake of inhibiting the growth of the gonococcus, it does not seem to be any more rational. Neisser, in his recent article in *Kolle and Wassermann's* work, states that the growth of the gonococcus is inhibited when the temperature is reduced below 86 degrees Fahrenheit, and it is improbable that in any case the application of iced compresses to the lids could reduce the temperature below 86 degrees. As a matter of fact, since this paper has been under consideration, I have had a virulent gonorrhœal case admitted to my service in which there was considerable, although not excessive, edema of the lids. A large slough of the cornea had already oc-

curred. In this case finely broken bits of ice wrapped in a thin layer of absorbent cotton were kept continually on the lids until the pain was sufficient to cause their discontinuance—a matter of twenty-two hours—and this was repeated after an interval. I caused the temperature in the conjunctival sac to be taken every hour. It is plotted here for the sake of brevity with two-hour intervals. It shows that before the cold applications were made, the temperature was 100 degrees, that during the application of cold the temperature fell to 98 degrees. On the removal of the cold the temperature rose to 99.5 degrees, and on the cold being renewed it was reduced as before.

From this chart, it will be seen that the utmost reduction of temperature obtained was only 2 degrees, being 12 degrees above the temperature which Neisser states is necessary to prevent the growth of the gonococcus. In the above-mentioned article, it is also stated that the growth of the gonococcus is inhibited by a temperature of 107.6 degrees Fahrenheit, but that inhibition is not so marked when the gonococcus is present in living tissue. Therefore, whether the application of heat would be beneficial must be determined by the clinical results obtained in cases where it is used. On this point, unfortunately, the records of the Gardner Building furnish us with no statistics. In this connection it is well to call attention to the fact that in the above reported 114 consecutive cases of ophthalmia neonatorum in which the cornea did not become involved, cold was used in no instance.

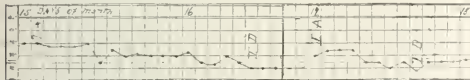


Chart showing result of applications of crushed ice. Observations taken at two-hour intervals. I. A., ice applied; I. D., ice discontinued on account of pain.

From the above facts it would seem that the application of cold is at least of doubtful value and that probably its effect is harmful.

CONCLUSIONS.

Recognizing the fact that final conclusions on any method of procedure can not be drawn from any limited number of cases, it would appear that so far as the evidence presented above goes, the following conclusions can be deduced:

1. That the newer silver salts are more easily applied, safer in use and produce better results than nitrate of silver.
2. That in cases of ophthalmia neonatorum either protargol or argyrol is an entirely satisfactory agent.
3. That in cases of gonorrhoeal ophthalmia in the adult, the results obtained when treatment is begun early are approximately the same with either preparation, but when once the cornea is involved, protargol appears, in these cases at least, to have afforded a better ultimate outcome.
4. That the application of cold during the stage of swelling in gonorrhoeal ophthalmia is a dangerous procedure and should be abandoned.

DISCUSSION.

DR. CASEY A. WOOD, Chicago, said that in the early days attempts were made to abort gonorrhoeal ophthalmia; hence the enthusiasm for nitrate of silver in strong solutions. The main reason for the retention of that treatment was that it did work which could be seen. In recent years a treatment not so irri-

tating in character has been used. To his mind the chief consideration in the prevention of serious consequences is the cornea. He said that he believes that strong nitrate of silver solutions are occasionally harmful because of their irritating character. Ulcer of the cornea has been caused by eagerness to get at the root of the disease in this fashion and secondary troubles have been produced which are worse than the original infection. Another matter of importance is that of irritating the infant and so making him cry. The moment a child is made to cry the lids become congested, their sharp margins are pressed against the cornea and, in its macerated condition, the anterior corneal epithelium is easily removed. Nitrate of silver applications make the child cry. Dr. Wood differed from Dr. Standish regarding the application of cold. Dr. Wood believes in it if judiciously applied. It may not affect the bacteria in the tissues that form the sac, but it makes the patient more comfortable, and this is of particular importance in the case of children. Dr. Wood agreed with Dr. Standish as to the cleansing of the eye. The sac can not be entirely sterilized nor even thoroughly cleansed, and when the discharge has been carefully washed off from the edges of the lids the physician has done about all he can in that respect. In Dr. Wood's opinion it is dangerous to do so much cleansing as is advised by some of the text-books; that is, with the aid of retractors, eversion of the lids, the use of irrigators, etc. Dr. Wood thinks that argyrol is a better preparation than protargol. It has a somewhat anesthetic effect on the cornea and conjunctiva and makes the patient more comfortable, which are distinct advantages, aside from any bactericidal property it may possess. Another remedy that has been somewhat overlooked is hydrastin. Dr. Wood uses the mixture introduced some years ago by Dr. X. C. Scott without the deodorated tincture of opium, and feels sure that it possesses valuable properties in the second and third stages of the disease.

DR. MAITLAND RAMSAY, Glasgow, Scotland, considers Dr. Standish very fortunate in having been able to collect and to study so many cases of purulent ophthalmia in the adult, for in Scotland, although unfortunately ophthalmia neonatorum is always to be found, gonorrhoeal ophthalmia in the adult is a comparatively rare disease. Dr. Ramsay always taught that in the early stages of purulent conjunctivitis in the adult, when the pain is severe and the chemosis and inflammation are intense, the judicious use of ice locally affords great relief, but that whenever purulent discharge is established, cold is harmful and hot applications are more grateful to the patient. Dr. Standish's statistics, however, prove that corneal complications are more serious in those patients treated by cold than in those where iced applications are not employed, and if that be so, it becomes a matter for serious consideration whether the relief from pain which is brought about by the use of ice is not purchased too dearly if it is to be followed by greater destruction of the cornea.

DR. A. W. CALHOUN, Atlanta, Ga., emphasized the danger of argyrosis from the use of protargol. He has seen a discoloration following the free use of protargol which does not occur with argyrol. Weak solutions of these salts are very beneficial, whether the ulceration is the result of conjunctival infection or not.

DR. FRANK C. TODD, Minneapolis, stated that for the past four years he has been using protargol at the Minneapolis City Hospital and has had about 30 cases in which the protargol, or argyrol, has been employed. He has compared the treatment with protargol by the same nurses that were taking care of other cases being treated with nitrate of silver and found the results very much in favor of the protargol. In any statistics it must be borne in mind that cases vary, and that the treatment the patient receives from the nurse has a great deal to do with the result. Cases treated with silver nitrate showed that in about 30 per cent. of the cases the cornea became involved. In his treatment with protargol there was only one case in which the cornea became involved after the treatment

had been instituted and that was attributed to the too long continued use of cold applications. Cold was usually applied for the first day or so and in this case he neglected to order it discontinued, with the result that the cornea became involved. Regarding the comparative value of the two salts, he did not feel that the statistics would be of sufficient value, as they only cover about 30 cases to date, and so he undertook the experiment of using protargol in one eye and argyrol in the other. The solutions used were 50 per cent. in glycerin with each remedy, and were used the same number of times each day (from one to three applications daily) and the other treatment, which consisted in the use of cold applications for half an hour at a time every two hours during the first day if there was swelling of the lids, and the frequent use of boric acid solution for irrigation, and in certain cases, atropin. In all these cases the eye treated with protargol progressed faster and recovered quicker than the eye that was treated with argyrol. There was so much difference that there can be no mistake, and in some of the cases, when the protargol eye had been cured and the discharge continued from the argyrol eye, protargol was substituted for argyrol with immediate improvement in progress.

DR. JOHN E. WEEKS, New York City, agreed with Dr. Standish in regard to the cleansing of the sac, except, perhaps, that he prefers to wash away the secretion a little more thoroughly. This can be done without any danger by gently opening the lids and permitting the solution to flow in, thus irrigating the conjunctival sacs. The use of specula and lid retractors is harmful. The cleansing should be done very frequently in adults as well as in children. Dr. Weeks uses argyrol in the strength of 35 per cent. The applications are made about every two hours. The growth of the gonococcus ceases when the temperature is from 88 to 86 F. or below, but from 96 to 88 F. the growth is inhibited to some extent. Dr. Weeks has taken the temperature of the conjunctival sac in making cold applications in the ordinary way—that is, with pieces of gauze transferred from the ice to the eye every minute or minute and a half—with the result of reducing the temperature of the conjunctival sac to 92 F., which is low enough to prevent the growth of these organisms to some extent. This is one of the reasons why he advocates the use of cold to an extent, not sufficient, of course, to interfere with the nutrition of the cornea. He employs it for three hours at a time; he allows an interval of an hour and then resumes the applications for another three hours. Cold used in this way will not interfere with the nutrition of the cornea. Another reason is that advanced by Dr. Ramsay, namely, the relief from the intense suffering. The patient is given a high degree of comfort by the use of the ice compresses.

DR. HIRAM WOODS, Baltimore, stated that he had seen a number of cases of ophthalmia which Dr. Standish was treating in the manner described, and was impressed with the thorough cleaning the eyes got from the simple method of removing such secretion as adhered to the margin of the lids, separating the lids, and pouring the heavy protargol solution into the palpebral fissure. Dr. Woods indorsed the opposition to the introduction between the lids, for cleansing purposes, of toothpicks, probes, etc., armed with cotton. He has seen these things abrade the cornea and open a way to infection. Dr. Woods considers that cold promotes comfort, yet, if it retards cure, it should be abandoned. He mentioned 10 cases of purulent ophthalmia in children under 7 years of age recently treated with argyrol. All were of gonorrheal origin. In one case a 25 per cent. solution was used every third hour. In the others a 50 per cent. solution was employed twice a day. All the cases were cleaned with sterile water every hour. No case was lost. The average duration for the 10 cases was eight and a half days.

DR. H. H. SEABROOK, New York City, stated that he is an advocate of the use of cold, and has even used it after the cornea has been involved, and he has seen a cloudy cornea

clear up under its use. Dr. Seabrook asked if cold, presumably by its effect on the circulation, will not lower the temperature sufficiently to affect the growth of the gonococci in the lids, how does it become dangerous to the nutrition of the cornea.

DR. J. L. THOMPSON, Indianapolis, said that, until ten years ago, a case of ophthalmia neonatorum was rarely ever lost. Under silver nitrate treatment, Dr. Loring reported a case many years ago where both eyes were lost, and that was considered a most remarkable case. A great majority of cases will be saved by the mildest treatment imaginable. Dr. Thompson treated every case for a while with hydrastin, but he had one very bad case in an infant where a croupous membrane formed, and that case was lost, though subsequently treated with silver nitrate; one case in his whole life.

DR. S. O. RICHEY, Washington, D. C., said that he has tried all these new salts, and is still wedded to the nitrate. The difference in irritation is due largely to the amount of silver contained. He reverted to the use of the nitrate after trying all the other salts. Of course, solutions must be modified according to one's own judgment and experience. The effect on the mucous membrane is that of constructive metamorphosis. The unfortunate cases are mainly due to the fact that cold is used where one should increase nutrition. The tissues must be helped to resist the germs; not given something to impair nutrition.

DR. J. WALTER PARKE, Harrisburg, Pa., mentioned the last four cases he had treated in adults, one of which had a perforated cornea. His plan of treatment was lifting up the lid and, with a large pipette, washing out the eye thoroughly every thirty minutes, with 25 grs. each boric acid and sodium bichlorate, then dusting in a mild antiseptic powder after the irrigation. This controlled the discharge and at the end of a week it had ceased entirely. It acted better than any of the solutions he has ever used. He still employs the nitrate of silver in varying strengths once daily as an application to the lids.

DR. NELSON M. BLACK, Milwaukee, Wis., said that in several cases where destruction of the cornea had commenced the use of argyrol or protargol in an oily medium has given very good results. The oil lubricates the lids and the already partially destroyed epithelium is not further irritated by their movements. The argyrol, too, is not so easily washed out of the sac, so that the bactericidal action is continuous. The eye is first washed out, thus removing the secretion and after each washing an application of the argyrol in sterilized cod-liver oil is made.

DR. MARK D. STEVENSON, Akron, Ohio, called the attention of the section to the use of alphozone in solutions of 1:2,000 to 1:500. It is a powerful antiseptic, unirritating, and causing practically no discomfort. In small children and nervous people especially, it is well to wash and irrigate the eye by means of cotton that has been dipped in the solution to be used. By this simple means the eye and adjacent parts can be thoroughly cleansed without any danger of injury. The use of an irrigating apparatus and eye droppers is often harmful by removing some of the corneal epithelium, thus opening up new avenues for infection.

DR. LEARTUS CONNOR, Detroit, Mich., was impressed with the relative value of these new silver salts by a microscopic study of three cases occurring at the same time and under much the same conditions. One case was treated with nitrate of silver, one with protargol and the other with argyrol. In the case treated with argyrol, the gonococci diminished more rapidly than in either of the others. Some years ago, Dr. Connor saw disastrous effects follow the use of cold and since that time he has employed heat, not warmth, habitually. When the eyes are kept clean, without damage to the cornea, they tend to get well without other treatment. He has never seen harm result from the use of silver salts when used judiciously. An eye may be destroyed by the use of large amounts of nitrate of silver as the nitric acid is set free by the decomposition of the salt. The new organic salts, however, do not require so much care, as they are devoid of

destructive acids. The eye should be cleansed every five or ten minutes, day or night, in severe cases. With argyrol there is no discomfort to the patient.

Dr. E. E. HOLT, Portland, Maine, considers that it is cleanliness that has the best effect in the treatment of any case. Four years ago he advocated the douche. When the pipette, or irrigator, is used, and cleanliness is not obtained, it is because of the method. He is in the habit of using a Davidson syringe, using the smallest tube, at the outer canthus, and using a quart of water at a time and repeating this as needed every one, two or three hours, day and night. The time between the douchings may be employed in using cold applications and antiseptics. He allows the eye to get dry from wiping it with lint or absorbent cotton and exposure to the air, so that the tissues will not be soaked with moisture all the time.

Dr. MYLES STANDISH, Boston, said that he has never seen a case of argyrosis in acute gonorrhœal ophthalmia, either from nitrate of silver, protargol or argyrol. When it has been used in other cases, not acute, he has seen argyrosis with all three remedies. Much handling is dangerous in cleansing the eye. With a particularly careful and well-trained nurse more handling may be permitted, and he considers a properly trained nurse as important in these cases as in any case in medicine. In reply to a question, Dr. Standish said that the cornea derives its nutrition not from direct blood supply, but through the lymph channels, and anything that delays the passage of fluid through these channels must increase the danger to the cornea.

TUMORS OF THE EYE AND ORBIT.*

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There is no more interesting and outré subject¹ in the category of diseases than tumors of the orbit. A large proportion of these are seen and dealt with by the physician and general surgeon, rather than by the special practitioner, as the subject is intimately connected with neoplasms in other portions of the body, and in many cases is but a complication of other serious diseases. It has been deemed well to make a somewhat different classification from that hitherto used by Bull, Buller and other writers who have considered this subject as a whole.

CLASSIFICATION.

To accord with the demands of modern pathology, these tumors should be considered from their place of origin as follows: 1, Intraocular, which in the third stage involve the orbit and which are here but briefly considered; 2, primary in the orbit, to which this paper mostly relates; 3, secondary to neoplasms in the neighboring structures and sinuses; 4, arising from metastasis; 5, pseudoneoplasms.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

1. My original intention, in the preparation of this paper, was to make a collection of photographs and specimens for a pathologic exhibit for the Section. Realizing that no one man's experience would be sufficient to cover all phases of the subject, I corresponded with more than a hundred ophthalmic surgeons of experience, a number of whom have kindly aided me to amass the interesting collection herewith displayed. I was surprised that many, even some of great experience and long years of practice, had little or no experience with this subject. Many others had not secured photographs or saved specimens. The rather extensive collection of photographs and specimens herewith displayed have been obtained through the courtesy of comparatively few of our American ophthalmologists. I do not intend in this paper to make an exhaustive study, but reserve the privilege of putting more time on the work and eventually publishing a brochure, in which I shall attempt to exhaustively treat the subject and to reproduce many of the photographs and specimens herewith presented.

In accordance with modern pathology, I herewith submit the following as a skeleton on which I propose later to build up a more exhaustive article:

1. Neoplasms may commence in the eyeball and extend to the orbit in the third stage. Of these, lipoma and cyst of the conjunctiva are rare and non-malignant, while glioma and sarcoma are common and very malignant.

2. Primary orbital neoplasms may be properly described under the heading of the tissue in which they arise:

(a) Those arising in the mesodermal tissue, of which sarcoma in its various forms is most common. These are round, spindle, fibro, myxo, cysto, cylindro and plexiform. The so-called benign growths are mainly lipoma.

(b) Angiomata in its several varieties, including the nevus maternus, telangiectasia, cavernous angioma and lymphangioma.

(c) Pulsating exophthalmos and orbital aneurism.

(d) Tumors proceeding from the orbital walls; osteoma, osteosarcoma and cysts, the latter due to extension.

(e) Tumors of the optic nerve and sheaths, which are myxomatous, endothelioma, angiosarcoma, sarcoma, primary glioma, tuberculous disease, gummata, metastatic sarcoma.

(f) Tumors arising in the lacrimal gland: Hypertrophy, cyst, dacryops, adenoma, myxomatous and myxo-spindle, lymphosarcoma and epithelioma, carcinoma, eyelidroma, lymphadenoma and chloroma.

(g) True cysts, under which we may likewise place extravasations, dermoid and cystoid growths.

3. Extending from the frontal, ethmoidal, maxillary and sphenoidal sinuses, tumors are mostly sarcoma.

Extending from the skin: Fibroma, neuroma, sarcoma, adenoma, gumma, rodent ulcer, carcinoma, epithelioma. Extending from the conjunctiva and cornea are the tumors of the same variety.

4. Metastatic sarcoma and carcinoma. The sarcomata of the orbit sometimes give rise to metastasis in the brain and abdominal organs, but the converse is supposed to occur, especially with carcinoma.

5. Exophthalmos from pseudoneoplasms.

(a) Orbital effusions, hemorrhages.

(b) Orbital inflammations: Phlegmon and cellulitis, which may be primary or metastatic; inflammatory hypertrophy.

(c) Orbital protrusions from inflammation of the neighboring sinuses.

(d) Orbital anomalies, encephalocele.

PROGNOSIS.

As regards the treatment and expectation of life in the case of malignant intraocular tumors, the prognosis is favorable in the majority of cases if the eye be enucleated sufficiently early, the growth returning in the orbit in the others, the large majority of which die from the effects of extension of the secondary orbital growth.

In the case of primary tumors of the orbit—those of benign nature, by pressure on the globe and optic nerve, give rise to disturbances of motility, exophthalmos, diminution of vision and blindness, but, as a rule, are carried for many years without danger to life, the deformity being the main complaint. These benign growths should be mainly treated by excision, and in many cases it is not necessary to remove the eyeball.

The diagnosis of primary malignant growths arising

in the orbit is usually made too late to save the life of the patient by any treatment or operation, but we are happy to state that there have been a number of cases of undoubted sarcoma, and even of carcinoma, which have been subjected to thorough exenteration in which the tumor has not recurred and the patient's life preserved to the natural limit. Several cases are known to have been cured by the use of the Röntgen ray, without any operation, and in others, in which the neoplasm was removed, secondary treatment by the x-rays seems to have ensured its non-recurrence. The x-ray certainly relieves the pain and seems to hinder the development of these growths.

In the rare cases of metastasis into the eyeball or orbit, or where the growth has primarily occurred in the orbit and is accompanied by metastasis into other organs, the removal of the primary focus or secondary growths will not prevent recurrence. Extirpation even seems to increase the rapidity of the reformation.

We are happy to state that within the last few years a number of lives have been saved by early diagnosis, operation and the use of the Röntgen ray, which in previous years would have been classed as inoperable or subjected too late to the formidable operation of exenteration.

DISCUSSION.

DR. CHARLES S. BULL, New York City, stated that his experience has been largely in this variety of orbital tumors, and he has come to hold a very positive opinion on this matter. If the tumor develops within the orbital tissue proper, or is connected with the periosteum of the orbit, or with the sheath of the optic nerve, and on removal can be shown to be encapsulated, the prognosis is almost always a favorable one. If the tumor is not encapsulated, whether it has originated in the tissue of the orbit itself or in the periosteum of the bony walls, or in connection with the sinuses in the vicinity of the orbit, the prognosis is always unfavorable. Each operation for the removal of such a growth can never be a complete operation, hastens its return or recrudescence, and by so much shortens the life of the patient. In these cases of really inoperable tumors the matter should be fully explained to the patient, the reasons for the unfavorable prognosis plainly stated, and the patient should be told frankly that while an operation will give temporary relief from the symptoms, the recurrence of the growth will be hastened and his life will be shortened, and the patient should decide whether the operation shall be done. When the tumor starts elsewhere and involves the orbit secondarily, it should be classified as inoperable, in so far at least as the knife is concerned. These cases may very properly be subjected to the x-ray treatment. Dr. Bull has seen three cases within the year in which the application of the x-rays produced apparently marvelous results in the disappearance of the tumor and the relief of the painful symptoms. Sufficient time has not yet elapsed to enable him to pronounce the cases cured, but the relief from pain alone would justify a resort to this treatment for these hopeless cases, even if a cure can not be promised.

DR. E. C. ELLETT, Memphis, Tenn., mentioned two cases of tumor of the orbit presenting some peculiar features. The first was one of melanotic sarcoma of the choroid, occurring in a negro child aged 3. The parents noticed "something wrong" with the appearance of the eye in August, 1903, and when Dr. Ellett saw it in February, 1904, the tumor had burst through the cornea. Enucleation was not permitted until March 30, when the growth was found to have invaded the nerve and to have burst through the sclerotic near the posterior pole. Sections showed the nature of the growth and the infiltration of the nerve. Recurrence took place in two months and further operation was not advised. The second case was that of a girl, aged 14, who had just noticed a hard tumor at the inner angle

of the right orbit. This was in 1898. The tumor was 12x8 mm. in size, very hard and smooth, and lay just within the internal canthus. There was no pain or tenderness. The only other abnormality was an enlarged middle turbinate body on the right side. In one year the tumor had increased 4 mm. in width and there was epiphora. In two years it was 15 mm. wide by 12 in the vertical diameter. Operation disclosed a bony tumor, which proved to be a cyst, with smooth walls, containing about an ounce of grumous mucus. A probe could be passed backward $1\frac{1}{2}$ inches, down and back 2 inches, and up and down 1 inch. The bony front walls of the cyst were broken in, the wound was closed and in a few days the enlarged middle turbinate was removed, giving an opening into the cyst cavity from below. This remains open, there has been no increase in four years in the tumor, which is much smaller than before the operation, the epiphora ceased entirely, and there is no visible scar. The tumor was evidently a mucocele of the anterior ethmoidal cells.

DR. L. WEBSTER FOX, Philadelphia, said that his experience in x-ray treatment of these conditions has been considerable. His attention was first called to the treatment in conditions of epithelioma of the lids. A year and a half ago he had a case of sarcoma of the orbit; the diagnosis was confirmed by several colleagues and by the microscope. The case received 48 applications of the x-ray before the disappearance of the growth. There was no recurrence. The treatment has been continued about once in every two or three weeks. Dr. Fox's experience has been that in the so-called inoperable cases it is practically useless to perform any operation. It gives relief for the time, but at the end of a year or more the patient dies of metastatic trouble with the internal organs. He emphasized the fact that the x-ray seems to prevent the development of new growths and also relieves pain.

DR. J. F. KLINEDINST, York, Pa., related the history of a case of sarcoma of the orbit in a boy, aged 14, strong and healthy, whose father stated that for two months the right eye had turned upward slightly. There was no impairment of vision, nor ophthalmoscopic changes. On palpating the lower lid a small, round, semi-solid growth could be felt. There was no exophthalmos. Dr. Klinedinst made an incision in the lid, went in below, and found that the growth was encapsulated. The growth was found to have a semi-solid appearance and was removed in sections. Dr. Klinedinst enucleated what he supposed to be its attachments. Four or five weeks later the boy returned with the growth larger than it had been before operation. Then Dr. Klinedinst referred the case to a general surgeon, who opened up the orbital cavity and removed the inferior orbital ridge. The growth had extended into the antrum, which was opened, making a thorough operation and removing the floor of the orbit. The growth was examined by a skilled microscopist and found to be a round and spindle-celled sarcoma, probably of orbital origin. The patient made an excellent recovery, and there is no evidence of a recurrence of growth.

DR. J. O. McREYNOLDS, Dallas, Texas, said that according to his observations, gliomata of the retina nearly all recur. With regard to melanotic sarcomata of the choroid, as a rule, they do not so frequently occur. In one case the patient died a few years later from metastases in the internal organs. Dr. McReynolds said that in Dr. Würdemann's paper an error was made through oversight on his part in not reporting more accurately the case of the little child. He did operate on the case, but it recurred. It was a primary orbital sarcoma. They are almost certain to recur unless encapsulated. With the epitheliomata and carcinomata, his experience with the x-ray has been more satisfactory than in the cases of sarcomata. He has seen marked improvement with its use in a case that was inoperable.

DR. C. F. CLARK, Columbus, Ohio, asked if, with the x-ray, any one had succeeded in a case of glioma. He had a case some time ago in which the x-ray had no effect whatever, although persisted in. He has had success with it in cases of epithelioma.

DR. H. V. WÜDEMANN said that benign neoplasms may be removed generally without the loss of the eye, but there is sometimes loss of function, paralysis of the recti muscles, or, as in a case of his, optic neuritis. He believes, in contradistinction to Dr. Bull, that all tumors of the orbit that are supposed to be malignant when small should be operated on, and later subjected to the x-ray; benign tumors should be extirpated if they interfere with function. Since the use of the x-ray several cases of sarcoma have been cured without operation. Glioma seems to have been favorably affected by the x-ray in a case of his; the child is still alive, although an exenteration of the orbit was done last July. It stopped the pain and the child has been free from pain since.

POST-OPERATIVE INFECTION OF THE EYE.*

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The subject of infection of the eye following operations that expose the interior of the globe to the possibility of bacterial invasion, such as cataract extractions, needle operations and iridectomies, is one of doubtful interest in these days of modern antiseptic methods, because such an unfortunate result of an operation is regarded askance, as if it could only have happened through neglect of well-established precautions by the operator.

I suppose this accounts for the fact that it is hardly mentioned by our latter-day text-books, it being taken for granted that if these precautions are taken, it is hardly worth the space or time to discuss a bare possibility, as the space is needed for what is more commonly met with. Moreover, when it does occur it is practically regarded as a hopeless affection, not remediable by any known methods of treatment, and this pessimistic aspect of the subject may also account for its practical neglect.

In order to get some idea of the frequency of post-operative infection I wrote a number of letters to prominent ophthalmologists in different parts of the country, because I was not satisfied to base a paper of this kind on my own individual experience. Their replies would seem to confirm the statement above, that it is a rare trouble in these days, although the frequency of it seems to differ in the experience of different operators. Some of them have had no infection in any operation for years past, although one adds that in his early days of practice its occurrence was too often for his peace of mind. Others have had one-half of 1 per cent. based on a large number of operations, and the highest percentage given by any one gentleman was between 3 and 4 per cent., the general average being between 1 and 2 per cent. Going back to old records of cataract extraction twenty-five years or more ago. I find that the percentage of infections after operations was considerably higher, in some instances as high as 10 to 20 per cent., the difference being due, undoubtedly, to modern antiseptic methods.

The text-books of that time and previous years lay great stress on careful watchfulness for the advent of this complication, and warn us to look for an infected flap in from twelve to twenty-four hours after an operation, although they give different causes for it. Some

state that it commences in the iris, some that it comes from conjunctival or lachrymal secretion, while others give constitutional causes for it, but all suggest the same treatment, viz., atropin, hot fomentations and the pressure bandage. Where it was diffuse it was considered hopeless, as it always ended in panophthalmitis. In circumscribed infection of the wound the suggested remedies were supposed to be valuable in arresting its progress.

Over twenty years ago Abadie claimed that post-operative suppuration was always due to infection of the corneal wound by microbes, and was in no way dependent on the patient's condition, nor on the manner of incision, whether with or without a conjunctival flap; that the only way to lessen the frequency of post-operative infection was by thorough antiseptics. From different authors it seems that post-operative trouble may arise from conjunctival, lachrymal or nasal secretions; that the presence of capsule or cortex remnants in the wound, or the exposure of the vitreous from rupture of the hyaloid predisposes to infection; and that people with diabetes, senile marasmus, or septicemia, or with suppurative foci anywhere about the human system, whether ulcers or abscesses about the limbs or body, or aural discharge, were much more liable to infection. Added to this, improper asepsis in the operation, and we would have all possible causes for this serious complication.

In examining the reports of many thousand cataract extractions in the last thirty years, I find a steady decrease of this trouble. For example, in a report of 200 cases in 1877 by one of our best-known ophthalmologists there were twenty-five cases of post-operative infection, of which eighteen had a negative result, 9 per cent. Two years later in 100 extractions there were eight cases of the same trouble with negative results, 8 per cent. Two years later again in another hundred cases we find only two cases, 2 per cent. Still two years later in a hundred cases we find only one case, 1 per cent. Since then this operator and others have recorded a like series with no infection. A report of 1,400 cases between 1868 and 1883 showed about 4 per cent. of post-operative infection, while a series of 1,000 operations between 1891 and 1895 showed less than 1 per cent. of infection.

Taking all the reports I can find since then, running into the thousands, and from correspondence, there has been no improvement over this. No methods have been suggested that exclude entirely this fatal complication, and it seems to remain at about 1 per cent. on the general average. Now, is this steady improvement in barring infection due to the manner of operating or to the method of technic? From the advent of Listerism to the great improvements in what we may call modern operative technic there has been a gradual reduction of suppurative complications in all kinds of surgery; and statistics, unless absolutely valueless, have been given to show the same results in eye surgery.

From Horner's first brilliant results with antiseptics down to to-day, we find by examining thousands of cataract extractions a steady decrease of infection, although even 1 per cent. is too much, considering the uncertainty of the treatment. It is one of those troubles where the old adage that prevention is better than cure certainly applies, because, as far as treatment is concerned, there has practically been no improvement in the last twenty-five years, there being no remedies to-day on which we can place any reliance. It is more than twenty years ago that it was suggested to apply the actual or galvanocautery to the corneal wound as soon as signs of infection

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

presented themselves. In cases of circumscribed infection I must say it has proved its value and in some rare cases of diffuse infiltration it has been claimed that it arrested the process, but I doubt if we have gotten any further in reaching a satisfactory treatment in the last two decades in the attempt to combat this most fatal of post-operative complications.

The experience of those with whom I have corresponded has not lessened this uncertainty. New remedies have been experimented with and new methods of treatment have been tried with uncertain if not barren results. Most ophthalmologists to-day, once infection has set in, regard the case as hopeless; as one of them aptly said, his only remedy was Christian resignation, and I wondered if he had his patients equally well educated in that respect. Cauterization with the actual or galvanocautery, pure carbolic acid, and saturated solutions of nitrate of silver; subconjunctival injections of mercury (the cyanid and bichlorid), injections into the anterior chamber of chlorin water, 25 to 50 per cent. solutions of argyrol, bichlorid 1 to 5,000 and 1 to 1,000, and formalin solutions 1 to 10,000.

In addition to these methods the open treatment of the eye with repeated cleansing with antiseptic washes, bichlorid, boracic acid, formalin and argyrol solutions and with antiseptic salves, such as bichlorid and iodosal. Powdered iodoform seems to be in favor with some writers. Internally, saline purgatives, iodid of potash, salicylate of soda, quinin and calomel in small doses, and mercurial inunctions cover the whole range of treatment. They dilate extensively on these methods of treatment; none of which, in my opinion, have been demonstrated to be satisfactory. I should think that on account of the nature of this process, which is at first an infiltration of the edge of the wound, usually starting in the corner but at once involving the deep layers of the cornea, causing necrosis, that the most rational treatment would be to reopen the wound, fill the anterior chamber with a 50 per cent. solution of argyrol, apply the galvanocautery to the edge of the wound, trusting to prevent the migration of bacteria into the deeper tissues, and treat the case by the open method (Heinemann) with argyrol, sterile washes or antiseptic salves as may appear best to each operator. Some authors do not hesitate to inject into the anterior chamber a 1 to 1,000 solution of bichlorid, just as they inject it into the conjunctiva in these cases. Pflüger, Abadie, Darier, Deutschmann and quite a number of prominent ophthalmologists claim great things for this method. Some consider this solution too strong, because it would probably damage the endothelial layer of the cornea, but it has good authority and wide experience for its use.

But, all things considered, we must place more dependence on prevention than on any curative treatment, and this brings up the question of the most rational methods of asepsis in ophthalmic surgery.

Since Abadie's insistence on thorough antiseptic preparations for the operation to make it as aseptic as possible, many observers and writers have suggested different methods for getting as sterile a field for operative work on the eye as is claimed for operations elsewhere, by neutralizing, as far as practicable, the effect on the wounded eye of the secretions from the conjunctiva, lachrymal sac and nose. Many have claimed and still claim, that it is impossible to sterilize thoroughly the conjunctival sac (Gayet), and in the face of this impossibility limit themselves to the simplest kind of antiseptic, flushing the eye with sterile water, normal salt solu-

tion, solutions of boracic acid, or a weak solution of bichlorid of mercury. Others prepare the patient in advance by some of the suggested methods of sterilizing the conjunctiva, doing what can be done to obtain a sterile field without doing harm to the tissues. They flush out the nose and nasopharynx with a solution of permanganate of potash, 1 to 1,000, or any other antiseptic solution, and clean the eyelids and lashes frequently for several days before the operation, in addition to flushing the eyes with boracic acid, or normal salt solution.

If there is any discharge present from the conjunctiva or lachrymal sac, argyrol seems to be in special favor just now in doing away with this. If there is any oozing from the canaliculus, some operators tie the canaliculus with a suture to prevent the secretion from the sac emptying on the conjunctival surface. If there is any mucocele of the sac, and applications fail to get rid of the secretion, the sac is destroyed.

The whole question of the preparation of the patient by antiseptic measures I find depends altogether on the opinion of the different operators as to the possibility of sterilizing the conjunctival sac, and as to the effects of the chemicals used for that purpose. And here, therefore, it might not be amiss to refer briefly to the conditions that confront us.

It is claimed that the conjunctival sac is rarely, if ever, free from bacteria, that being such a good receptacle for everything that floats in the atmosphere it necessarily has the best chance of collecting foreign material. Moreover, it is rubbed by dirty hands and soiled handkerchiefs and so constantly brought into contact with so many things that might carry infection by the majority of people, that it is an easy matter to introduce foreign matter, and if this is of a deleterious nature, it has the best chance for propagation in its folds and crypts.

Moreover, it is the outlet for any pathogenic organisms in the lachrymal sac or duct, and indirectly through these passages from the nose. It would take up too much time to go into all the different species of bacteria that are found in the conjunctiva, but we know that we have many kinds, both harmful and harmless. Among these, according to different authors, is the pneumococcus of Fraenkel, one of the commonest habitants, and by Gifford supposed to be the cause of catarrhal conjunctivitis. Weeks,¹ however, lays this same trouble at the door of a small rod-shaped bacillus to which he has given his name, and his contention is supported by other investigators, particularly Moran and Beach. It is questionable whether this bacillus is found in the normal conjunctiva. Among other harmful bacteria found are the bacillus coli communis, which Randolph has also found in the pus from a case of panophthalmitis, the staphylococcus pyogenes aureus, the staphylococcus pyogenes albus and the micrococcus pyogenes.

We have, then, a great number of harmless bacteria in the conjunctiva which do not produce pathologic changes, but may under certain conditions produce toxins which aggravate pre-existing trouble. We have also harmful bacteria present in the conjunctiva which do not produce any trouble unless the soil is specially ripe for it. In other words, where the vital resistance is normal, no trouble follows their entrance into the conjunctiva, but any lack of vital resistance will result in inflammatory reaction.

1. Dr. Weeks claims that the pneumococcus is found in a healthy conjunctiva, but requires special surroundings to develop any pathogenic conditions, whereas, his bacillus is not found in a healthy conjunctiva and immediately produces trouble as soon as it is lodged in the eye.

And lastly, we have a third species of bacteria, such as Weeks' bacillus, and gonococcus which produce trouble as soon as lodged on the mucous surface.

Of course, the presence of these bacteria requires important consideration when we are about to do surgical work. Their presence may be perfectly harmless until surgical intervention brings about a new condition of affairs, resulting in harm from previously harmless inhabitants of the conjunctiva. Naturally, if we can remove these possible sources of post-operative trouble from the conjunctiva by any means, mechanical or chemical, we will establish that cleanliness or aseptic condition which all surgeons are constantly striving after.

But can this be done in ophthalmic work? Theoretically the same principles should be applied to eye operations as to any other wound treatment, absolute cleanliness so far as practicable, and if possible, the elimination of the causes of purulent inflammation, viz., pyogenic micro-organisms, irrigation with sterile fluids to remove mechanically bacteria present in the conjunctiva, and the use of an antiseptic application that will destroy germ life without damaging the mucous membrane or lowering the vitality of the tissues.

It is questionable whether we ever succeed in producing strict asepsis, although the presence of pyogenic germs does not always excite suppuration in a wound. The living tissues have a certain resisting power that is frequently stronger than the attacking force, in which case the onslaught fails and we have healing without reaction; if this resistance is lowered sufficiently the attack prevails and we have infection. Hence it is that the conditions existing in different individuals would give different results with the same germicidal agent; it would give a sterile field for operation in some and not in others. Laboratory experiments with the same agent could not represent exactly the action of the chemical on the living tissues, as they are made with the conditions fixed and known, while the conditions of the living tissues can only be imperfectly known and their resistance power, or vital force, absolutely unknown. Even in laboratory experiments observers differ, and therefore give us conflicting reports in regard to the germicides experimented with. Sublimate solutions, 1 to 1,000, 1 to 2,000 and 1 to 3,000, have apparently produced different effects on pus cocci according to different writers, due probably to a difference in the technic of the methods employed, or to the failure to preserve the same temperature.

In ophthalmic practice the strength of the sublimate solution generally employed for irrigating and cleansing the eye is about 1 to 5,000. This is supposed by most writers to kill pus cocci in about three minutes. Some use it stronger, some weaker. Some have discarded bichlorid solutions altogether and use only sterile water, because, they claim, that a solution strong enough to kill pyogenic organisms in the conjunctiva will cause too much irritation of the eye and lower its normal resistance, and that a sterile solution of any kind will answer to cleanse the conjunctiva mechanically, as that is all that can be accomplished.

Now, we all know the difficulty of disinfecting the skin. But we also know that the skin can be disinfected by antiseptic dressings kept in contact long enough to accomplish the result. Why can not the conjunctiva be rendered sterile by the same means? For some years past I have been experimenting along this line. As aqueous solutions could not be kept in contact with the conjunctiva I resorted to vaselin as the menstruum instead

of water, and bichlorid as the chemical. I made an ointment of 1 grain of bichlorid of mercury, 5 grains of chlorid of sodium and 6 ounces of vaselin. The salt is added to prevent albuminoid deposit. The vaselin is boiled. The bichlorid and salt are dissolved in a few minims of water and added to the boiling vaselin. After boiling, the bichlorid vaselin, 1 to 3,000, is put away in jars until used. I find it a good menstruum for atropia, eserine, cocain and other medicaments used in eye affections instead of dissolving them in water. In all cases of discharge from the eye, mucus, mucopurulent or purulent, I find it valuable as a dressing, the conjunctival sac being filled with it as often as needed.

In cataract operations I prepare my patient as follows: The night before a bath and a purgative are given, eyebrow, lids and lashes are cleansed thoroughly by soap and water, followed by a bichlorid solution, 1 to 1,000 and alcohol, the conjunctival sac is thoroughly irrigated with a bichlorid solution, 1 to 10,000, and filled with the bichlorid vaselin. A sterile pad and bandages are then applied to the eye, and it is not opened again until the patient is put on the operating table. The bandage is then removed and the sac irrigated anew with a weak bichlorid solution, 1 to 10,000. The sac, being kept filled with this sterile preparation for twenty-four hours after thorough irrigation, is much more likely to become sterile and remain so than if merely washed out. No organisms can live in this medium, as bacteriologic investigations have proven. The only defect in the technic is that the sterilizing medium is not applied often enough. The eye does not retain a particle or sign of the vaselin in even a few hours after, except that the lid is somewhat greasy. But if the contact for a few hours succeeds in destroying or preventing the development of germ life, there is no chance of infection from without while the eye is kept sealed, although there is always danger of infection from within, if there is any pathologic condition with purulent secretion, or any affection of the lachrymal sac, or a purulent rhinitis.

This method of sterilizing the conjunctiva is on the same principle as the disinfecting of the skin. Laboratory experiments with this same preparation on the skin have proven its efficiency. All germs are destroyed by it in a short time, even the germ of anthrax.

Over 500 cataract extractions have been made at the Eye Infirmary with this method, with but one case of infection of the wound, and that limited to one corner. This occurred on the fifth or sixth day and was due probably to outside infection caused by the patient's carelessness. I mention this apparent clinical demonstration of its value for your consideration. You can decide its value. I would say here that the eye is dressed with the same preparation each time the bandage is removed after operation.

I have never seen any marked or annoying irritation from this application, except once or twice, in hundreds of cases, possibly running into the thousands, and because of this fact I have never been able to understand how others get so much irritation from the use of the bichlorid. I believe that the bichlorid in the salve is absorbed just as the atropia or eserine or cocain is, and that it thereby helps to render the corneal tissue to a certain extent immune against infection. This is a speculation, of course, but why should not the bichlorid be absorbed as readily as the other remedies whose effects prove that they have passed through the cornea?

Dr. Stuart MacLean, professor of bacteriology at the University College of Medicine, examined twelve cases

of cataract before and after the use of this application. These cases were in the hospital. In all twelve, except one, he found bacteria in the sac before the patient was prepared for operation, twenty-four hours after the use of the vaselin, when the eye was opened on the operating table, the cultures taken from the eyes showed no growth in the tubes except in one case where a slight growth developed on the fifth day. The tubes were kept in the incubator from three and one-half to five days.

In eighteen of the cases taken at random from the clinic out-patients to see the effect of the ointment, bacteria were invariably found prior to the application, and only four of them showed growth from the cultures taken twenty-four hours after the application. Three of these four cases were dirty negroes of the lowest type, two of them with phlyctenular keratitis, and one with chronic glaucoma and inflamed conjunctiva with constant secretion. All these showed staphylococcus pyogenes, whether aureus or albus was uncertain by the microscope, as no plate cultures were made.

The other one was a case of capsulotomy in which the cultures showed a number of micro-organisms (possibly saprophytes), which Dr. Hoen, the bacteriologist of the Pasteur Institute of Richmond, said could not be morphologically classified. He reported that the chief organisms found were a very thick, jointed bacillus, varying in length, and as many as five or six in a string (possibly the bacillus mesentericus vulgatus, or the bacillus hirsutus); another very slender bacillus, somewhat resembling the tubercle bacillus; a third, short, thick and nearly oval in shape (possibly the pneumonia bacillus), and the fourth a long, slender, thread-like organism resembling the leptothrix buccalis, which has been found in the lachrymal passages. Clinically the case did well and had no trouble. In this case the presence of the micro-organisms was probably due to a defect in the technic.

The following cases showed no growth after the use of the ointment: Three of phlyctenular keratitis, two of catarrhal conjunctivitis, three of superficial corneal ulcer, one wound of the eye with prolapsed vitreous, one iritis, one capsulotomy, and two of foreign body on the cornea.

In the twelve hospital cases only one showed a growth, but the conjunctiva in all of them was in a normal condition, there being no pathological alteration in the eye apart from the cataract; whereas in the outdoor cases nearly all had some trouble of the conjunctiva either primarily, as in phlyctenular keratitis and catarrhal conjunctivitis, or secondarily as in corneal ulcer, iritis, wounds and so on. Notwithstanding only four in the seventeen showed a growth in the culture taken twenty-four hours after the application, and these the very worst of the whole number.

While I do not consider the number sufficient to draw any definite conclusions, they certainly help to support very strongly the clinical results given above as to the efficiency of the application in sterilizing the conjunctiva. I think, therefore, that this method is worth a trial in our effort to get an aseptic condition in ophthalmic surgery.

DISCUSSION.

DR. S. D. RISLEY, Philadelphia, said that one never feels sure that the most faultless diagnosis is going to result successfully because of the danger from this lack of sterilization of the operative field. He thought it reasonable that the bichlorid of mercury, or any other agent of that kind, placed in the sac in an unctuous medium would have a longer opportunity for effect

than when used in solution. He is convinced that the free use of bichlorid of mercury immediately preceding the operation and then followed with a solution of cocain disturbs the integrity of the epithelium of the cornea and often does harm. For some time he has been avoiding the use of these methods just preceding the operation, and has been using only boracic acid, or sterile salt solution, or water, in preference to bichlorid of mercury. He is always careful to mechanically sterilize the edges of the lids and the openings of the meibomian glands by scrubbing them with a pledget of cotton dipped in boracic acid solution, or salt solution. In suspicious cases, where there has been some disease of the lachrymal sac or nasal passages, he treats the sac or passages with an antiseptic solution, dilating the punctum and washing out the sac with the aid of the lachrymal syringe, and immediately after the operation dusts the inner canthus with iodoform. In cases where, notwithstanding the precautions taken before operation, we find the lids swollen at the first dressing, with possibly a gray membrane formed, he scrubs them with a pledget of cotton dipped in boracic acid solution, or perhaps even with bichlorid, and then applies a weak solution of nitrate of silver (2 to 5 gr. to the ounce) to the edges and every portion of the wound. He has not used any of the modern silver salts on the conjunctiva in these cases. He has injected a weak solution of nitrate of silver into the sac, allowing it to remain there a moment and then washing it out again with salt solution. Only rarely in the last fifteen or twenty years has he had any serious infection of the wound after operation. He believes that infectious processes result often unexpectedly. The operation is attended by many persons, of the condition of whose respiratory passages nothing is known; they cough and spread into the atmosphere around the patient various organisms and these doubtless often settle on the instruments or on the conjunctiva of the patient.

DR. HERMAN KNAPP, New York City, stated with regard to infection following cataract operation, that not everything is infection that looks so. One such condition is that of the exudate sometimes seen in the anterior chamber after extraction. It is seen in syphilitic subjects and in cases of traumatism especially. It differs from a real infection in that the edge of the lid is not swollen. The conjunctiva is swollen and there is this exudate in the anterior chamber, which fills it more or less and which fills often not only the anterior chamber but the vitreous as well. He has seen it occur in cases with gonorrhoea. Recently he saw such a case; it looks exactly like ophthalmia, except that the lids are not swollen. The conjunctiva was swollen and the whole anterior chamber filled with a yellowish-white exudate. He sent the patient into the hospital for treatment. This spongy exudate is sometimes described as gelatinous. It coagulates in the lower part, and in the upper part of the chamber is an area which is perfectly clear. From day to day the exudate grows less and disappears entirely, leaving no trace. It is the same in the vitreous chamber. Actual infection probably comes from the lachrymal sac and to be safe the sac should be extirpated, which can be readily done.

DR. F. C. ARD, Plainfield, N. J., said that he has had two cases this year of the spongy iritis referred to by Dr. Knapp. The first case followed a cataract extraction by the combined method. After the exudation in the anterior chamber was absorbed he found the vitreous filled with floating opacities, and the best vision he could get with a suitable correction was 20/200. The second case was one of injury in the ciliary region caused by a tack. The condition looked very serious, as all these cases do, but in a few days the nature of the case was apparent, and a diagnosis of spongy iritis made. When the spongy material in the anterior chamber was absorbed he found the vitreous filled with a yellowish exudate, and the patient is to-day blind in that eye. His experience in these cases has led him to give a much more guarded prognosis than is given by Dr. Knapp in his article on this subject in Norris and Oliver's System of Diseases of the Eye.

DR. J. A. LIPPINCOTT, Pittsburg, Pa., said that he has used the method described in the paper in every case of cataract extraction since Dr. White suggested it to him several years ago, and he is satisfied of its efficacy. Spraying the nostrils with a

solution of permanganate of potassium is useful, and he still practices that procedure, but it is not absolutely preventive. In his opinion the prophylactic power of the bichlorid ointment is due to its remaining in the lachrymal canals, partially plugging them, and thus presenting a mechanical as well as chemical barrier to the entrance of germs from the nasal passages.

Dr. E. E. HOLT, Portland, Maine, stated that he has had one suppurative in 200 cases. He is still, however, very much in favor of the method and uses it in every case.

Dr. C. R. HOLMES, Cincinnati, said that it was his misfortune, early in his career, to lose a case from an infected tear sac, and that led to his following the method of extirpating the sac and gland. He would refuse to operate where there is a purulent inflammation in the tear sac unless he could extirpate the sac. He has performed this operation in a patient over 80 years old with perfect success. He long ago abandoned the idea of trying to clean the mucous membrane that has not shown any inflammation prior to the operation, as he thinks that this only sets up an irritation that gives a good chance for infection. He does not use anything at all except sterile water, or a saturated solution of boracic acid.

Dr. V. T. CHURCHMAN, Charleston, W. Va., said that since Dr. White spoke to him several years ago about this method of preparing sterilized sublimated vaselin, he has used it in every case on which he has operated since. He had infection in only one case and that subsided promptly on following up the treatment.

Dr. J. L. BORSCH, Philadelphia, said that one point not brought out is the cleansing and sterilization of the lashes prior to operation. He does not believe it is the proper thing to use very strong solutions in sterilizing the conjunctival sac; they seem to make infection more probable. De Wecker simply cleanses and sterilizes the lids and lashes with cyanid of mercury, 1 to 100, then flushes the conjunctival sac with a boracic acid solution and follows this with a douche of sterile distilled water. Dr. Borsch follows this method and finds it entirely satisfactory.

Dr. F. P. LEWIS, Buffalo, N. Y., said that he has had in two cases a suspicion of infection, one from the sac and the other from without. He has wondered, in view of the success of the Cr d  method, that the silver salts have not been more used in these cases. With that idea in mind some years ago he made it a routine practice, in attempting to thoroughly cleanse the eye, to use a solution of 2 or 3 per cent. protargol in the eye just prior to operation. It is non-irritating and Cr d 's experiments have shown that there is certainly a lessened probability of infection in gonorrhoeal ophthalmia. It would seem reasonable, therefore, to suppose that like protective results might be expected in operative cases. Since using it he has had no infections.

Dr. J. A. WHITE said that the actual treatment of the infection itself and how to get rid of it is just as much in the dark as it was before. Each one has his own methods for the prevention of infection. He thinks that in his case the infection came from within, perhaps because he did not investigate the condition of the nose properly before operation. He included cleansing the lashes in the prior cleansing of the eyelids as given in the paper, viz., scrub with 1 to 1,000 bichlorid, and then wash with alcohol before applying the ointment to the eye and lids.

Honest Experts Wanted.—Dr. S. Solis-Cohen read a very interesting paper at the pharmaceutical meeting in the Philadelphia College of Pharmacy, November 15, on "The True Scope of Scientific or So-Called Expert Testimony in Trials Involving Pharmacological Questions." He said that the expert should distort, magnify or minimize nothing, assert as positive nothing doubtful, throw doubt on nothing certain, and say nothing he would not defend before a learned society. He further said the expert's efforts should be bent to elucidate truth and not to score points for either side. The court should restrict examination to matters having actual bearing on the case at trial; but the testimony of the expert should be given only with reference to scientific accuracy, and not with reference to its effect on the verdict.

SEPTIC THROMBOSIS OF THE CAVERNOUS SINUSES.

WITH A REPORT OF THREE CASES.*

E. C. ELLETT, M.D.

MEMPHIS, TENN.

CASE 1.—J. W., white, male, age 15, of good family history and previously healthy; was taken sick Aug. 2, 1898, with pain in and around the right eye. This pain was severe, but I was not able to ascertain if it was accompanied by other local symptoms, or if there was fever. The pain was relieved by acetanilid, but returned next day, and there was then swelling over the brow and fever.

Examination.—These symptoms persisted, and he was brought to Memphis on the fifth day of his illness and was placed in the care of a general practitioner. There was a fluctuating swelling over the frontal region, extending up to the hair and down to the root of the nose. This was incised at its upper border and pus escaped. On the next day an incision was made above the root of the nose for better drainage. On the ninth day of his illness I was asked to see him on account of an involvement of the eyes, especially the left. I found the two openings as described, discharging pus from a common cavity. The eyelids were swollen till the eyes could not be voluntarily opened. A fluctuating swelling was seen at the upper and inner corner of the right orbit, and the left eye showed exophthalmos, with fixation of the ball, edema of the conjunctiva and ulceration of the cornea at its lower margin. The pupils were normal. The skin was of a pale yellow, temperature 103 to 104 degrees, and a small abscess was found over the left parietal region. The pulse was rapid, mind clear. In other words, there was general septic infection, apparently having its origin in the right frontal sinus.

Operation.—Under general anesthesia the abscesses were freely opened, the left frontal sinus opened and found full of pus, the lining thickened, and an opening in the septum between it and the right sinus. The sinuses were cleaned out, thrown into one, and opened freely into the left nostril. Pus was present in the right orbit, none in the left. The operation was done at 11 a. m. and the collections of pus being liberated and provision made for drainage, a hopeful view was taken of the case. We did not recognize the fact that we had to deal with anything more than the accessible foci of suppuration. At 2 p. m. the temperature was 105 degrees, and briefly, all the symptoms grew worse. A general surgeon was called in consultation and could suggest nothing further than repeated exploration of the left orbit for pus, which was never found. Stupor developed and on the fourteenth day of his illness a right hemiplegia appeared. The patient was then comatose, and without further change in the local symptoms except a spread of the corneal ulceration in the left eye, he died on the fifteenth day of his illness. No autopsy was performed.

CASE 2.—N. G., white, male, aged 27, was seen in consultation with Dr. W. T. Michie, through whose kindness I am permitted to report the case, on June 20, 1903. Six days previously he had consulted Dr. Michie for a phlegmonous inflammation of the right ala nasi of two days' duration. It had started as the common furuncle in this situation usually does, but was, when seen by Dr. Michie, so severe and so painful that a general anesthetic was given and a free incision made. On the following day the nose was red and swollen to the root, and both eyelids somewhat swollen. On the next day the symptoms were all worse, with elevation of temperature, swelling of the right eyelids, nose, forehead and right side of the face and neck. In the mouth a right peritonsillar swelling was seen. All the swellings were edematous rather than inflammatory.

Examination.—When I saw him on the eighth day of his illness there was a swelling and redness of the nose and right lid, and slight swelling at the inner angle of the left orbit.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

The peritonsillar swelling persisted, as did the edema of the right side of the face and neck. There was right exophthalmos, the orbit being tense, and conjunctiva edematous (right), but the ball itself was normal, the pupil reacting and motion being unimpaired. Temperature 102.5. He had had several chills. I gave my opinion that a septic thrombus existed in the right cavernous sinus, just beginning to involve the left one, and that the patient would die. I saw him again on the eleventh day of his illness. He was then unconscious, but could be roused to answer questions. Incisions into the peritonsillar swelling had evacuated a quantity of dark blood, but no pus. The temperature was running from 100 to 102.5 degrees, the pulse was rapid and weak, respiration 50. He was restless, tossing from side to side and pulling at the bed-clothes. No signs of consolidation in the lungs could be made out, though there must have been one or more metastatic abscesses. There was double exophthalmos. On the right side the conjunctiva was hemorrhagic, slight dilatation of the pupil, and divergent squint (oculomotor paralysis). The left eye was normal except for edema of the lids and conjunctiva, and a black, dry slough in the center of the upper lid the size of a dime. A similar large area was seen on the bridge of the nose and a large oval bluish spot on the forehead. The edema of the right side of the face and neck was worse. The patient died at 7 o'clock that evening. No autopsy.

CASE 3.—G. W., white, male, aged 27, consulted my associate, Dr. Farrington, on Oct. 2, 1903, with a small pustule at the end of the right nostril. This was gently ruptured, swabbed with bichlorid of mercury and a wash of the same solution given for use at home. The next day the parts were still inflamed and the process was repeated. On the 4th he was seen by his family physician, Dr. Malone, who was at the house to see our patient's child. The nose was still red, swollen and painful, and learning what had been done, Dr. Malone did not give any active treatment, but on the following day, October 5, the symptoms not abating, Dr. Malone made a free incision of the inflamed area under local anesthesia. There was no evidence at this time of any extension beyond the nose, but on the 6th the morning temperature was 102 degrees and the lid of the right eye was swollen. That evening the temperature was 104 degrees and the pain was intense. On the morning of the 7th Dr. Farrington saw him with Dr. Malone and made the diagnosis of septic thrombosis of the right cavernous sinus.

Examination.—The patient was removed to our infirmary, where I saw him at 2 p. m. on this, the fifth day of his illness. The nose was red and swollen, and there were several small superficial pustules at the end. The lid of the right eye and the skin of the forehead were edematous, a phlebitis of the supraorbital veins could easily be made out, the conjunctiva of the right eye was chemotic and swollen and the ball fixed, pupil slightly dilated and vision obscured as by a white mist before the eye. The lids of the left eye were slightly swollen at the inner corner. Temperature 104 degrees, pulse 112, mind clear.

Operation.—Under chloroform the nose was freely incised and some pus escaped. The right orbit was incised, but no pus was found. Six drams of antistreptococci serum was administered, but had no effect and was not repeated. The treatment was symptomatic, and no material change could be suggested by any of several consultants, among them Dr. A. J. Ochsner of Chicago, who was in the city attending a meeting of the Mississippi Valley Medical Association. On the sixth day the conjunctiva of the left eye became edematous, the temperature remaining high and the pulse rapid. That night the patient began to sink rapidly and became delirious, and next morning (seventh day) was weaker, with temperature 105 degrees, cold extremities and active delirium. The right eye was divergent with dilated pupil. Death at noon of the seventh day. No autopsy.

It is a question whether this is the proper place to report cases of this condition, but I do so because these cases were seen by me on account of apparent eye symptoms. Moreover, the disease is rare, and as this rather

large number of cases have fallen under my notice, I venture to relate them for the purpose of calling attention to the condition.

The literature on this subject is not abundant by any means. Dwight and Germain¹ append an extensive bibliography to their report of 4 cases, and were able to find 178 cases, with their 4, making 182. I would refer those interested in the literature to this article. The importance of the condition lies in its great mortality, only 14 of these 182 cases recovering. In septic cases the prognosis is always bad. Since this collection of cases others have been reported by Day,² Lodge³ and Finlay.⁴

Day's patient was a child of 11, suffering with chronic purulent otitis media and mastoiditis, both of the right side. Five days after operation the right eye was swollen, and thirteen days later the left eye was similarly involved. Fluctuations in the temperature seemed to be due to retention of pus in the mastoid wound, and though both cornea ulcerated the child recovered, leaving the hospital at the end of four and one-half months. Largely on account of recovery, Day thinks the thrombi in the cavernous sinuses must have been non-infective and ultimately absorbed. Its association with mastoid disease he regards as a coincidence. The lateral sinus was not involved, though cases have been observed where the infectious process spread from this sinus to the cavernous by way of the superior petrosal.

Lodge's case was a married woman, aged 41. The trouble originated in the left peritonsillar region, spreading to the cavernous sinus of the left side by way of the pterygoid plexus. Pus was found on incision back of the last molar tooth, and later a purulent discharge came from the left nostril. The antrum of Highmore was healthy. Autopsy verified the diagnosis, there being septic thrombi in both cavernous sinuses and pus distributed pretty well over the base. The sphenoidal sinus was full of pus, other accessory sinuses healthy. He thinks there was a primary marasmic thrombus of the pterygoid plexus which became infected from the mouth.

In Finlay's case all the symptoms pointed to mastoid and lateral sinus disease, complicating acute otitis media. On the operating table a swelling under the left superior orbital margin led the operator to diagnose a complicating thrombosis of the cavernous sinus. The lateral sinus was found healthy and the mastoid practically so. Autopsy showed a purulent clot of the cavernous and circular sinuses, extending to the left ophthalmic vein, and pus in the sphenoidal and posterior ethmoidal cells. No symptoms of nasal disease had ever been complained of. Finlay remarks that "one can scarcely seriously contemplate reaching the local lesion through the orbit or by means of a craniectomy."

By far the most lucid and satisfactory exposition of the subject that I have seen is in McEwen's "Progenic Diseases of the Brain and Spinal Cord," and what can be said on the subject in general is excellently said by him.

The cause of this condition, i. e., septic thrombosis of the cavernous sinus, is any infected lesion in the area drained by the ophthalmic vein or its branches. Pustules on the face, nostrils, eyelids, etc., purulent affections of the accessory sinuses, nasal, pharyngeal or

1. Boston Med. and Surg. Jour., May 1, 1902.
2. Annals of Otolaryngology, vol. xi, p. 520.
3. Annals of Otolaryngology, vol. xii, p. 449.
4. Archives of Otolaryngology, vol. xxxii, p. 419.

buccal cavities, facial erysipelas, infected wounds of this region, etc., may be the cause. Here we encounter the first important point, which is the necessity of care and cleanliness in dealing with pustules or other infected lesions of the face. Two of my three cases resulted from lesions which the rhinologist sees almost daily and which most of us have personally experienced.

The symptoms naturally divide themselves into (1) the local and (2) the general. The general symptoms are those of sepsis under any and all circumstances. The local symptoms may, following McEwen's scheme, be divided into (a) those due to venous obstruction, and (b) those due to pressure on the nerves. Venous obstruction causes edema and chemosis of the affected area, viz., the orbit, the skin of the nose, forehead, cheek and sometimes fauces, pharynx and neck. We have seen in Case 2 that necrosis of the skin may ultimately result. The exophthalmos, which is a prominent symptom, is due to engorgement of the tissues of the orbit.

Pressure on the nerves causes characteristic symptoms. The nerves involved are the second, third, fourth, sixth and the ophthalmic division of the fifth. The visual disturbances are usually very marked, due to pressure on the optic nerve and edema of the retina, while the motor disturbances are most pronounced in the parts supplied by the third. We have seen the dilated pupil, divergent squint and ptosis in the cases reported. The ophthalmoscope shows dilated and tortuous retinal veins and edema of the retina. The disturbances due to pressure on the fifth are variable.

A very important and characteristic symptom arises from the fact that while the trouble is unilateral at first, the thrombus soon spreads to the other sinus, and obstruction and other symptoms appear in the areas drained by it. The edema of the lids of the second eye, beginning at the inner canthus, and not due to direct extension, the parts at the root of the nose lying between the eyes being normal, is very characteristic.

The diagnosis must be made from tenonitis, orbital cellulitis and facial erysipelas. If attention is once drawn to the condition under consideration the diagnosis is not difficult, and it is for the purpose of calling your attention to it that I have presented this report.

The prognosis in septic cases is, I believe, uniformly bad. In one of the series reported by Dwight and Germain, operation was performed and they think the results are promising. Hartley demonstrated its feasibility in Knapp's well-known case, but the question is probably one for the general surgeon, and no general surgeon who saw any of these cases entertained the idea of operative treatment. Since the prognosis otherwise is absolutely bad, it seems to me proper that operation should be tried. Other than this the treatment is supporting and symptomatic.

Dwight and Germain stand alone in their advocacy of operation, but it is to be hoped that their encouraging results will lead others to give the matter a trial. There is nothing to lose.

DISCUSSION.

DR. S. D. RISLEY, Philadelphia—I have often been surprised that thrombosis of the cavernous sinus does not occur more frequently. I have a suspicion that it occasionally occurs without being recognized. For many years there has been a recognition of the fact that abscesses about the face were dangerous, probably without recognizing the probability of thrombus of the sinus. A few years ago I saw an aged man who had an abscess of the lachrymal sac on one side. A homeopathic surgeon operated on it. Just what he did I do not know, but in forty-eight hours the patient died with symptoms

of thrombosis of the cavernous sinus. I have seen one case of thrombosis. A small abscess occurred at the superior aspect of the malar bone, becoming evident on a Thursday; on Friday there was severe headache, which increased in severity, and on Saturday there was an edema of the left eyelid, with slight proptosis. On Sunday morning there was edema of both lids, the exophthalmos rapidly increased on both sides and the pain became violent and was rendered worse by cold or hot compresses. In this case 200 Swedish leeches declined to draw blood and artificial leeches had to be used. The abscess proved to be of streptococcal infection. Ether was administered and exploration of the orbit was made, but no pus was found there. On Sunday afternoon, the pain being violent, a hypodermic of morphia was given and the patient was immediately relieved from pain and passed into sleep which ended in profound coma that lasted until death the following Wednesday, five days after the onset of the small abscess on the malar bone. This was situated within the area drained by the cavernous sinus. These cases suggest the importance of consideration of this subject. When we have an infectious process the area of which drains into the cavernous sinus we should be on our guard for thrombosis of the sinus.

DR. L. A. PREFONTAINE, Springfield, Mass.—About six weeks ago I was called to see a young man who three weeks previously suffered from a febrile disease, which was thought at the time to be pneumonia. A week before he had severe pain in the back of the head, in the right thigh and in the right ear. The pain continued and a discharge from the ear began at the end of forty-two hours. Seventy-two hours later I was sent for. He then had a purulent mastoiditis, with a temperature of 103, pulse 120, and some delirium, and more severe general illness than would be accounted for the mastoiditis alone. I operated on the right mastoid and exposed the sinus, which was normal. Five days later there was swelling of both lids and some exophthalmos. Two days later I found him delirious, with temperature 104, pulse 90, and marked bilateral exophthalmos; I made the diagnosis of double cavernous sinus thrombosis. Death followed in two days. No postmortem.

DR. H. S. MILES, Bridgeport, Conn.—I would add one case, which began in a small abscess in the right nostril. It was opened, the pus examined and found to be of staphylococcus origin. The patient became worse, and on the fourth day was unconscious; the lids were swollen and there was some exophthalmos. No pus was found in the orbit. On the fifth day the patient died.

DR. E. C. ELLETT—My only object in presenting this paper is that these cases are apt to be seen by the ophthalmologist, and should be borne in mind. The diagnosis is easy if attention has been called to the trouble.

PRESBYOPIA.

E. J. GARDINER, A.B., M.D.

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CHICAGO.

Not long ago a number of medical men were gathered after luncheon at one of the down-town clubs. They were all about the same age—somewhere between 45 and 50—and were amusing themselves by gently twitting one of the number who was wearing his first glasses for presbyopia. This twitting led to a discussion, brought about by my defense of the wisdom manifested by the victim in wearing glasses for reading. A test was made *in situ* with small print, which revealed that every man present was presbyopic. This was not surprising, but the interesting feature to me was, first the aversion they all had to admit the presence of presbyopia, and then the reasons advanced for not using glasses for its correction. No one, of course, wishes to admit a failure of the faculties. That a perfectly normal change, brought about by a maturing

process in the eye, that is slowly but constantly working in everyone—showing its effects in some individuals at 20—and producing a defect so easy to remedy, should not be remedied is certainly a prejudice as curious as it is widespread. Further, if the necessity to use glasses for reading were necessarily the stamp of old age, we might hesitate to accept this symbol of our infirmities, but the emmetropic, the normal eye, reaches this condition at from 40 to 45, hardly a time of life for a healthy man to number his infirmities. When properly examined, the whole matter presents such a different aspect from that of the infirmities of age that I have thought that a brief résumé of the subject would not be without interest to the practitioner.

An apology is here entered for presuming to take the time of the busy reader with an article elementary in its nature, and in which nothing new is set forth. But it is universally admitted that even the elements of ophthalmology bear so distinctly the stamp of specialty that little attention is paid to them by those who do not expect to treat diseases of the eye, and a teacher's experience in post-graduate work has clearly demonstrated to me that the subject of accommodation is one of those simple things that are frequently taken for granted without distinctly understanding the mechanism thereof.

The process by which the eye adjusts itself to see distinctly objects within its range of vision is called accommodation, and the factors that participate in this act are mainly the ciliary muscle and the lens. The former by contraction, when an object approaches the eye, allows the lens by virtue of its elasticity to assume a more convex form, especially the anterior surface, thereby adding to itself the equivalent of an extra lens, or lens power, thus throwing on the immovable retina a clear-cut image. The distance from the farthest to the nearest point at which an object can be distinctly seen is called the region of accommodation; and the power that enables the eye to adjust itself to objects within this region is called amplitude, or range of accommodation.

Unlike the rest of our faculties, which gradually develop from childhood to maturity, the power of accommodation begins to decrease from our tenth year, and gradually diminishes until at the age of 75 it is abolished. The result of this diminution of power is that the near-point gradually recedes from the eye. At about 40 it reaches a point where objects are distinctly seen by the normal (emmetropic) eye at a distance of 22 centimeters, 9 inches, only by bringing into action the full remaining power of accommodation. The amount of accommodation that an emmetropic requires to see distinctly at this distance is equal to a lens of 4.50 dioptres, hence we say that the accommodation is equal to 4.50 dioptres. At this arbitrary point Professor Donders places the beginning of presbyopia.

The word "presbyopia," from the *πρεσβυς*, old, and *ὄψις*, the eye, is in reality a misnomer. It has been handed down from antiquity when the process of accommodation was unknown, and was based on the fact that the sight for near objects usually fails in old age, and glasses were needed for work. When Donders satisfactorily explained the process of accommodation the word lost its real meaning, for he demonstrated that one individual may become presbyopic at 30, while another may reach the mature age of 80, and not be at all presbyopic. For lack of a better, he retained the word, and unfortunately to it the old association of age infirmity still clings.

The following table, giving the power of accommo-

dation from the age of 10 to 75 is quoted by Landolt from Donders' classical work and rendered into the metric system. I have added the approximate distance in centimeters for the near-point:

Age.	Amplitude of Accommodation.	Near point in centimeters.
10	14.00	7.00
15	12.00	8.00
20	10.00	10.00
25	8.50	11.50
30	7.00	14.00
35	5.50	18.00
40	4.50	22.00
45	3.50	28.50
50	2.50	40.00
55	1.75	56.00
60	1.00	100.00
65	0.75	133.00
70	0.25	400.00
75	0.00	.....

This remarkable and rapid diminution in the accommodation power is due to the rapid loss of elasticity of the lens substance which prevents it from assuming a sufficiently convex form.

In connection with the range of accommodation there is another fact to be considered. Repeated experiments have proved that the smallest angle under which objects are perceived by the retina is one of five minutes. On this basis Professor Snellen made a series of test types, each letter of which at a given distance subtends an angle of five minutes. No. 1, at 12 inches, subtends therefore the same angle as No. 20 at 20 feet, etc. It of course follows that when the eye can no longer focus at 12 inches the inclination is to remove the object farther from the eye, in which case the angle becomes less than five minutes, consequently it can no longer be seen distinctly. The following paragraph printed in diamond type should be read distinctly at 12 inches. A young emmetropic can read it at 8 inches.

The Gallic tribes fell off and sued for peace.

So far the word presbyopia and the popular interpretation of it exactly agree. An individual with normal vision becomes presbyopic at 40 or 45. But the application here ceases. The accommodation power decreases in eyes of all forms by exactly the same amount. Consequently in ametropia the near-point must be differently affected. A couple of examples will make this clear.

A hypermetrope of 4 dioptres, in order to see distinctly objects at a distance, is obliged to use 4 D of accommodation. At 30 years of age he has, according to Donders, 7 D. of accommodation power. Of these 4 D. are used to correct the hypermetropia. Consequently, he has but 3 D. remaining, his near-point is at 33 D.; hence he is presbyopic at 30.

Let us take another case. A myope of 5 D. has his far-point at 20 centimeters (8 inches) from the eye. At 40 this accommodative power is only 4.50 D., but he needs none of it, because his far-point is at 20 centimeters (8 inches), and there is no presbyopia. If his myopia is over 7 D., he will never be presbyopic.

It is, of course, evident from the preceding remarks and examples, that while the range of accommodation decreases equally in all cases, the different forms of error of refraction constitute the main desideratum in its effects on the eye, and consequently the measurements of the static refraction should precede any attempt to correct the presbyopia.

It is foreign to the object of this paper to enter into any details regarding the correction of presbyopia. But one important fact should be borne in mind, viz., that the occupation of the patient, the distance at which his work is held, and the size of the object that he is obliged to see, determine the amount of correction to

be given regardless of age. It would, of course, be absurd to prescribe for a clerk, who works at a desk standing, on books that he can seldom bring closer than 50 centimeters (20 inches), a pair of glasses that would oblige him to have his work at 25 centimeters (10 inches). It would be just as absurd to prescribe for a person working on very minute objects that must be seen under large angles, a pair of glasses that would bring his near-point 50 centimeters (20 inches) because a small object the size of diamond print could not be seen distinctly at that distance.

I am now arrived at the main object of this paper. That there exists a widespread prejudice against wearing glasses is too evident to need proof. That the evil moment is postponed in most cases of advancing presbyopia until the near-point has receded to such a distance from the eye, that it simply becomes a question of splicing the arm or of wearing glasses, is likewise certain. Are there any evil effects caused by this postponement, and if there are, what are they?

It must be admitted that in the majority of cases little or no permanent harm seems to follow this wilful disregard of Nature's demands. This is partially due to the fact that in most instances when the near-point recedes so that small print and objects are not distinctly seen, and a sense of fatigue ensues when the eyes are used, larger print is substituted which can be held at a greater distance; and when necessity compels to read small print, a cursory glance and a guess are accepted as a solution of the problem. But Nature is a strict banker. She soon complains of small balances and rebels against overdrafts. It is seldom that she accepts without protest the use of the full quota of nerve energy, consequently the practitioner should be on his guard for vague headaches, pain in the back of the head, sense of fatigue in the same region, that make their appearance in early middle life, around the age of 40 or even earlier. Headaches that make their appearance toward the middle or latter part of the week with no asthenopic symptoms, after Sunday's rest, in people engaged in a business requiring the constant use of the eyes at close range, should arouse suspicions; they are frequently caused by advancing presbyopia.

While it has been admitted that in the majority of cases slight damage seems to result from the neglect of presbyopia, the fact should not be lost sight of that uncorrected errors of refraction are a fruitful source of eye diseases, and there can be little doubt that directly or indirectly they exert an influence on the nutrition of the lens. The efforts to accommodate even in uncomplicated presbyopia, while not so continuous as are the efforts in errors of refraction, nevertheless are productive of the strained condition, and coming at a time of life which predisposes to such diseases as glaucoma, cataract, etc., should not be overlooked as possible factors in their etiology. The preponderance of cataract patients, seen in the clinic over those seen in office practice, may be partially accounted for in this way: The former being culled from the poor and ignorant, who pay little attention to their eye defects, and the latter from wealthier better educated people who give their eyes more thought and attention.

Another practical point, and one that I think is more important than the former, is the question of efficiency. Here the prejudice against glasses and the inference that the use of glasses implies failure of sight, has reached the point where a workman, especially in skilled labor, does not dare to use glasses at his work, because he fears discharge, based on inefficiency. Con-

sequently he bungles along, not seeing distinctly what he does, to the great detriment of his work. Could there be anything more absurd? Not long since I had occasion to watch a carpenter at work putting a lock in the door. He could not see the slot in the screw heads, and bungled and scratched the lock until the screwdriver fell into the slot. He was a man of 50. My reading glasses were a revelation to him. "They are fine," said he, "but I don't use them at my work. They would discharge me." The application does not cease here. It is unquestionable that good eyesight greatly enhances the efficiency of everyone who has to use his eyes in close work. It follows that lack of good eyesight impairs the efficiency. Let us look at this matter by the light of Donders' table. With the exception of myopic eyes, at about 40, objects begin to blur at a distance of 12 inches from the eye. At 45, objects small enough to subtend only at an angle of five minutes only (diamond print) are not distinctly seen. Are individuals who are called on to work on small objects justified in attempting to do so without proper glass correction? I should very much dislike to be forced into having any operation performed on my eye by an oculist of over 40 years of age, whom I knew not to be myopic, who did not wear glasses for close work. Can a dentist of the same age see the details of his work, often done in minute cavities and with rather poor illumination? Are there not parts of the field of operation in general surgery where objects are found that come under angles not to exceed a five-minute limit?

These are important practical questions. The only way to overcome the difficulty is to use properly adjusted glasses for close work, and the only obstacle in the way of adopting the remedy is a prejudice based on either vanity or ignorance.

36 Washington Street.

DENGUE IN THE ISTHMIAN CANAL ZONE.

A PRELIMINARY REPORT.

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To the average North American physician, unless he be located in Mexico or in one of the extreme southern states, "breakbone fever" is so rare a disease that a case of it would probably pass unrecognized. The practitioner in the tropics, however, usually receives an early introduction to the affection and the acquaintance becomes in time an intimate one.

Persons who have previously resided in a cold or temperate climate appear to be especially susceptible to the infection, and it is for this reason that it is so prevalent among fresh drafts of men sent into warmer climates for duty.

It is not my intention to take up a general discussion of the disease here, such information being readily obtainable from any standard work on tropical medicine. The type usually encountered in Central America, however, I am informed by competent authorities, differs so much from the affection which is found in the far East, or even in Cuba, that it is only by a close and prolonged study of cases that the two classes may be identified as representing one and the same disease.

The "dandy fever" of the isthmus, while simulating the typical clinical picture in various respects, differs from it greatly in others. For example, in many instances there is a total absence of the erythematous condition constituting the so-called primary eruption. In

others the face, instead of assuming the characteristic bloated and congested appearance, is excessively pale, the sclera of the eyes being bluish in color, with absolutely no enlargement of the capillary vessels. A hyperemic or catarrhal condition of the pharyngeal mucous membrane is not present in a large percentage of patients. One point particularly noticeable in these instances is the presence of, or predisposition to, intestinal diarrhea. Jaundice is extremely rare. Only twice have I seen that significant discrepancy between temperature and pulse which is considered almost pathognomonic of yellow fever. Joint pains have been prominent in but one case, although a continuous, severe pain in the back is almost invariably present. A dull, throbbing, frontal headache is an extremely frequent symptom. The clinical picture presented strongly reminds one of an attack of influenza in a rather plethoric subject.

Arterial pressure is high, averaging, in the first stage, about 180 mm. of mercury (Riva-Rocci), and gradually returning to normal as the temperature and pulse come down.

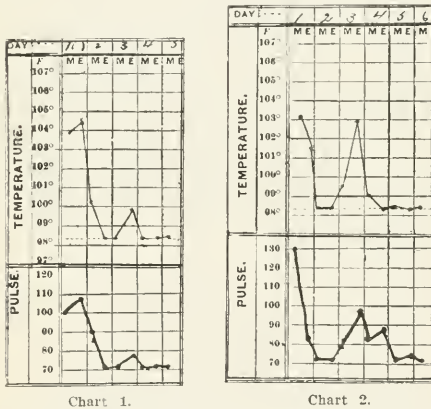


Chart 1.

Chart 2.

Chart 1.—One of several charts in which the secondary rise was almost or totally absent.

Chart 2.—A typical dengue chart. Case admitted at height of primary fever.

During the second exacerbation, the vascular tension does not follow the temperature curve so closely, but remains somewhat lower, comparatively speaking. The period of defervescence after the primary fever is short, from twenty-four to fifty hours, and leaves the patient in a weakened but fairly comfortable condition.

Often there is no secondary rise, but one can never feel absolutely positive, unless the beginning eosinophilia ushering in convalescence is recognized, that the patient was not just at the end of a light initial stage when he first came under observation.

The terminal fever comes on about the fourth day more frequently than at any other time, and, in the greater number of cases, the temperature reaches a point fully as high, if not higher, than at the onset.

The terminal eruption has been typical in only about 1 per cent. of the cases and is usually totally absent.

Of the sequelae none have proved to be more stubborn or difficult to combat than the neuralgic affections of the sciatic nerves. Experience has shown that the only hope of cure in these cases is removal to a cold climate,

the earlier the better. When this is done the sciatica is much more amenable to treatment than when it has occurred primarily in the North.

Adenitis has been met frequently, in fact it is a question whether the so-called "idiopathic" tropical bubo is not often dependent on an initial attack of dengue for its causation.

The blood destruction is comparatively slight, probably because of the brevity of the fever, and the hemoglobin index is more often 1+ than otherwise.

The results, in detail, of the blood and urine examinations, together with a report on experimental inoculation by mosquitoes, will be embodied in a future paper; the data has not yet been sifted down and arranged for publication.

In every instance a careful and prolonged search is made on three successive days immediately following admission for the plasmodium of malaria. Stained (Wright) specimens only are employed. From quite an extensive experience it has been found that this method is the quickest, simplest and most accurate, allowing, as it does, a differential leucocytic count to be made from the same slide.

Cigarette paper and needle smears have given the best satisfaction, and a large drop is used in order to get a working area of good size, thus simplifying and rendering more certain the search for malarial organisms.

In the cases where an undoubted diagnosis of dengue is made, quinin in heroic doses, either hypodermically or by the mouth, has had absolutely no effect on the course of the disease.

Phenacetin and like antipyretics affect the temperature curve but little. Their use, however, combined with external complications of cold, affords great comfort to the patient.

The severe supraorbital headache, due, for the most part, to ocular congestion, is more readily relieved by an ice bag over the upper face and forehead than by the administration of analgesics.

In my opinion, the essential symptoms, in the order of their value, are: 1. Sudden onset. 2. Severe and continuous supraorbital headache. 3. Deep congestion of face and neck. 4. Backache and pain of an excruciating character in the loins.

An exhaustive blood examination, preferably by the aid of reliable stains, should always be made in order to partially check the possibility of pernicious malaria.

In uncomplicated dengue the mortality is practically nil. In a series of considerably over one hundred cases I have not seen a single one in which a serious symptom at any time became manifest.

One attack undoubtedly has some immunizing effect, although some of our men have suffered from it twice within a period of a few weeks. Adult natives seldom contract the disease, while it is seen frequently among the children. Newcomers, especially if from our northern countries, seldom escape.

There is good reason to believe that dengue was formerly a much more serious affection in this region than it is now. French physicians in the city of Panama, who have practiced on the isthmus for many years, claim that the disease is identical with the "Chagres fever," which was looked on by the ignorant natives with such superstitious dread. Its mortality was placed at 50 per cent., in reality it was probably much lower.

Dengue has already played an important part in increasing the ratio of sick days among the men stationed in our most recently acquired territory, and, although

the hygienic measures now being brought to bear on the canal zone will be of almost inestimable value in stamping it out, we may expect to hear of this disease much more frequently in the future than we have in the past.

New Appliance.

APPARATUS FOR HANDLING COMATOSE PATIENTS.

CHARLES S. WHITE, M.D.
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WASHINGTON, D. C.

In every hospital doing emergency work the problem of moving unconscious patients through dark, narrow halls and down flights of uncertain stairs confronts the surgeon almost



Orderly using sling.

daily, and to facilitate the handling of such cases I have had made a simple belt or sling.

This is made of heavy canvas, 30 inches long and 10 inches wide. Each extremity is sewed securely about an iron rod three-eighths of an inch in diameter. The iron pieces have their ends bent squarely in a rectangular form, leaving sufficient space to fasten leather straps 11 inches long, each pair of which join at a metal ring about 2 inches in diameter. The sling is completed by a strap riveted in one ring, a buckle in the center, and connected with the other ring by a snaffle.

The illustration shows the manner of using it. By rolling a patient first to one side, then to the other, it is placed under him, the strap thrown over the shoulder and snapped, the whole process requiring less than a minute. If the patient is unusually large the sling can be adjusted by the strap which goes over the shoulder. One arm is slipped under the patient's neck, the other under the knees.

The chief use of this apparatus is in moving comatose cases in crowded dwellings, and this latter term includes some modern apartment houses. The advantages are:

1. The weight is properly distributed on the person carrying the load; much of it is placed on the muscles of the back, where it belongs.

2. One person can do the work usually required of two or more.

3. It may be applied quickly.

4. The cost is trifling and it is simple in construction. We have used this sling for several months and find it indispensable. The ambulance driver has carried patients weighing 170 pounds or more from the second and third floors with less exertion, he says, than in the usual manner with the assistance of another person.

A STUDY OF EIGHTEEN CONSECUTIVE CASES OF WHOOPING COUGH TREATED BY THE ELASTIC ABDOMINAL BELT.

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NEW YORK CITY.

The article with the above title appeared in THE JOURNAL, Dec. 10, 1904, page 1749, without Figures 1 and 2. This omission was due to an oversight and these two illustrations of the belt as applied in whooping cough are shown here. The method of application was described in the article.



Fig. 1.—Stockinette Band.

Fig. 2.—Elastic Abdominal Band.

Sanatoria in Germany.—The annual meeting of those officially interested in the sanatorium movement in Germany was held at Berlin, May 20, in the main hall of the parliament buildings. It was announced that there are at present 69 sanatoria, with 5,800 beds, for working people insured against sickness. In addition, there are 25 private sanatoria which receive these patients. Nine more are in process of construction and a number are projected. To date, 30 millions of marks, or about \$7,500,000, have been spent for sanatoria for pulmonary affections. The central committee has spent about \$300,000 for the same purpose. It was proclaimed that the antituberculosis dispensaries, with medical and hygienic supervision of the patients at their homes, are as important as the sanatoria in the campaign against the disease, but they must act in co-ordination with other institutions, sanatoria, etc. Berlin is planning a system of such dispensaries throughout the city, all under one management, with special attention to tuberculous children. Funds have already been partly provided for this purpose by the departmental sickness insurance company. It was explicitly stated that these specialist dispensaries must not be connected with a polyclinic nor encroach on the sphere of the physician in any way. Wolff described how the polyclinics are already doing work that could be transferred to a special dispensary to the advantage of all. A school sanatorium is projected by the Charlottenburg city authorities, to be open all the year.

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TRANSPLANTATION OF TUMORS.

After so many years of painstaking but fruitless studies of tumors by the ordinary microscopic methods, there seems little hope of discovering their specific cause in this way, and we must look for future progress chiefly along other lines of research. What line of research will be successful is the interesting question. Will it be one that is still unemployed, or is it perhaps among those newly brought to light? The recently developed methods of observation of bodies hitherto classed as "ultramicroscopic" seem rich in possibilities, for they represent simply an extension of methods, now familiar, which have been employed with success in solving so many problems. It has long been thought that in diseases apparently infectious, in which bacteria and protozoa could not be seen, the difficulty lay in the limit of magnification possible for our microscopes. The investigators who hold to the animal parasite etiology will hope for progress through development of the methods devised in the Ann Arbor laboratories, for the growth of trypanosomes on artificial media. But it is probably a long step from the cultivation of the hardy rat trypanosome to the isolation of so elusive an organism as the hypothetical cancer parasite.

In the meantime, a fruitful field of research seems to lie in the study of tumors inoculated from one animal to another for several generations. Here the principles involved are such as have been employed in bacteriology, the chief difference being that living animals are employed instead of test tubes for the inoculations and transplantations. Among the most successful of these experiments are those of Leo Loeb, working with a sarcoma of the white rat, and Jensen, who transplanted a carcinoma for many generations in mice. This last series is of particular importance, for, in general, experiments with sarcoma have been more successful than carcinoma, and the close resemblance of sarcoma and granulation tissue leaves always some room for argument. A valuable series of successful transplantations of sarcoma in the dog has recently been reported from Ehrlich's laboratory by Stricker.¹ The original tumor was a round-cell sarcoma, primary on the penis of a 7-year-old dog, and it was transplanted successfully to thirty-one other dogs, and passed through several generations. The development of metastases in several of

the inoculated dogs, as well as other features of its growth, leave no question regarding the sarcomatous nature of the tumor. Age or race of the dogs seemed to have no influence in the success of the transplantations. The latent period between the time of inoculation and the development of a demonstrable tumor was usually about three weeks, while death occurred in from three to five months. One of the most suggestive results obtained was that dogs that had once been successfully inoculated with the tumor later showed themselves immune to further inoculation, and Stricker promises further experiments on this important subject. So far, these experiments, like others of the same nature, have failed to show any results that are positively for or against the parasitic theory. Stricker found that he could get successful transplantations with tumor cells kept twenty-four hours at 13 C., or for two hours at 50 C. Jensen found in his experiments that exposures at -10 C. and +46 C. did not prevent successful inoculations; higher and lower temperatures were found detrimental. As it has been found that testicular and salivary gland cells of rabbits will withstand similar temperatures without losing their vitality, the conclusion might be reached that all successful transplantation tumors are the result of the growth of the implanted cells. On the other hand, it is equally possible that the cancer parasites, if such there be, have powers of resistance quite similar to the cells in which they grow.

The possibilities of securing successful transplantations of tumors are not great. Stricker made seventy-nine inoculations of sixteen malignant and of six benign tumors from dog to dog, and six inoculations of two malignant tumors from cat to cat, without success. Inoculations of tumors from one species of animals to another by different experimenters have been fruitless, although the literature contains some questionable reports of inoculation of malignant tumors from man into animals.

An interesting experience of Vischer² may explain some of these supposedly positive results. He inoculated fragments of melanosarcoma into animals, and after a time observed what seemed to be pigmented tumors growing in the animals. These tumors, however, did not progress and kill the animals as would true malignant growths. Microscopic examination showed what might readily be mistaken by the inexpert for pigmented sarcoma, but which was really granulation tissue growing among pigment granules left from the original inoculated material. The sarcoma cells had all been absorbed, but the pigment was insoluble, and, acting as a foreign body, led to proliferation of the connective tissue. What seemed to fully establish the success of the experiment, an apparent secondary growth in a regional gland, turned out to be a gland that had received considerable of the pigment by way

1. Zeitschr. für Krebsforschung, 1904, vol. i, p. 413.

2. Beitr. zur Klin. Chir., 1904, xlii, 617.

of the lymphatics, and, as a result, had reacted by proliferation. Similar appearances were afterward produced by the injection of pigment particles into experimental animals. In the light of this experience Vischer has reviewed the literature critically, and comes to the conclusion that there is no certain instance of successful transplantation of sarcoma from man to animals, any more than there is of carcinoma.

ACCURACY IN MEDICAL WORK.

In a recent address Cabot¹ expresses the opinion that the use of exact methods in diagnosis, the use of instruments of precision, and the keeping of full and accurate records, will in future times be regarded as the most striking characteristics of the progress of medicine in the last fifty years. In other words, the tendencies in the medicine of to-day are all in favor of more accurate methods. As a result of these tendencies, certain changes have occurred, according to Cabot, both in medicine and in the physician. In medicine exact methods have led to the abandonment of many of the loosely applied terms which uneducated men have so long used as a cloak to ignorance. The gradual disuse of the term "diathesis" to describe certain obscure symptoms, the disappearance of the word "bilious" from our vocabulary, the absence from modern diagnoses of such diseases as congestion of the brain or liver, and the reclassification of the multitudinous affections formerly grouped under the general head of rheumatism, have all been due to modern methods. As a result of this vigorous pruning in the field of medical terms and of the careful reclassification which many great groups of diseases have undergone, the dividing line between knowledge and ignorance has been sharpened, and we are able to see much more clearly where our future work must be concentrated.

Cabot seems to think that one of the most valuable results has been the building up in us of habits of mind which are distinctly antagonistic to habits of deception. He describes the hazy condition of mind of the physician who has made an inaccurate or slovenly observation, and suggests that such an individual falls into the habit of drawing on sources other than facts, in order to clear away the haze, when he comes to state his results. The habit of accurate observation, on the other hand, says Cabot, teaches us to lean on fact, to analyze and deduce from fact, and to avoid embellishment and unwarranted assertion. We may charitably call attention to the fact that in a man of careless habits of thinking, this may be such a gradual self-deception as not to involve any moral turpitude—save for the "sin of ignorance," as it has been called. In other cases, it is lying for the physician to give expression to such inaccuracy. Whether or not we agree with Dr. Cabot's explanation of the development of lying or truth-telling tendencies, we must deplore any deception.

whether the physician himself be a fellow-victim of his ignorance or his patient be the dupe of his deceit. We are not here discussing the withholding from patients of facts that would be harmful. This is to be done tactfully and without false statements, as Cabot has elsewhere pointed out.

The effect of accurate methods on the physician has not been one of unalloyed benefit. Of the unfavorable results of the accurate methods, perhaps the most prominent one is the tendency to use instruments of precision in place of a brain instead of in conjunction with a brain. As Cabot truly says, it is the brain behind the instrument which is the achieving force. Again, it must be pointed out that accuracy is only a relative term, and that there is a limit of error both in the instrument and in the observer. Furthermore, accuracy is relative not only to the limitations of the instrument employed, but also and chiefly to the purpose desired. We can not be accurate in everything; we must be accurate somewhere, and the wise physician is he who knows when and where to be accurate, and when and where to get along without accuracy.

There is a tendency to separate the laboratory man from the clinical man, which is to be deplored. The most complete view of a case is one including a consideration of both the purely clinical and the laboratory facts, and if these two sets of facts are to be interpreted by two distinct men the interpretation is much more apt to be faulty than if the same man does both the clinical and laboratory work. This view is a rational one and its practical realization is perfectly feasible. The modern tendency to distinguish between laboratory and clinical diagnosis is certainly detrimental to the best interests of the patient, and, as in the end this is a point to be considered, it should be the aim not only to train the student to do his own clinical laboratory work, but also to impress on him the necessity of becoming proficient enough in it to be able to intelligently interpret the laboratory findings in his own cases.

PROGRESS IN THE CHEMISTRY OF THE ALBUMINS.

Through a long series of researches it has now been definitely established that the complex molecules of the various albumins consist of long chains of interlinked simpler molecules of the amino-acid type. Systematic degradation by chemical or physiologic methods breaks up the complex molecule into its ultimate fragments; the number and character of the fragments in the various albumins are rapidly becoming known to us. On comparing individual albumins marked differences in ultimate constitution are found; the albumin of muscle is different from that in milk, while both of these are in turn different from that obtained from maize. The holding, for example, in arginin, one of the fragments most widely distributed in the molecules of various albumins, may vary enormously, for while some albumins may contain as much as 83 per cent. of arginin,

1. California State Journal of Medicine, December, 1904.

others may contain only 40 per cent., others only 20 per cent., and still others as little as 1.8 per cent.; even albumins from the same muscle may vary in their arginin content. One mode of difference among the albumins consists in inequalities in the variety of the ultimate fragments of which they consist; thus, while the molecule of ordinary serum albumin contains no less than seventeen or eighteen varieties of elementary fragments (amino-acids), the molecules of the relatively simple protamins contain only four or five such varieties. On the other hand, the more complex proteids like the nucleoproteids, the mucins and hemoglobin contain, besides a highly complex albumin molecule, other bodies like the phosphorus-holding nucleic acid, the sulphur-containing chondroitin or the iron-bearing hemin.

The simple group of albumins known as the protamins, discovered by Miescher in the testicles of fish, have been studied most thoroughly by Kossel and his pupils with surprisingly interesting results. It is easier with such simple bodies than with more complex ones to determine the nature of the groups entering into the constitution of the molecule, to ascertain the mode of union of these groups with one another, to estimate the relative amounts of each present, and to draw conclusions as to the positions they occupy in the chain which represents the whole molecule. Thus salmin, derived from salmon sperm, has been shown to consist of only five varieties of constituent fragments, namely, urea, diamino-valerianic acid, serin, mono-amino-valerianic acid and prolin, there being about ten molecules of the first variety of fragment, ten of the second, two of the third, one of the fourth and two of the fifth in each molecule of salmin. Clupein, from the herring, is a little more complex, containing still another amino-acid, namely, alanin, while scombrin from the mackerel is simpler, containing only four varieties of constituent fragments—urea, diamino-valerianic acid, alanin and prolin. The urea and diamino-valerianic acid in these molecules lie adjacent to one another in the chains; indeed, they are regarded as being united to form a higher unit, which is no other than arginin. All the protamins are rich in their holding in diamino-acids (hexone bases), and this accounts for the strongly basic properties which they manifest.

The ordinary albumins, such as serum albumin and serum globulin, differ from these simpler protamins, chiefly in that they contain, in the first place, a much greater variety of ultimate constituent fragments, and, in the second place, a very great number of the less basic mono-amino-acids. As has been pointed out, the protamins contain mono-amino-acids, singly or in pairs; the ordinary albumins contain often ten or more different mono-amino-acids, and not only those of the monobasic series, but often also dibasic amino-acids, like aspartic acid and glutaminic acid. Moreover, the carbon atoms of these constituent amino-acids may be

arranged as straight chains, or the chains may be branched; the groupings met with may belong to the fatty-acid series, or they may be aromatic bodies containing closed rings; not infrequently a heterocyclic group is encountered, as in prolin and in histidin.

This richness in form presented by the different albumin bodies is undoubtedly of great importance in connection with the different parts they play in metabolism. Normal physiology begins to assume a new aspect in the light of these new facts, and it is reasonable to suppose that pathology will ultimately be correspondingly benefited. Indeed, already advances in pathology are being made along these lines. We called attention in a recent issue to Neuberger's demonstration that in amyloid disease the new substance is formed by a transformation of albumin through which its holding in diamino groups is increased. Kossel and Wakeman have shown that in liver necrosis there is an abnormal partial decomposition of proteids as a result of which the liver becomes poorer in bodies rich in nitrogen, especially in arginin. Further, in diseases in which abnormal proteolysis occurs, certain of the constituent amino-acids may be given out in the urine; thus Ignatowski has demonstrated the presence of glycocoll (amino-acetic acid) in the urine of gouty patients, and other investigators (Abderhalden and Barker) have isolated from the urine of dogs poisoned by phosphorus no less than four such amino-acids, namely, glycocoll, leucin, tyrosin and phenylalanin.

The studies made of tumors and rapidly growing young tissues rich in nuclei have shown further the heaping up in them of certain richly nitrogenous organic bodies—combinations of phosphoric acid with the purin bases (xanthin, guanin, hypoxanthin and adenin), and such pyrimidin derivatives as uracil, thymin and cytosin. In the nucleins we have to deal, as Kossel has emphasized, with organic molecules which contain chains of atoms in which there is a tendency for nitrogen and carbon atoms to alternate with one another. It is not impossible that such an intramolecular arrangement stands in some important relation to the mechanisms of growth.

The various analytical studies outlined above have been happily supplemented by synthetic researches. Emil Fischer of Berlin and Curtius of Heidelberg are already far on the way toward the synthesis of the albumin bodies. Not only have nearly all the constituent fragments of the albumin molecule been synthesized, but it has already been possible to unite two, three or more of these amino-acids artificially into chains—the so-called dipeptides, tripeptides and other polypeptides. A chain of eight amino-acids, an octopeptide, has even been obtained by Curtius, at least in the form of its ester. These polypeptides behave in many ways like natural bodies, are split similarly to the albumins by digestive ferments, and, indeed, may be regarded as very simple albuminous substances.

THE PROGRESS OF ORGANIZATION.

The rapidity with which the state societies all over the country have accepted the recommendation of the American Medical Association and have adopted a uniform plan of organization is both remarkable and pleasing. The most hopeful did not dream that so much could be accomplished in four years, and that in less than this time three-fourths of the state societies would have been reorganized and would be working under the same plan. Four, Alabama, Connecticut, Massachusetts and Pennsylvania, already had the essential features of the new plan in their organic law, so that these may be considered as part of the great body working under a uniform plan as though they had adopted all the non-essentials. Aside from the above—and New York—the only states that have not finally acted on the matter are Georgia, Idaho, Maine, Montana, Nevada and Wyoming. These will probably take final action at the next annual meeting, and as there is practically no opposition in any of these states, we may confidently hope that at the next annual session of the American Medical Association, all but one state will have adopted the essentials to uniformity of organization. The only state that has refused to reorganize is Virginia, but the members of that association will reconsider when they realize the great advantage to the physicians of the whole state—not necessarily to the members of the state society—of the county society plan.

While all this has been accomplished, it simply means that the frame-work for the structure is complete and that the important work of finishing the structure is yet to be done. In some states, steady and efficient work has been going on since they were reorganized, and in some it may be said that practically every county has a society, and that consequently there is brought within the reach of every country practitioner a chance to join the organization and to obtain all its benefits, without sacrificing time and money to go to some distant place of meeting. In other states, especially in those that were only organized last year, little has been done in this line thus far, although in no state can it be said that something is not being accomplished. The great trouble is that this work is voluntary, and volunteers, men who are willing to sacrifice themselves for the good of their profession, have not come forward; but there are such men in every state, and in nearly every county, and when their attention is called to the need for their services they will be found ready to volunteer. The principal trouble to-day is that the great majority of the members of the profession do not realize what is being accomplished in this work and what are the possibilities for the future: how to reach these men and how to get them to take hold is a problem of the day. We hope that these words may be read by many such, and that they will take up the task. Meanwhile, the work being accomplished by Dr. J. N. McCormack is bearing fruit, for as he goes to various sections of the different states, he reports that men are

being found everywhere who give evidence of interest in the work and of being anxious to co-operate, who before this had given no thought to the matter, and, in fact, in many instances, knew nothing about what was being done.

In the meantime, while the work of organization is going on in some parts of the country, in other parts, where organization is more or less complete, the fruits of such an organization are to be seen. In other words, good work is being done, not only from a scientific but from a utilitarian point of view.

MORE CASES OF POISONING FROM WOOD ALCOHOL.

During the mobilization of the Russian troops at Dorpat this summer, a number of men and women celebrated the occasion by partaking of a local beverage known as Kuntzen's balsam. This is made from alcohol, water, peppermint leaves, salvia, lavender, etc., and, like our Jamaica ginger, is much affected by the Livonians as an internal remedy. Like it, also, this balsam is employed as a beverage when other alcoholic drinks are not readily obtainable. On this occasion, however, just as in the Stryker's farm holocaust, the drink was mixed not with ethyl but with methyl alcohol, probably of the "deodorized" variety, so well known in the United States under the name "Columbian spirits." Of the participants in the Dorpat debauch, sixteen men and one woman died and three men became blind.

A more recent Associated Press dispatch reports from Kiew the death of twenty people (about the same number as in New York) from drinking methylated brandy. Now that this adulterant of alcoholic mixtures is becoming popular in Russia, we may confidently expect the same experience this country is passing through—the substitution of a deadly poison for grain alcohol in the manufacture of our flavoring extracts, essences, drugs, beverages, perfumes, liniments and other mixtures.

In spite of the widespread use in Russia of methylated mixtures for making varnishes, for burning in spirit lamps, and for other manufacturing and household purposes, not a single case of death or of blindness occurred from their internal use until 1904. Thus we have to this date, in Russia alone, at least thirty-seven cases recorded, and there are probably many others. The reason, as shown conclusively by the Buller and Wood¹ articles, is evident. The introduction into Russia and the general employment of "purified" or odorless wood alcohol is a comparatively recent event. Previous to this year, the wood alcohol in common use was the ordinary article, of a vile odor and decidedly repugnant to the taste; it was not in use as an adulterant because its presence could easily be detected, nor as a beverage because no one had the hardihood to drink it, even when disguised with fra-

1. Poisoning by Wood Alcohol. THE JOURNAL Oct. 129, 1904.

grant oils. Now, to quote the circular descriptive of "eagle spirits" and "lion d'or," two of the many names under which "deodorized" methyl alcohol poisons the people of this country, "they are in every respect genuine substitutes for grain alcohol for all purposes connected with the arts and manufactures."

At present before Congress is a bill (H. R. 9303), introduced by Mr. Boutell of Illinois, to provide for the reduction of the tax on grain alcohol to a point where it can compete with the untaxed "higher grades" of odorless wood alcohol. Another bill (H. R. 9302) will, if it carries, "free from tax alcohol made unfit for use as a beverage." Such a provision is active in Germany, where sixty millions of proof gallons are annually used for industrial purposes, against five millions in the United States. These bills ought to have the support of the medical profession, not only because they would enormously stimulate the manufacture of an agent that can be used for a hundred good purposes at present rendered impossible by the high tax, but because they will effectually prevent the poisoning constantly going on in this country.

THE SERUM-TREATMENT OF TYPHOID FEVER.

At the Seventh French Medical Congress recently held at Paris Professor Chantemesse¹ reported the results obtained during three and one half years in the treatment of 545 cases of typhoid fever with serum obtained from a horse rendered immune by injections of soluble typhoid toxin. There were among these cases 22 deaths (4 per cent.), while in the hospitals of Paris generally there were among 3,199 cases from April 1, 1901, to Oct. 1, 1904, 581 deaths (18 per cent.) It was found that intestinal perforation was not diminished as a result of serum-treatment to the same extent as were other causes of fatal termination. As the intestinal lesions are the initial alterations, it is important to inject the serum early. Perforation of the bowel was observed in no case treated with serum during the first week of the disease. Cold baths are given when the temperature is high.

GOOD INTERPRETATION OF LAW IN IOWA.

The Iowa legislators who framed the medical-practice law of that state obviously intended it to guard the public against unqualified persons who might profess to heal disease. This intent seems to have been grasped by the Supreme Court of Iowa in two recent decisions. In one case the irregular practitioner was apparently an eye specialist, prescribing spectacles, exercise and diet, while the other was a magnetic healer, claiming to cure practically all human ailments, but especially cancer. The defendants had been acquitted by the lower courts on the misconceived ground that, as they gave no medicine or drugs, they, therefore, did not need to take out a license under the state law. The Supreme Court reversed these acquittals, and holds that the defendants violated the law. The ground

covered by the decision seems sufficiently comprehensive to include nearly every form of quackery, and to make it impossible to thus impose on the credulous and ignorant in Iowa. It is hoped that this precedent will be followed in other states where quackery of this kind has had too free a field. It gives us confidence in the general good sense as well as in the legal knowledge of the courts. We trust that there will always be as much good sense and legal knowledge shown in future cases involving the protection of the public health.

TO PREVENT SELF-ADVERTISING.

There are few things that will injure a physician in his own locality so much as having his name appear in local newspapers. One of the commonest charges made in our societies against individual members is that of advertising. We may call it jealousy, envy or what not; that it is true is well known. Very often notices appear in lay papers without the knowledge or consent in any way of the one mentioned. Such can not be helped. When, however, such occurrences take place often there is always good ground for suspicion. Many county societies have discussed the question of prevention, believing that prevention is better than punishment after the deed has been committed. One way recommended is that which has been referred to in our columns on two or three occasions. Among these was the action taken by the Orleans Parish Medical Society, which passed a resolution¹ to the effect that "copies of all articles appearing in the daily press of this city relating to members in this society shall be placed by the secretary in a scrapbook, which shall be kept on the president's desk for the inspection of members. The book shall be indexed. Any member whose name shall appear therein will have the privilege of attaching thereto a written explanation." This week we record the action of another society² which adopted a similar measure. We can not but believe that this idea, if carried out, will result in great good. It may be easy for an individual to explain how it happened once or twice, but not when it has occurred scores of times.

A TRUE PATRIOT.

That a physician should take an interest in public affairs and should do his duty as a citizen interested in the maintenance of good government and public morals, has always been advocated by THE JOURNAL. Under normal conditions he is honored for so doing. The public appreciates good service of this kind, and he does not lose, either professionally or financially, on account of his public spirit. Occasionally, however, in abnormal communities, one may suffer for well-doing, and virtue be its own and only reward. Hurley, Wisconsin, appears to be such a place. Chiefly owing to the efforts of a public-spirited physician, an appalling state of official moral rotteness was exposed, resulting in the interference by the highest state authority, and in the removal from office of certain of the offending officials. Public sentiment, however, was

1. See page 1905.

1. THE JOURNAL A. M. A., Aug. 27, 1904, p. 615.
2. See page 1878.

strongly with the offenders. The physician was removed from his position as health officer, was reproved publicly by the common council, and was boycotted by the public to such an extent that he found it advisable to remove to another locality. There was nothing, so far as known, alleged against his character nor against his competency as a physician. It was simply his well-doing that was his undoing in that community. On the whole, we feel like congratulating him for being thus persecuted for righteousness' sake, and we trust that he will receive his reward in this life as well as hereafter. As for the community where such things can be done, the best that can be said is that it is a good place to leave.

THE OLLIER MONUMENT.

The unveiling of the statue of the late Professor Ollier in the city of Lyons last month¹ is a matter of some significance, illustrating the well-known saying that science knows no national boundaries. Delegates from surgical societies from various parts of Europe were in attendance to do honor to the distinguished surgeon. It was throughout an international affair, for the statue itself had been paid for, as our readers know, by contributions from all parts of the world. Notable among the delegates was Professor Lassar from Berlin, who represented the German Surgical Association, that body wishing to offer its tribute through a personal representative and through one of its most eminent members. This is another proof that the strained relations which have existed between Germany and France since 1870, and which, unfortunately, had to some extent involved the feelings of eminent medical men, are now disappearing. Germany has less to forgive and forget than has France, but that fact has not diminished the significance of the gracious tribute thus offered, and we trust that when the opportunity occurs the medical profession of France will not be found wanting. In this connection it may be remarked that the municipality of Lyons has, perhaps, done more in the erection of memorials to men eminent in medicine than has almost any other city. It is adorned with statues of Claude Bernard, Bonnet, Petit, Gensoul and others, and streets and squares have also been named after medical men. France honors its medical luminaries as perhaps no other nation does.

THE PURE-FOOD BILL.

President Roosevelt's message is notable among similar documents for the attention which it gives to matters bordering on medical and sanitary science. As medical men we can heartily approve what he says in regard to the dangers of urban concentration and crowded tenement districts, child labor, etc., but we wish that he had made insistent mention of the importance of passing the pure-food bill left over by the previous session, and really the most important measure now before Congress. The poisoning of the population for profit by mercenary manufacturers is in its way a much

more vital question than any mentioned in the message. We do not know what the program of the Congressional leaders is. It is said by newspapers, with what truth and authority we know not, that, beyond the passage of the usual ordinary and extraordinary appropriation bills and some special colonial legislation, little will be done. If such is likely to be the case, it will be well for the medical profession to use its best efforts to insure the inclusion in that little of the passage of this salutary act. There should be no difficulty, but as we know there are powerful influences working against it, and unless every effort is made against them, they may succeed. We spoke at some length on this point last spring and gave the bill in full.¹ The latest suggestion on the prospects of the bill is that its provisions may be limited to apply only to pharmacopoeial preparations, and that in such case the powerful antagonism of the nostrum manufacturers will be removed and the bill easily pass. It is a reflection on Congress that such a statement can be made, but the power of moneyed interests over our lawmakers has been too often exposed to require any beating about the bush in the discussion of the subject. It remains to be seen what the individual members of the profession have done and will do. During the long time that has elapsed since the bill came before Congress there has been ample time for each physician to let his representative in Congress know of the feeling of the local profession on the subject, and to emphasize the great economic and hygienic importance of the bill. There remains time now to exert pressure, and thereby to favor good legislation, to protect those who are daily being injured by impure foods, and incidentally to show the interest of the profession in public welfare.

Medical News.

ILLINOIS.

Hospital Dedicated.—St. Joseph's Hospital, Elgin, was dedicated with solemn ceremony by Archbishop Quigley, December 13.

Personal.—Dr. Charles B. Johnson, Champaign, whose term of office ends December 31, will be succeeded by Dr. Ralph E. Niedringhaus of Granite City.—Dr. Benjamin F. Elfrink, Chenoa, who has been ill with septicemia, has been taken to Chicago for hospital care.

The Ottawa Tent Colony.—Dr. J. W. Pettit has issued a leaflet giving a brief report of the results obtained in the Ottawa Tent Colony established by the Illinois State Medical Society for the treatment of tuberculosis, not for gain nor as a charity, but on a nearly a self-supporting basis as practicable. The total admissions thus far have been 59, of which 24 were advanced cases. Of these 6 improved, 3 are convalescent and several are still under treatment. The incipient cases all made remarkable improvement from the inauguration of treatment.

Smallpox.—During November 225 cases of smallpox were reported from 12 counties, with 25 deaths. The disease was reported in the following localities:

Clark County, Martinsville Township; Cook County, Chicago, La Grange, Morgan Park, Orland and Riverside; Green County, Roodhouse; La Salle County, La Salle; Logan County, Elkhart; Macon County, Decatur and Oakley; Madison County, Granite City, Venice and Alton; Montgomery County, East Fork Township, Filmore and Irvin; Pike County, Griggsville; Saline County, Galatia and Ledford; Sangamon County, Springfield; St. Clair County, East St. Louis and Belleville and vicinity of O'Fallon.

Cook County Hospital Staff.—The new president of the board of county commissioners has announced that with the aid of

1. THE JOURNAL, Dec. 10, 1904, p. 1800.

1. THE JOURNAL, April 2, 1904, pp. 894 and 910.

Drs. Frank Billings and Fernand Herroin he has evolved the following plan for selecting the attending staff of Cook County Hospital:

A staff of seventy-one physicians and surgeons to be appointed by the president and confirmed by this board, the said appointments to be made as recommended by a nominating commission of twenty-five doctors of medicine selected by the president, the term of service of the commission and of the staff members to be six years, vacancies during this period to be filled in the same manner as original appointments are made.

Members of the attending staff shall be ineligible to reappointment for six years succeeding their term of service, except upon a two-thirds affirmative vote of the nominating commission. There shall be no money paid to the members of the staff for work at the county hospital. Strict attention to all duties will be required. The president, for cause sufficient to himself, may reject the name of any eligible submitted to him by the nominating commission. The nominating commission shall serve also as a consulting staff under specified conditions, but shall receive no pay in either capacity.

Chicago.

Deaths of the Week.—During the week ended December 10, 512 deaths were reported, 35 of which, however, were "hold-overs" from November, making the net deaths 477 and the annual death rate 12.89 per 1,000. Pneumonia heads the list with 85; consumption follows with 65; then come heart diseases and violence, 50 each, and Bright's disease, 41.

Coroner's Annual Report.—In Cook County during the year ended November 30, the annual report of the coroner states, 5,960 deaths were investigated, of which 575 were due to the Chicago fire, 426 to suicide and 382 to railroad accidents. He recommends that the following causes of accidents and crime receive attention: Carelessly operated railway excursions, the carrying of concealed weapons, grade crossings, overcrowded and wretched street car service and giant firecrackers.

INDIANA.

Osteopath Discharged.—The three criminal charges against E. S. Morrow, an osteopath of Columbus, practicing medicine without a license, have been dismissed for lack of prosecution.

Personal.—Dr. Caleb A. Pritchard, Gosport, who had the misfortune to be passing when the Farmers' bank was about to be robbed, was seized by the robbers, bound and gagged and carried into the bank building.

Society Meetings.—The Fort Wayne Academy of Medicine held its annual meeting November 14, elected the following officers: President, Dr. Alfred Kane; vice-president, Charles G. Beall; secretary, Dr. Adam L. Schneider, and treasurer, E. P. Weaver, and adopted the following resolution:

Resolved, That copies of all articles appearing in the daily press of this city relating to regular physicians of this city shall be placed in a scrap book, which shall be kept on the secretary's desk for the inspection of members.

All articles appearing between meetings of this society shall be read at each meeting, and any member whose name shall appear therein will have the privilege of attaching thereto a written explanation. The book shall be indexed.

The Fort Wayne Medical Society, the Medical Society of Allen County, met December 6 and elected the following officers: President, L. Park Drayner; vice-president, Dr. Maurice I. Rosenthal; secretary, J. Clifford Wallace; treasurer, Dr. William P. Whery, and Dr. Kent K. Wheelock, censor, to serve for three years.

MARYLAND.

Still in Jail.—Dr. Joseph C. Ohlendorf, convicted of manslaughter in the death of Madge Hale in Prince George County by an alleged criminal operation, is still in jail. The judge decided that it was not within his province to release him in habeas corpus. The court has, however, granted him a new trial because of faulty indictment.

Personal.—Dr. Frederick G. Mitchell, Verona, Baltimore County, will retire January 1 and devote himself to agriculture. Dr. Rudolph B. Tensler of Virginia, now superintendent of St. Luke's Hospital, Tokio, Japan, is touring the country in its interests and has recently visited Maryland.—Dr. Josiah S. Bowen, Mount Washington, has been elected president of the Kappa Psi, a medical and pharmaceutical fraternity.

Rare Books.—A remarkable exhibition of rare medical books was made at the Johns Hopkins Hospital Historical Club by Dr. F. P. Henry of Philadelphia, December 12, viz., First Book on Diseases of the Eye, by Benvenuto Grassus, 1474; First Medical Dictionary, Synonyma Simonis Genouensis, 1473; First Book on Diet, by Isaac, 1487; second edition of First Book on Diseases of Children, by Paulus Bagellardus, 1487. Dr. Harvey Cutting spoke on "Dr. Garth: Kit Kat Poet, 1661-1718."

Maryland Society for the Prevention of Tuberculosis.—This society was organized at McCoy Hall, Johns Hopkins University, December 13. The society was recommended at a meeting of prominent citizens held recently under the auspices of the State Tuberculosis Commission and is indirectly a result of the exposition held in Baltimore last winter. Dr. William Osler presided and addresses were made by Dr. E. O. Otis, president of the Boston society, and by Drs. William H. Welch and W. S. Thayer. All citizens who are interested in the prevention and control of the disease are eligible for membership. The new society has two general plans in view: To educate the people and to secure proper legislation. The great interest shown by the public here in the exposition last winter gives reason to hope for very large results from such an organization as this.

Baltimore.

Expelled.—Dr. Nathan Herman has been expelled from the Baltimore City Medical Society for unprofessional conduct.

Much Diphtheria.—The health commissioner calls attention to the unusual increase in the number of cases of diphtheria in the city, as shown by the December records. An average of 9 cases a day is reported.

Personal.—Dr. R. Tunstall Taylor sustained a compound fracture of the left arm December 9, while getting off a street car.—Dr. Irvin H. Elderdice has sued the United Railways and Electric Company for \$50,000 for injuries received in February, 1903, through alleged negligence of the company.—Dr. Tregant Burrow, who has been traveling in Europe, returned December 7.—Dr. B. Merrill Hopkinson has been elected president of the Baltimore Athletic Club for the thirteenth consecutive annual term.

Osler Testimonial.—A meeting to further this movement was held by the Baltimore City Medical Society December 6. Addresses were made by Drs. Edward N. Brush and William H. Welch. Great interest is being manifested in it all over the country. Dr. John H. Musser of Philadelphia has accepted the chairmanship of the national committee, composed of 100 prominent physicians throughout the country. The governor of Maryland is the national treasurer, and Dr. Henry Barton Jacobs, secretary. About \$10,000 has already been subscribed here. Dr. Osler was consulted as to his preference and expressed himself in favor of a building to be erected here for the accommodation of the valuable medical library of the Medical and Chirurgical Faculty of Maryland, so largely the result of his own interest and effort. The city will be divided into districts and a canvass made. Dr. Osler has greatly endeared himself to this community and the movement is by no means limited to his own profession. The bankers, druggists, lawyers, merchants and other professions and trades have appointed committees to take subscriptions among themselves.

MASSACHUSETTS.

Will Soon Begin Operations.—It seems likely that soon the actual start will be made on the Peter Bent Brigham Hospital, for the United States Court of Appeals has sustained the will. Efforts are being made to have a considerable part of the great hospital which this \$5,000,000 will make possible, devoted to the care of consumptives.

Bequests.—Boston hospitals have recently received many large bequests, as follows: New England Hospital for Women and Children, \$16,000, one-half to be used for the training school for nurses and the remainder for general expenses; from Charles E. French the Massachusetts General Hospital will get \$10,000; the House of the Good Samaritan, \$1,000; Carney Hospital, \$1,000; Boston Children's Hospital, \$500, and the New England Hospital for Women and Children, \$500.

Dr. Abbott's Successor.—Dr. Charles Harrington, assistant professor of hygiene at Harvard University Medical School, has been appointed to succeed the late Dr. Samuel W. Abbott as member of the State Board of Health. Formerly he was chemist for the State Board of Health. He has been teaching for 21 years in Harvard University Medical School, and for 15 years has had charge of the milk inspection of the Boston Board of Health. He is well known as a writer on hygiene and on food and drug analysis.

Hospitals in Peril.—The New England Baptist Hospital narrowly escaped a serious fire December 10. The hospital is located near the top of the steepest and highest hill in Boston, so that it was fifteen minutes after the alarm before the first engine reached there. Meanwhile the janitor and nurses, bravely working with fire extinguishers, had subdued the fire, which

had started in a drying closet. The loss was not more than \$600, and none of the 30 patients was at all harmed. The fire again calls attention to the danger of all the neighboring buildings, two of which are the Charity Club Hospital and the Cushing Hospital, and the urgent need that fire apparatus be located nearby. Repeated petitions to the city government have invariably met refusal from one branch or another.

MICHIGAN.

Cornerstone Laid.—The cornerstone of the new building for the Michigan College of Medicine and Surgery, Detroit, was laid with elaborate ceremonies, December 13.

Purging Battle Creek.—In an effort to clean out the abortionists, whose work has made Battle Creek notorious, the Physicians' Business Association has ascertained that 32 unregistered practitioners were plying their trade in the city. Warrants have been sworn out for these irregulars and seven were issued on the first day.

Comparative Morbidity.—For November, 1904, compared with the average for November in the ten years, 1894-1903, smallpox, puerperal fever, cholera infantum and inflammation of brain were more than usually prevalent, and bronchitis, pneumonia, intermittent fever, diphtheria, erysipelas, remittent fever, cholera morbus and whooping cough were less than usually prevalent.

In Trouble.—Drs. John T. Hoffman and Otto F. Toepel, Detroit, coroners of Wayne County, have been asked by the governor to resign. Both are under the ban for contempt of court.—Dr. Wallace E. Newark, Charlotte, who pleaded guilty to performing a criminal operation, was fined \$600, and paid the amount.—Dr. Bert H. Ling, Germfask, convicted of practicing without a diploma and fined \$12, has been arrested and placed in jail on account of failure to pay the fine and costs.—Dr. Otto T. Toepel, Detroit, was fined \$250 and sentenced to 30 days in the county jail for contempt of court, December 6. He will appeal.

The Most Dangerous Communicable Diseases.—Meningitis was reported present in Michigan during November at 6 places; whooping cough at 18 places; measles at 35 places; pneumonia at 59 places; diphtheria at 87 places; smallpox at 99 places; scarlet fever at 105 places; typhoid fever at 161 places, and consumption at 247 places. Meningitis was present at 1 place more; whooping cough at 6 places more; measles at 6 places more; pneumonia at 30 places more; diphtheria at 24 places, smallpox at 20 places, and scarlet fever at 23 places more; and typhoid fever at 21 places and consumption at 56 places less in 1904, as compared with the preceding month.

College Merger.—According to the Detroit *Journal* for December 8, a proposition has been made to merge the Detroit College of Medicine into the University of Michigan Department of Medicine and Surgery. It is claimed that the clinical facilities at Ann Arbor are insufficient for the third and fourth-year students, and that under the new plan the first two, or possibly the first three years' work would be done at Ann Arbor, and the last year or two at Detroit. It is understood that those in control of the Detroit College of Medicine are willing to surrender its charter to the board of regents of the university so that it will go out of existence as an independent institution. Ann Arbor papers express the sentiment there as being almost wholly against the project.

MISSISSIPPI.

Smallpox.—The physicians of Montgomery County have discovered a large number of smallpox cases, fortunately of mild type, near Stewart. Quarantine has been instituted and vaccination ordered.—Several cases are reported in Clarksdale.

Free Clinic at Biloxi.—A free clinic has been established at the Biloxi Sanatorium, to be called the Lopez Medical and Surgical Clinic, in memory of the late M. L. Lopez, who was vice-president of the sanatorium and took great interest in the institution from its inception.

Sanatorium Rebuilt.—Last spring the Biloxi Sanatorium was entirely destroyed by fire. On the site of the old building a new one has been erected and is now open. It has been built especially for sanatorium purposes, and is well equipped. Located on Mobile Bay, it has the advantage of an excellent winter climate.

NEW JERSEY.

Personal.—Dr. Frank N. Robinson, Camden, has gone for an extended visit to Los Angeles, Cal., on account of ill health.—

Dr. Byron C. Pennington, Atlantic City, was recently admitted to the German Hospital, Philadelphia, suffering from uremia. He is slowly convalescing.

Work at the Cooper Hospital.—The work done at the Cooper Hospital during the month of November is as follows: Seventy-one patients were admitted to the wards; 114 were treated in the wards; 317 new patients were treated in the out-patient department, and 1,187 revisits were made.

Medical Society Election.—At the regular meeting of the Camden City Medical Society, December 6, the following officers were elected: President, Dr. Paul M. Mearns; vice-presidents, Drs. Harry H. Sherk and Edward A. Y. Schellenger; secretary, Dr. Vernon E. De Grofft; treasurer, Dr. William H. Pratt; historian, Dr. Daniel Stroek, and librarian, Dr. Joseph H. Wills.

NEW YORK.

The Boy Wonder Must Serve His Term.—John Welchers, otherwise termed "Antonius, the Boy Wonder," of Buffalo, who claimed to cure by the laying on of hands, etc., and who was convicted and sentenced to imprisonment for one year for conspiracy, will have to undergo the sentence, as the Court of Appeals has decided against him.

Crusade Against Insanitary Tenements.—The Niagara Falls Board of Health has adopted ordinances similar to those used by the Buffalo Department of Health, which will give larger power to the health board. One of the first crusades will be directed against the insanitary tenements in the so-called "tunnel" district and occupied by negroes, Italians and Hungarians, where there is an increasing amount of typhoid fever.

Sanitation in Small Places.—A conference of the local health officers throughout the state was held in Albany, December 15 and 16. An urgent appeal was made to all health officers to attend, as small places are exposed to more danger from the outbreaks of epidemics than large ones. The sanitary conditions of the smaller towns are not so carefully guarded nor the health officers so well equipped for their work as those of the cities, and these conferences are intended to awaken greater interest among local health officers.

New York City.

Personal.—Dr. Kenkichi Rokkukun, physician in the suite of Prince Fushimi, has visited Ellis Island and made minute observations of every department of the emigrant reception depot.

The Mosquito Convention.—The second annual convention of the National Mosquito Extermination Society was held in Manhattan and Brooklyn on December 15 and 16. The sessions were open to the public.

Brooklyn Hospital Incorporated.—The Samaritan Hospital was incorporated December 8. This hospital is the outgrowth of a dispensary started several years ago. Two lots have been purchased and hospital buildings will be erected as soon as the necessary funds have been raised.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended December 3, 378 cases of diphtheria, with 30 deaths; 326 cases of tuberculosis, with 165 deaths; 200 cases of scarlet fever, with 10 deaths; 155 cases of varicella; 85 cases of typhoid fever, with 17 deaths; 83 cases of measles, with 6 deaths, and 13 deaths from cerebrospinal meningitis.

Tramp Steamers Suspected to Be Infected.—The British steamship *Coronation*, which arrived at quarantine December 7, had one of the crew ill with a disease resembling bubonic plague, but bacteriologic examination failed to reveal any traces of the plague.—The tramp *Coulston*, from Java, also detained because several of her crew had died of cholera on the voyage, was permitted to come to her pier, but the Chinese crew is held at Hoffman Island.

Permanent Tuberculosis Exhibit.—Dr. James E. Newcomb, in a recent address, urged most vigorously as a means of educating the public a permanent tuberculosis exhibit similar to that of Berlin, containing illustrations of the ravages of the disease, models of the breathing apparatus, showing the effect of tuberculosis on man and animals, collections of sputa receptacles gathered from various countries, disinfecting apparatus, illustrations of the methods of study of the tuberculosis bacillus, charts showing the effects of good housing in reducing the amount of the disease, etc.

Bellevue Diet Kitchen.—This week a scientific diet régime will be opened at Bellevue Hospital. The food served to the patrons will be cooked under perfect sanitary conditions and patients

will be served with the food best calculated to help them contend with the disease with which they are afflicted. There will be a separate dietary for children and adults. Hitherto there has not been much discrimination in the matter of food given the general run of patients. The establishment of the new cooking plant will not cost more than \$500 and it is estimated that it will not cost more than \$50 a month additional than the existing kitchen. The medical staff agrees that the proposed scientific system will benefit the patients and may tend to lessen the death rate.

The Pure Milk Crusade.—The work of the inspectors of the health department in the upstate counties has already resulted in evidence which would seem to be sufficient to convict one of the largest milk distributing companies in this city. In this case the inspectors found that skim milk was being shipped and that a considerable supply of formaldehyd was kept on the premises. Dr. Darlington says that when the evidence is complete he will revoke the license of the company. Hitherto these large companies have paid the fines and in the long run adulteration was profitable to the dealers, but if the companies are forced out of business it would prove a more serious matter. The health department is determined to make the punishment so severe that it will not pay to tamper with the milk. A number of persons charged with this offense were disposed of this week in the Court of Special Sessions in Brooklyn. The fines ranged from \$5 to \$100, and one offender who was unable to pay the fine went to jail for thirty days.

OHIO.

Post-Graduate School Incorporated.—Papers of incorporation were signed November 23 for the Toledo Post-Graduate Medical School. Drs. Herbert E. Noble, Addison D. Hobart, A. C. White, G. Albert Gorsuch and Alvin G. Snyder, signed the application.

Injured.—Dr. Edward W. Baehr, Cincinnati, physician for the Robinson circus, was shot and seriously wounded by a negro in Bainbridge, Ga., October 27. He has been removed to his home in Cincinnati.—Dr. John H. Rodgers, Springfield, fell down stairs at the Arcade Hotel, November 28, straining his hip.

Personal.—Dr. Harry L. Woodward, Cincinnati, has been appointed to succeed the late Dr. John E. Jones as physician to the Widows' and Old Men's Home.—The board of medical directors of the Cincinnati City Hospital has elected the following staff: Drs. Joseph Eiebborg, George A. Fackler, Edwin W. Mitchell, Oliver P. Holt, Herman H. Hoppe, Frank W. Langdon, N. Pendleton Dandridge, Joseph Ransohoff, Edward W. Walker, John C. Oliver, Albert H. Freiberg, Charles E. Caldwell, August Ravogji, Charles S. Evans, Samuel E. Allen, John W. Murphy, Robert Sattler, Derrick T. Vail, William H. Taylor, Charles A. L. Reed, George M. Allen, John M. Withrow, Charles L. Bonifield, Sigmund Stark, Allyn C. Poole, B. Knox Rashford, Henry W. Bettman, Arch. I. Carson, David I. Wolfstein, John E. Griewe, William H. Crane, James W. Rowe, Frederick W. Lamb, Alfred Fiedlander, Horace J. Whitacre and Frank E. Fee.—The Columbus General Hospital Company, at its meeting held November 11, elected the following officers: President, Dr. Sherman Leach; vice-president, Dr. Robert C. Tarbell; secretary, Dr. John H. J. Upham, and treasurer, E. W. Christy.

PENNSYLVANIA.

Philadelphia.

Bequests.—By the will of Rosanna Carson von Phul the Northern Home for Friendless Children and the West Philadelphia Hospital for Women receive \$2,000 each.

The Philadelphia County Obstetrical Society elected the following officers: President, Dr. Richard C. Norris; vice-presidents, Drs. Wilmer Krusen and F. Hurst Maier; secretary, Dr. Frank C. Hammond, and treasurer, Dr. John W. West.

Pathologists Meet.—The monthly meeting of the Pathological Society was addressed by Dr. Victor C. Vaughan of the University of Michigan, Dr. Charles Harrington of Boston and Prof. C. B. Cochran of West Chester, chemist to the State Dairy and Food Department. The question of the relation of food preservatives to the public health was discussed. A reception followed at the University Club.

Health Report.—The deaths from all causes aggregated 453 for the week ended December 10, compared with 426 last week and 496 for the corresponding period of last year. Of the deaths, 59 resulted from pneumonia, 11 more than were caused by consumption; 48 were due to tuberculosis, 23 to cancer, 41 to heart disease, 16 to apoplexy, 33 to Bright's disease, and 85 to acute inflammation of the respiratory tract.

Site for Oncologic Hospital.—The trustees of the American Oncologic Hospital have selected a site for the institution at Forty-fourth and Chestnut streets. The building is a large brick and stone structure and will be at once equipped for use. The hospital will be opened as soon as this work is completed. The following staff has been elected: Attending physician, Dr. Boardman Reed; attending surgeons, Drs. Addinell Hewson, G. Betton Massey and Howard R. Swayne.

Personal.—Dr. John H. Musser addressed the Medical Society of the District of Columbia, Washington, on "The Symptomatology of Arteriosclerosis," November 18. A reception was given in his honor by the society in the evening.—Dr. John B. Chapin, superintendent of the Pennsylvania Hospital for the Insane, who recently fell and sustained a fracture of the right wrist, is gradually improving.—Dr. Thomas G. Ashton has been appointed adjunct professor of medicine in the Department of Medicine of the University of Pennsylvania.

November Hospital Reports.—There were 289 new patients admitted to the wards of the Pennsylvania Hospital; 1,254 new patients were treated in the dispensary, 4,663 visits were made to the different dispensaries of the institution.—Frankford Hospital admitted 25 new patients to the wards and treated 865 patients in its dispensaries.—During the month 5,315 patients were treated in the Medico-Chirurgical Hospital.—There were 94 patients admitted to the Germantown Hospital and 1,162 were treated in the dispensary.—St. Agnes' Hospital admitted 154 patients to the wards and 3,506 were treated in the dispensary.—At St. Mary's Hospital 151 patients were admitted to the wards and 2,610 were treated in the dispensaries.

TENNESSEE.

New Knoxville Hospital.—Plans have been accepted and contracts awarded for the new Tennessee Medical College Hospital, to be erected at a cost of \$30,000.

Thrice Arrested.—Dr. James L. Jackson, Chattanooga, has been thrice arrested and thrice fined for selling cocaine unlawfully. He paid the accumulated fines and costs, amounting to \$281.

Personal.—Dr. Henry J. Kelso, for several years secretary of the Knoxville Board of Health, has resigned and Dr. William R. Cochrane has been elected his successor.—Major Frank P. Robinson, chief surgeon at the Soldiers' Home, Johnson City, has resigned.

Smallpox.—On account of the prevalence of smallpox in Mount Pleasant, a proclamation was issued December 1 requiring every one to be vaccinated within three days and providing fine for non-compliance. The smallpox in the state is reported by Dr. J. A. Albright, secretary of the State Board of Health, to be confined practically to Mowry and Dyer counties.

WISCONSIN.

Must Pay for Alleged Mistake.—In the case of Paul Parkhurst against Drs. Thomas W. Nuzum and Arick Sutherland of Brodhead, where the complainant claimed \$10,000 damages on the ground that the defendants had operated on the wrong foot, thereby crippling him for life, the jury awarded the complainant \$10,000.

Personal.—Dr. Henry E. Twohig, Fond du Lac, has returned from Europe and will locate in Marinette.—Dr. D. J. Twohig has located in Fond du Lac.—Dr. Charles A. Hayes, Chippewa Falls, has been appointed superintendent of the Chippewa County Asylum, vice Dr. Philo E. Lindley.—Dr. H. Schafer, formerly of Kiel, has returned from Europe and has located in Appleton.

Society Elects Officers.—At the annual meeting of the Waukesha County Medical Society, held in Waukesha December 3, the following officers were elected: Dr. Henry G. B. Nixon, Hartland, president; Dr. Benjamin U. Jacob, Waukesha, vice-president; Dr. Maybelle M. Park, Waukesha, secretary; Dr. William B. Campbell, Menominee Falls, treasurer; Dr. Thomas Tomelty, Big Bend, censor, and Drs. Albert J. Hodgson, Waukesha; Michael R. Wilkinson, Oconomowoc, and Laurel E. Youmans, Mukwonago, committee on health and legislation.

GENERAL.

Going to Panama.—About 75 delegates to the fourth Pan-American Medical Congress at Panama, January 2, will sail from Baltimore December 27 on the steamer *Atkos*, which has been specially chartered for this purpose.

Use of Adrenalin to Conceal Trachoma.—Officers of the Public Health and Marine-Hospital Service have noticed that on

verting the eyelids of immigrants in several cases a peculiar blanché appearance was observed. On investigation this proved to be due to the use of adrenalin. It was found that in mild cases of trachoma this drug will obliterate all traces of the disease for about one-half hour.

Neurology at Pan-American Congress.—An invitation is given to all members of the profession interested in neurologic and psychologic medicine to attend the neurologic section of this congress, Jan. 2-6, 1905, at Panama, to present papers or other communications in the line of the section's work, by Dr. C. H. Hughes, 3857 Olive street, St. Louis, secretary of the section of nervous and mental diseases.

Hawaiian Medical Association.—The annual session of the Hawaiian Territorial Medical Association was held at Honolulu, Nov. 20-22, 1904. The session was well attended. The following officers were elected for the ensuing year: President, Dr. J. T. McDonald; vice-president, Dr. J. H. Dinnegar; secretary-treasurer, Dr. St. D. G. Walters; executive committee, Dr. J. T. McDonald, Dr. J. H. Dinnegar, Dr. St. D. G. Walters, Dr. H. C. Sloggett, Dr. George W. Herbert.

Health of Manila.—The report of the Board of Health for the Philippine Islands for August states that there were 535 births in the city of Manila during that month. There were 1,032 deaths of residents and 68 deaths of transients; 544 of this number died without medical attention. Seven hundred and eight of the total number of deaths occurred in children under 2 years of age, and two of the deaths were of persons whose ages were given as 120 and 109 years respectively. During the month there were 4 deaths from smallpox and 7 from plague.

International Medical Congress.—Dr. J. H. Musser, president of the American Medical Association, at the request of the secretary of the International Medical Congress, which meets in Lisbon in 1906, and on approval of the House of Delegates, has appointed the following members of the American Committee of Arrangements:

Drs. Frank Billings, Chicago; Herman M. Biggs, New York; Herbert L. Borrell, Massachusetts; William T. Councilman, Boston; Wm. H. Carmalt, Connecticut; Richard C. Cabot, Massachusetts; N. S. Davis, Jr., Illinois; Chas. H. Frazier, Philadelphia; R. H. Fitz, Massachusetts; E. B. Foss, Missouri; Chas. Lyman Greene, Minnesota; Ramon Gutierrez, New York; H. A. Hare, Pennsylvania; L. Hektoen, Chicago; Edward Jackson, Denver; E. J. Janeway, New York; A. Jacobi, New York; George B. Johnston, Richmond, Va.; W. W. Keen, Philadelphia; Howard A. Kelly, Baltimore; Chas. Kellock, South Carolina; L. S. McMurry, Louisville, Ky.; James H. McBride, California; A. T. McCormack, Bowling Green, Ky.; K. A. Mackenzie, Portland, Ore.; John Herr Musser, Philadelphia; J. B. Murphy, Chicago; R. Matas, New Orleans; William Osler, Baltimore; Chas. Powers, Colorado; J. P. Roberts, Pennsylvania; W. L. Rodman, Pennsylvania; M. H. Richardson, Boston; Chas. A. Reed, Ohio; H. M. Sherman, San Francisco; Frederick C. Shattuck, Boston; Geo. H. Niramons, Chicago; Chas. G. Stockton, New York; Geo. Sternberg, London, E. C.; Victor Vaughan, Ann Arbor; John A. Witherspoon, Tennessee; J. Collins Warren, Massachusetts; J. C. Webster, Chicago; Wm. H. Welch, Baltimore; John A. Wyeth, New York.

The Surgeon Generals of the Army, Navy and United States Public Health and Marine-Hospital Service.

The presidents of the American Ophthalmological, Otolological, Gynecological, Physiological and Pediatric societies.

The presidents of the American Dermatological, Laryngological, Surgical, Climatological, Neurological, Medico-Psychological and Orthopedic associations.

The presidents of the Association of American Anatomists, Association of American Physicians, American Association of Genitourinary Surgeons, American Association of Pathologists and Bacteriologists, New York Academy of Medicine, College of Physicians, Philadelphia, Cook County Medical Society, Chicago, and the Society of Medical Improvement, Boston.

Panama Canal Employes.—We have received the announcements of the U. S. Civil Service Commission concerning the examinations for appointments at the Panama Canal. A number of positions, including sanitary officers, are excepted from the necessity of examination. These sanitary officers, we understand, are chiefs and probably all surgeons under them are required to pass competitive examinations. Announcement is made of examinations Jan. 18, 1905, for surgeons, physicians, pharmacists, hospital internes and trained nurses. These examinations will be held at the 184 cities of the country at which civil-service examinations are regularly held. Some of the details are as follows:

Surgeon.—Age limit, 25 to 50 years; salary, \$250 per month. Examination in anatomy, 15 per cent.; surgical bacteriology, 5 per cent.; surgical pathology and diagnosis, 15 per cent.; surgical practice, 40 per cent.; surgical gynecology, 5 per cent.; and practical experience, 30 per cent. This element will be rated on the statements made in the application and accompanying vouchers. Special attention will be given to the quality of the applicant's experience, and applicants who have had extensive work in large hospitals will receive special credit.

It is the desire of the Isthmian Canal Commission to appoint in this position only surgeons of thorough training and wide professional experience.

Physician.—Age limit, 25 to 50 years; salaries, \$150, \$200 and \$250 per month. Examination in letter-writing, 5 per cent.; anatomy, 5 per cent.; therapeutics, 5 per cent.; physical diagnosis (including questions relating to tropical diseases), 25 per cent.; general pathology and practice (including questions relating to tropical diseases), 25 per cent.; bacteriology and hygiene, 5 per cent.; obstetrics and gynecology, 5 per cent.; practical experience, 25 per cent.

The element of practical experience will be rated upon the statements made in the application and accompanying vouchers. Special attention will be given to the quality of the applicant's experience, and applicants who have had experience in hospitals particularly in the treatment of tropical diseases, will receive special credit. Only those who have had extensive hospital experience and are familiar with the treatment of tropical diseases, will be selected for appointment to the highest classified positions. Promotions may be made in the discretion of the Isthmian Canal Commission from the lower to the higher positions in this grade.

These examinations are open to all citizens of the United States who comply with the requirements. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at the places mentioned in the accompanying list, for application form 1312. No person will be appointed for service on the Isthmus who is not physically sound and in good health. No application will be accepted unless properly executed and filed with the commission at Washington. The exact title of the examination desired should be used in the application. As examination papers are shipped direct from the commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The commission will, therefore, arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers. Further information concerning conditions of employment under the Isthmian Canal Commission is given as follows:

LENGTH OF SERVICE.—The construction of the Panama Canal may extend throughout a time-period of eight or more years, according to the details of the project yet to be adopted.

OPPORTUNITIES.—The civil service of the Isthmian Canal Commission offers excellent opportunities to qualified persons, both in the matter of salaries and promotion. Under the operation of the civil service law it is contemplated that promotions will be made on the basis of merit from the lower to the higher positions.

MEDICAL ATTENDANCE.—Medical attendance, medicines, and care of hospitals when sick, are furnished to the employes of the Isthmian Canal Commission without cost. Well-equipped hospitals will be maintained at Ancon, adjacent to Panama, and at Colon. In meritorious cases sick leave on pay may be allowed, in addition to the regular leave of absence, not to exceed thirty days for employes who are from the United States, or fifteen days for employes who are residents of the Isthmus.

ACCOMMODATIONS FOR EMPLOYES.—The Isthmian Canal Commission furnishes quarters to its American employes, or at its option, to the married employes, which has tentatively been fixed at 8 per cent. of the salary. The commission proposes to maintain a civil commissary department on the Isthmus, which is soon to be established and the advantages of which are to be made available to the married employes of the Isthmian Canal Commission.

TRANSPORTATION TO THE ISTHMUS.—The Commission furnishes its employes free transportation to the Isthmus from either New York, New Orleans, or San Francisco, and, also, free return transportation on completion of satisfactory service.

LEAVE OF ABSENCE.—The employes of the Isthmian Canal Commission are allowed six weeks' leave of absence annually on full pay. This leave of absence is not granted until after eight months of satisfactory service. In visiting the United States on leave of absence, the salaries of the employes are granted the special rates to the above-named ports. (The prevailing special rates are \$25 between New York or New Orleans and Colon, and \$70 between San Francisco and Panama.) The special rates also apply when members of the family of an employe accompany him to the Isthmus.

All inquiries concerning examinations for competitive positions under the Isthmian Canal Commission should be addressed to the United States Civil Service Commission, Washington, D. C. Further communication relative to service, situation, climate, and conditions on the Isthmus should be addressed to the Isthmian Canal Commission, Washington, D. C., by whom the foregoing details have been furnished.

CANADA.

Medical.—Dr. A. M. Campbell has been appointed superintendent of the Winnipeg General Hospital in succession to Dr. Halpenny, who has taken up private practice.

Toronto Home for Incurables.—According to the thirtieth annual report 111 patients are in that institution, 38 having been admitted during the past official year; 36 deaths occurred and 12 patients left the institution very much improved. Paralysis and rheumatism affects many inmates. Of the 111 in the institution, 39 are paralytics and 27 have rheumatism.

District of St. Francis Medical Association.—The regular meeting of this association was held in Sherbrooke, Quebec, November 9, when the following officers were elected: President, Dr. F. J. Austin, Sherbrooke; vice-president, Dr. S. A.

Banfill, East Angus; secretary-treasurer Dr. I. J. Williams, Sherbrooke; council, Dr. J. O. Camirand, Dr. L. C. Bachand and Dr. R. A. D. King.

New Brunswick Provincial Hospital.—A special commission has just completed the examination of all the inmates of the New Brunswick Hospital for the Cure of Nervous Diseases. The institution has been overcrowded for some time, there being 554 patients in the main building. The object of the commission was to effect the removal to outside homes of those patients who were harmless and thus to leave more room for those acutely insane. The commission consisted of the new superintendent, Dr. J. V. Anglin, Dr. G. A. B. Addy and Dr. A. F. Emery, all of St. John. Dr. Anglin will seek reform in the method at present in vogue in the admission of patients to this institution. Hereafter patients will have to wait until they receive instructions from the superintendent that they can be admitted.

Hamilton (Ontario) General Hospital.—The Hamilton General Hospital wants to erect a new wing and has appealed to the Ontario government for \$50,000. The governors thought they had a claim on the government, because it had offered \$100,000 to the Toronto General Hospital. They stated that their annual grant only amounted to \$2,000, the balance of the maintenance fund being raised by the taxes of the ratepayers, and this annually amounted to \$30,000. The premier pointed out to the deputation that the succession duties brought into the treasury of the province about \$250,000 annually, to which the government added \$850,000, and the \$1,100,000 thus obtained went back to the hospitals and other charitable institutions. It was true that the government had promised to aid the Toronto General Hospital to the extent of \$100,000, but the proposed grant was entirely for medical educational purposes.

Handsome Gift for New Alexandra Hospital, Montreal.—The Alexandra Hospital in connection with the Montreal General Hospital, or in connection more particularly with the Protestant Hospitals of Montreal, for the care of contagious and infectious diseases, should have been ready for occupation by the first of next year, but beyond securing a site very little advance has been made. Recently a public meeting was held in Montreal following a conference between the trustees of the hospital and the hygienic committee of the city council for the purpose of eliciting public sympathy and aid in the prosecution of the work. Lack of funds prohibited the trustees from carrying out the construction of the hospital; but, as \$62,500 is now subscribed, the construction of the hospital will proceed at once; it probably will be ready for patients by September, 1905. Toward the building fund Mr. James Ross, Montreal, contributed \$25,000. The approximate cost of the institution, including the land, will be in the neighborhood of \$200,000.

FOREIGN.

Plague in London.—A member of the crew of the steamer *Weybridge* from the River Plate, which arrived in London November 30, was found by bacteriologic examination to be suffering from plague.

Bubonic Plague in Argentine Republic.—The existence of bubonic plague in Salto has been officially declared. The Public Health Reports state that the government of the republic has ordered prompt and vigorous sanitary measures to be enforced, intending, should it become necessary, to close public schools and churches. The minister of war has ordered the troops in that district to aid in enforcing hygienic measures.

German Anti-Charlatan Society.—Drs. G. Platau and C. Reisinger have been publishing since October, 1903, a periodical entitled *Hygienisches Volksblatt*. It is the official organ of the *Deutschen Gesellschaft zur Bekämpfung des Kuppelschertums*, and is designed to enlighten the public in matters of hygiene and to warn against irregular methods. The name has been changed to *Hygienische Blätter* as the periodical enters on its second year.

Popular Vote on Restriction or Non-Restriction of Irregular Practices.—Our exchanges state that the canton of Zurich, Switzerland, is soon to cast a popular vote on the question whether all restrictions to the practice of medicine should be removed. Professor Krönelin and the members of the profession generally have been earnestly at work to prevent such a lapse from the higher ideals of civilization and the lay press has seconded their efforts. As the question is to be decided by popular ballot, there is considerable apprehension in regard to the outcome.

Awarding of the Five Nobel Prizes.—The cable brings word from Stockholm that the Nobel prizes for 1904 were duly awarded on the anniversary of the birthday of the founder of the prizes, December 10. The prize in medicine was bestowed on Prof. J. P. Pawlow of St. Petersburg, whose recent research on the physiology of the digestive processes has revolutionized many of our conceptions and established a scientific basis for empirical experiences and observation. An institute was erected at St. Petersburg exclusively for his experimental work, and it is the Mecca to which many a scientific pilgrimage has been made during the last few years. The twenty-fifth anniversary of his entering on his professional career was celebrated last February, when a fund was endowed in his name for a prize for research in physiology. The prize for chemistry was given to Sir William Ramsay, professor of chemistry at London. The prize for literature was divided between a French poet and a Spanish dramatist. The peace prize was conferred on the Institute of International Law, and the prize for physics on Lord Rayleigh, professor of natural philosophy at the royal institute. The particulars of this great endowment, founded by the discoverer of dynamite, were given in *THE JOURNAL*, vol. xxxix, page 1600, and elsewhere.

Correspondence.

Graduates of Medical Schools.

WASHINGTON, D. C., Dec. 1, 1904.

To the Editor.—My attention has been directed to your note on page 1307 of *THE JOURNAL*, Oct. 29, 1904, on "Graduates of Medical Schools," in which the deductions drawn from the result of state board examinations in 1903, from the standpoint of a Philadelphian, are quoted. It is true that taking the statistics collectively the showing is very favorable to the Philadelphia medical schools, but is it really fair to individual schools to institute such a comparison?

Reference to the table on page 515 shows, for example, that the percentage of failures of Washington graduates varied from 0 to 30, and that the percentage of failures among graduates of Baltimore medical schools varied from 0 to 55.8. The deductions of the Philadelphian, if applied to the graduates of the New Orleans medical schools, would show that the percentage of failures was 71.4 when, as a matter of fact, one of the two schools graduated all the unsuccessful candidates.

I am of the opinion that valuable conclusions can be drawn from the results of the state board examinations as to the efficiency of the medical schools, when accurately reported and analyzed, but it is obviously our duty to study the records before condemning or recommending any particular school to prospective students.

GEO. M. KOBER, M.D.

EDITOR'S COMMENT.—Our correspondent probably realizes that the note referred to was copied from another publication. The table from which the information was derived, and which appeared in *THE JOURNAL* Aug. 13, 1904, gave the facts concerning individual colleges, but the writer of the item referred to grouped certain colleges in the same city.]

Care of a Diphtheria Epidemic.

MR. WASHINGTON, MD., Dec. 7, 1904.

To the Editor.—In *THE JOURNAL* Dec. 3, 1904, p. 1709, it is stated that diphtheria is prevalent in East Coventry and in the northern section of Chester County. I write this in order that the medical profession of that community may profit by our experience here and so be enabled to stamp out the disease.

In this community of 1,400 inhabitants this terrible disease has been epidemic for the past 16 months. The disease has attacked all classes. Last winter the school in the immediate neighborhood was closed two months on account of this malady.

At the beginning of this school term it was thought that the trouble might be gotten rid of by the public schools. The trustees of our school, one of whom is our most eminent physician, consulted the school board and the county commissioners and made special arrangements with the State Board of Health for the taking of the cultures from the throats of the pupils of this school and of another school about two miles distant, where the disease had now got a foothold, and caused the school to be closed. The cultures have been taken nine times and in one school the percentage was 3.2 more than in the schools of New York City. In the other school, where the attendance was very much smaller owing to the number of cases in the

school, the percentage ranged from 5 to 25, which was a very large percentage.

When cultures from a child's throat were found to be positive, that child was sent home, and also other children of the family if there were any, and not allowed to return until cultures were declared negative. This, of course, decreased the attendance. There were some parents who did not approve of the method and were opposed to it and were trying to have it stopped when the county commissioners stopped it. If it were possible for the physicians of the locality above mentioned to make some such arrangements, I think that they could stamp out the disease in a short time.

JOSIAH S. BOWEN, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

SPECIFIC TREATMENT FOR TUBERCULOSIS.

NEW ORLEANS, Dec. 5, 1904.

To the Editor:—A recent article in THE JOURNAL (November 26) on the use of serums in tuberculosis and the discussion that followed, shows that up to the present the administration of toxins and antitoxins in the treatment of this disease has been unsatisfactory. Antitoxins have been discarded and, with the large majority of the profession, tuberculin and similar preparations have little vogue. That the serum treatment of pulmonary tuberculosis has so far been futile may be due to the fact that the well-established disease is nearly always complicated with streptococcal or staphylococcal infection, or both. There are different families of staphylococci and of streptococci, and this difference may extend to the tubercle bacillus itself. This suggests that in so long drawn out a condition as chronic tuberculosis an antitoxic serum might be obtained exactly adapted to each individual case by using the blood of a horse immunized to the mixed infection of the secretion obtained from the patient himself. 2. This would certainly be an expensive method of treatment, but if there is anything in the antitoxin treatment of disease, theoretically, at least, an effective one. And there are those who can afford not to consider expense when the life of one they love is in the balance.

A. NELKEN.

ANSWER.—Theoretically Dr. Nelken's proposition sounds well enough and, granting the correctness of his premises, the resulting serum should be effective. Closer examination of the problems involved shows, however, so many difficulties in the way that the practical use of this treatment is very remote indeed. Extensive experiments in immunization of horses and other animals with tubercle bacilli and streptococci would have to be carried out in order to determine under what conditions potent antisera are obtainable, if at all. By the way, right at this point it may be well to emphasize that it is not strictly correct to speak of all antisera as antitoxic serums. In the case of many pathogenic organisms, e. g., typhoid bacillus, dysentery bacillus, streptococcus, it has not yet been possible to obtain true antitoxic serums, because these organisms so far as we know now do not owe their pathogenic effects to toxins in the strict sense, namely, readily diffusible toxic substances with which it is possible to produce by immunization specific antitoxins. So far antityphoid and antidyenteric serums are essentially complex bactericidal serums, while the mechanism of action of antistreptococcus serum, so far as it has been determined, in animal experiments, is perhaps even still more complex. In the interest of clearness it is therefore best to speak of antitoxic serums only when we know that it actually concerns antitoxins in the limited scientific sense. Those who are interested will find these distinctions more fully outlined in Dr. Rickett's article in THE JOURNAL, May 21, 1904, p. 1336, entitled "Our Serotherapeutic Measures." Returning to Dr. Nelken's suggestion, we would say again that the only way to proceed is to experiment. First, it must be shown unequivocally that it is possible to obtain antitubercle and antistreptococcus serums, whatever their nature, by means of organisms derived from human beings. Secondly, should the results of these experiments warrant further effort, work should then be directed to shorten to the greatest possible extent the time intervening between the patient's coming under observation and the production of the serums, so that the disease could be attacked at the earliest and hence most favorable period possible. And lastly would come the actual trial of the treatment in carefully selected cases under simple but favorable and easily reproducible conditions so that it might be possible by comparison to form a definite idea as to the effects of the treatment.

RECIPROCITY.

FINDLAY, OHIO, Dec. 12, 1904.

To the Editor:—1. Do Ohio and Pennsylvania state boards reciprocate? 2. When will the good time of emancipation come to the

physicians of this great and goodly land, giving them perfect freedom to go wherever they will after having once been pronounced legally qualified to practice in any one of the states? 3. Could not the American Medical Association and other societies secure a federal law granting to all physicians, legally qualified, the right to practice anywhere in the country? 4. Would not a national board of licensure be more effective, with state boards subordinate, in bringing about all the results aimed at by the several states and in much more quickly securing those results?

W. C.

ANSWER.—1. No. 2. When we get more uniformity in our medical laws or uniformity in examinations. The states having a high standard will never reciprocate with those having a low standard of entrance requirements. The states having a low standard will not accept a certificate of a board whose standard is high, because the latter will not accept that of the former. 3. No, the matter comes under the police powers, and this, according to the constitution of the United States, rests with the individual states. 4. Yes, but only a voluntary board could exist; at least as a legal institution, for the reasons given in reply to question 3.

BURNS FROM HOT-WATER BOTTLES—OVARIOTOMY FOR EPILEPSY.

CHICAGO, Dec. 5, 1904.

To the Editor: Have any articles appeared in THE JOURNAL or elsewhere or in any of the text-books on surgery regarding accidental burns produced by hot-water bottles or rubber bags of hot water, when applied to a patient after being operated on? 2. Can a patient be burned by either of these forms of bottles containing hot or warm water when applied externally to a blanket that envelops a patient? 3. If, so, which form of bottle would be most likely to produce a burn? 4. Are there on record well-authenticated cases resulting in the cure of epilepsy in the female, without complications, in which the operation of clitoridectomy or ovariectomy has been performed? 5. Are either of these operations justifiable in a typical or simple case of epilepsy without complications, or are either of these operations frequently advised or performed for the relief or cure of this disease? LISTON HOMER MONTGOMERY, No. 92 State St.

ANSWER.—1. Yes; cases have been reported briefly, but we are unable to give names of references in which reports appeared. Reports of these cases may be found in hospital and in other records. 2. Yes; serious and even fatal results may occur. 3. A bottle which may be carried by straps or handles so that the excessive heat is not noticed in handling it. Further, a bottle of shape or kind as to rest more closely against the patient. 4. No. 5. No.

BURLESQUE NUMBER OF THE WOCHENSCHRIFT.

CHARLOTTESVILLE, VA., Dec. 5, 1904.

To the Editor:—Kindly refer me to some one in this country from whom I can get a copy of the burlesque number of the *Münchener medicinische Wochenschrift* and the price.

THOMAS J. BUTLER, Univ. of Va., P. O.

ANSWER.—This burlesque is published annually on the anniversary of the Munich Medical Society. The present number is the seventh thus issued, the anniversary being the seventieth of the society. It is expressly stated that this burlesque is not for sale separately, and that it is not even sent to subscribers for the *Wochenschrift* unless they are medical men. Consequently the libraries, like the Newberry Library at Chicago do not receive this 20-page burlesque number unless prescribed by some medical friend, as received on his private subscription. Dr. B. Spatz is the editor, Arnulfstrasse 26, Munich, Germany. In commenting on a previous number of the burlesque, THE JOURNAL remarked that its fun almost repaid one for the study of German, and the present number is even better than its predecessors. Perhaps some subscriber who sees this will loan our correspondent his copy.

PHYSICIAN MAY OMIT CHARGE FOR EXAMINING ANOTHER PHYSICIAN.

MILWAUKEE, Dec. 7, 1904.

To the Editor:—1. Is it right for one physician examining another physician for life insurance to give the applicant credit, with the knowledge and consent of the company, for the usual examination fee? 2. Can the examiner logically argue that the company pays him, when, as a matter of fact, the company simply fixes the rate high enough to cover this fee?

RALPH ELMERGREEN, M.D.

ANSWER.—1. Yes. 2. He can. He gets the fee from the company.

BOOKS ON URINALYSIS.

Pa., Dec. 5, 1904.

To the Editor:—Will you kindly inform me regarding the most practical books on the clinical examination of the urine and blood? I want a book which treats not only of all the methods of examination, but the significance of each abnormal element when present, etc.

T. H.

ANSWER.—Ewings's Clinical Pathology of the Blood; Cabot's Guide to Clinical Examination of the Blood; Ozden's Clinical Examination of Urine and Urinary Diagnosis; Croftan's Urinology.

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 FEE FOR BLOOD COUNT.

ESCANABA, MICH., Dec. 8, 1904

To the Editor:—Will you kindly tell me the usual fee for a blood count, i. e., the leucocytosis only? M. P. FENELON

ANSWER.—\$5 to \$10.

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Marriages.

Doc C. Hoyt, M.D., to Miss Belle Claire Chamberlain, both of Chicago, December 1.

GRACE MAE HARCOURT, M.D., to Jonathan Hoag, Jr., at Baltimore, December 8.

JOHN DARST, M.D., Houston, Texas, to Miss Julia Holmlund of Mason City, Iowa.

CHARLES W. ZELLER, M.D., Defiance, Ohio, to Miss Therese Cunningham, October 14.

VINCENT SHEPHERD, M.D., to Miss Marium Palmer, both of Dupont, Ind., November 30.

FELLOWES, DAVIS, JR., M.D., to Miss Gertrude Agostini, both of New York City, December 7.

CHARLES MACDONALD, M.D., Chicago, to Miss Clara Middleton of Oak Park, Ill., December 1.

CORNELIUS D. MACKAY, M.D., to Mrs. Mary Louise McMannany, both of Chicago, November 24.

L. A. VANDERHOOF, M.D., Byron, Ill., to Miss Vergne M. Culver of Lawrence, Mich., November 24.

WILLIAM Y. WARD, M.D., to Miss Maude Alice Peterson, both of Duplex, Texas, November 24.

RANDOLPH TUCKER SHIELDS, M.D., to Miss Ellen Randolph Page, at Winchester, Va., December 7.

THOMAS H. CULHANE, M.D., Peoria, Ill., to Miss Zana May Eastman of Chicago, at Ottawa, Ill., November 23.

WILLIAM LESTER SOUTHER, M.D., Rocky Hill, Ky., to Miss Ethel Pearl Jones of Chattanooga, Tenn., December 7.

FREDERICK ERNEST SCHACHT, M.D., Burlington, Wash., to Miss Sophia Gloria Wiese of Minneapolis, Minn., at St. Louis, November 26.

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Deaths.

Webster Bodine Lowman, M.D. Jefferson Medical College, Philadelphia, 1867, a member of the American Medical Association; vice-president in 1886, and president in 1899 of the Medical Society of the State of Pennsylvania; one of the organizers of the Cambria County Medical Society, its secretary for several years, and three times its president; surgeon to the Pennsylvania System and the Cambria Steel Company since 1876, to the Lorain Steel Company since 1888; surgeon to the Cambria Hospital since 1884; one of the incorporators of the Conemaugh Valley Memorial Hospital Association, and consulting surgeon to the hospital, one of the most prominent surgeons of western Pennsylvania, died at his home in Johnstown, December 5, from chronic nephritis, after an illness of about one year, aged 63.

William E. Carroll, M.D. College of Physicians and Surgeons in the City of New York, 1884, of Newark, N. J., a member of the American Medical Association, Medical Society of the State of New Jersey, Essex County Medical Society and Newark Medical Society; surgeon to the Woman's Hospital, Newark, and one of the most prominent physicians in the city, died at St. Michael's Hospital, December 2, from pneumonia, after an illness of one week, aged 57.

John T. Wills, M.D. Kentucky School of Medicine, 1890, a member of the American Medical Association, and the Denver City and County Medical Society; one of the founders of the Bank of Grand County, Colo., proprietor of the Sulphur Springs Mercantile Company, and county judge of Grand County, died at his home in Sulphur Springs, December 2, from consumption, aged 44.

Martin L. Gerould, M.D. Harvard University Medical School, Boston, 1866, acting assistant surgeon United States Navy during the Civil War, died at his home in Kirkwood, Mo., De-

ember 4, from heart disease, after an illness of five years, aged 63.

Louis J. Steuber, M.D. Rush Medical College, Chicago, 1891, formerly of Lima, Ohio, but recently appointed chief medical officer of a sanitarium at Sour Lake, Texas, was found dead in his bed in San Antonio, Texas, December 8, from heart disease, aged 36.

Carlos L. Chambers, M.D. Rush Medical College, Chicago, 1882, of Kasson, Minn., a member of the American Medical Association, died in a hospital at Minneapolis, December 6, after an operation.

Nelson S. Witting, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1870, of Marinette, Wis., died at a sanitarium in Oshkosh, Wis., after a long illness, aged 71.

Wilford Hickham, M.D. Medical College of Indiana, Indianapolis, 1883, died at his home in Spencer, Ind., November 23, from disease of the stomach, after an illness of three weeks, aged 46.

Caswell J. Graves, M.D. Transylvania University Medical Department, Lexington, Ky., 1848, died suddenly from angina pectoris at his home near Payne's Depot, Ky., December 4, aged 77.

Tobias Jurim, M.D. Vienna, Austria, 1894, of New York City, died at the home of his father-in-law in New York City, December 7, from carbolic acid, taken with suicidal intent, aged 33.

Claude H. Burke, M.D. University of Virginia Medical Department, Charlottesville, 1896, of Burketown, Va., died in Abiquiu, N. M., November 30, from tuberculosis, after a long illness.

John T. McColm, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1877, died at his home in Gravity, Iowa, from cerebral hemorrhage, November 27, after an illness of three days.

James E. McClellan, M.D. Long Island Medical College Hospital, Brooklyn, N. Y., 1868, died at his home in De Ruyter, N. Y., November 24, from diabetes, after a long illness, aged 68.

John Davis, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1863, died at his home in Gomer, Ohio, December 4, after an illness of 13 days, aged 67.

Charles O. Belden, M.D. College of Physicians and Surgeons in the City of New York, 1882, of Litchfield, Conn., died at the Hopeworth Sanitarium, Bristol, R. I., November 27, aged 46.

Nelson J. Bird, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1860, of San Francisco, died suddenly from acute gastritis in Fresno, Cal., December 2, aged 71.

Dennis O'Donoghue, M.D. Medical College of Alabama, Mobile, 1874, died at his home in Charlotte, N. C., December 3, from pneumonia, after an illness of one day, aged 74.

William E. Sitzer, M.D. Trinity Medical College, Toronto, Ont., 1894, died at his home in Ida, Mich., December 6, from pneumonia, after an illness of one month, aged 36.

Martha Cornelia Holmes, M.D. Women's Medical College of Pennsylvania, Philadelphia, 1886, died at her home in Waterville, Conn., December 5, after a short illness.

William H. Warder, M.D. Rush Medical College, Chicago, 1892, fell dead on the sidewalk in front of his residence in Chicago, December 12, from heart disease.

Charles Wilbur Edgington, M.D. Starling Medical College, Columbus, 1895, died at his home in West Union, Ohio, from tuberculosis, November 27, aged 37.

B. Thomas Marshall, M.D. St. Louis Medical College, 1865, died at his home in Woodville, McCracken County, Ky., December 8, from paralysis, aged 65.

Andrew J. McCaughy, M.D. University of Louisville Medical Department, 1884, died at his home in Linton, Ind., November 29, from typhoid fever, aged 49.

Asa A. Bennett, M.D. Philadelphia, 1861, died at the home of his brother in Roscoe, N. Y., from asthma, after a long illness, November 19, aged 69.

Calvin S. Acker, M.D. Rush Medical College, Chicago, 1885, of Arkansas City, Kan., died at his home in Kay County, December 8, from consumption.

Joseph Fuqua Bass, M.D. Jefferson Medical College, Philadelphia, 1860, died at his home in Richmond, Va., December 6, after a long illness, aged 62.

William J. Proctor, M.D. Trinity Medical College, Toronto, Ont., 1892, died recently at the Kindred Hotel, Valley City, N. D., after a brief illness.

George Gordon Kyle, M.D. Starling Medical College, Columbus, Ohio, 1880, died suddenly at his home in Riverside, Cal., November 29.

Hugo W. Kohler, M.D. Marion-Sims College of Medicine, St. Louis, 1892, died at his home in St. Louis, Mo., December 5, aged 40.

George N. Lowe, M.D. Northwestern University Medical School, Chicago, 1887, died recently at his home in Fort Pierre, S. D.

Joseph C. Anderson, M.D. Ohio, 1873, died at his home in Cleveland, December 5, from pneumonia, aged 58.

Benjamin H. Thurman, M.D. Georgia, 1833, was murdered near his home in Cheraw, S. C., November 29.

Kittie Waldo Higgins, M.D. Illinois, 1901, died at her home in Denver, Colo., December 4.

Deaths Abroad.

R. Langerhans, M.D., author of numerous works on pathology, died at Berlin, November 21, aged 45. He was Virchow's assistant from 1885 to 1894, and since then has been prosector at the Moabit Municipal Hospital.

K. Stellwag von Carion, M.D., the well-known ophthalmologist at Vienna, died there November 22, aged 81. He has published numerous manuals and other works on his specialty, and was professor of ophthalmology until retired on reaching the age limit. His name is connected with a sign for goiter, etc.

Book Notices.

A HAND-BOOK OF SURGERY. For Students and Practitioners. By Frederick R. Griffith, M.D., Surgeon to the Bellevue Dispensary, New York City; Assistant Surgeon at the New York Polyclinic School and Hospital. 12mo. Volume of 579 Pages, Containing 417 Illustrations. Philadelphia, New York, London: W. B. Saunders & Co. 1904. Flexible Leather, \$2.00 net.

This book is intended to serve as a working guide in surgery for both the student and the general practitioner. It outlines briefly and in a systematic way the principles and practice of surgery, giving the essentials, as a rule, with extreme conciseness and commendable clearness.

REGIONAL MINOR SURGERY. Describing the Treatment of Those Conditions Daily Encountered by the General Practitioner. By George Gray Van Schaick, M.D., Consulting Surgeon to the French Hospital, N. Y. 226. Price, \$1.50. New York: International Journal of Surgery Co.

This little handbook discusses the treatment of those conditions which are daily encountered by the general practitioner and which, while comparatively trivial, may by careless or bad treatment result in the gravest possible conditions. The book well fulfills the promise of the preface, and that it is of value to the general practitioner is evidenced by the necessity of a second edition in so short a time after the appearance of the first.

EXAMINATION OF THE URINE. By G. A. de Santos Saxe, M.D., Pathologist to the Columbus Hospital, New York City. Fully illustrated, including 8 Colored Plates. Flexible Leather. Pp. 391. Price, \$1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Undoubtedly this manual states well the principal facts in regard to examination of the urine, but it is not apparent that its author has written it because he had anything new to tell or because old facts and principles have been considered from new or unusual points of view. There is a short chapter on "The Diagnosis of Functional Efficiency of the Kidney," in which only the general principles of cystoscopy, etc., are stated. Of the pathogenic germs that may occur in urine only the gonococcus and the tubercle bacillus are fully considered from the point of view of their demonstration. The book comes in a convenient form with flexible covers.

APPLETON'S MEDICAL DICTIONARY. An Illustrated Dictionary of Medicine and Allied Subjects, in Which Are Given the Derivation, Accentuation and Definition of Terms Used Throughout the Entire Field of Medical Science. Edited by Frank P. Foster, M.D. Half-Leather. Pp. 1991. Price \$10.00. Thumb Index, \$11.00. New York and London: D. Appleton & Co. 1904.

This work is practically Foster's Encyclopedic Medical Dictionary under another name, and revised and modified. Some

illustrations are new and original, but many are taken from the older work. It is accurate and up to date in most respects. Beside the Greek or Latin derivation of the word the French and German equivalents are given. In words of Greek origin the rules of the Greek language are adhered to in spelling, for example, "rachitis" is spelled "rhachitis." It seems to us, however, that in such words as hemorrhage and hemorrhoid it is better to replace the diphthong by an "e," thus keeping pace with progress in the development of the language. In an appendix are to be found a list of the chief initial and terminal parts of compound words and a pronouncing list of proper names. There are also a list of abbreviations and a table of weights and measures. The work shows the result of careful revision, as the most recent words are to be found in it.

FRIEDBERGER AND FROHNER'S VETERINARY PATHOLOGY (Authorized Translation). Translated and Edited by M. H. Hayes, F.R.C.V.S., with Notes on Bacteriology by Dr. G. Newman, D.P.H. Vol. 1. Cloth. Pp. 519. Price, \$4.00 net. London: Hurst & Blackett, Ltd. Chicago: W. T. Keener & Co. 1904.

The original of this book is the authoritative work on veterinary medicine in Germany. Its French translation has been made a text-book on this subject in French veterinary schools. This volume in particular will interest physicians because it deals with the infectious diseases of animals. Owing to the undesirable limitation often placed on the term pathology, especially in this country, in which it is frequently employed as synonymous with pathologic anatomy, it is necessary to state that this work deals fully with the clinical aspects of veterinary diseases, that it is in fact a work on veterinary medicine. The translation is a welcome addition to English literature because it places within easy reach comprehensive and authoritative information concerning diseases of domestic and other animals, a subject of increasing interest and importance to human medicine.

LECTURES TO GENERAL PRACTITIONERS ON THE DISEASES OF THE STOMACH AND INTESTINES. With an Account of Their Relations to Other Diseases and of the Most Recent Methods Applicable to the Diagnosis and Treatment of Them in General; also "The Gastro-intestinal Clinics," in which All Such Diseases are Separately Considered. By Boardman Reed, M.D., Professor of Diseases of the Gastro-intestinal Tract, Hygiene and Climatology in the Department of Medicine of Temple College, Philadelphia. Illustrated. Cloth. Pp. 1021. Price, \$5.00 net. New York: E. B. Treat & Co. 1904.

This is a bulky volume of 1024 pages, containing 82 lectures on the diseases of the inner lining of the gastrointestinal canal. There is no discussion of the diseases of the pancreas or of the liver. There is no author's index and the style is rather prolix. Frequently material previously published in articles in medical journals is introduced and there is, on the whole, good room and good reason for condensation. There has been given entirely too little attention in this book to the recent work of Pawlow and others on the various digestive ferments. Nevertheless the general practitioner will find much in these pages that will help him to care for chronic dyspepsies and nervous invalids with gastrointestinal affections. The author lays special stress on treatment.

A TEXT-BOOK OF MATERIA MEDICA. Including Laboratory Exercises in the Histologic and Chemie Examinations of Drugs. For Pharmaceutical and Medical Schools, and for Home Study. By Robert A. Hatcher, Ph.G., M.D., Instructor in Pharmacology in Cornell University Medical School of New York City; and Oswald Solimann, M.D., Assistant Professor in Pharmacology and Materia Medica in the Medical Department of the Western Reserve University of Cleveland. Illustrated. Flexible Leather. Pp. 400. Price, \$2.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This book is written with the object of making the laboratory method of study of this subject popular. The interest in this proverbially dry subject can no doubt be stimulated by objective work. The author is to be commended for his successful venture in giving to the student a practical guide for the study of drugs and their derivatives. The book is divided into three parts. Part one deals with the systematic study of crude drugs. A brief and concise blank form is given which outlines the method of study and describing the drug. Part two considers the plant histology. The first chapter gives a very complete description of the technic necessary for preparing specimens. The section is well illustrated with simple drawings. Part three is a study of the chemical exercises in materia medica. In this section the student is directed to study the

essential connection between materia medica and chemistry. Considerable space is devoted to suggesting an outline for the analysis of unknown drugs. The book is well written, the classifications are good and the book is to be recommended as a practical guide in the laboratory study of materia medica.

WEATHER INFLUENCES. An Empirical Study of the Mental and Physiological Effects of Definite Meteorological Conditions. By Edwin Grant Dexter, Ph.D., Professor of Education at the University of Illinois. With an Introduction by Cleveland Abbe, LL.D. Cloth. Pp. 286. Price, \$2.00. New York: The Macmillan Co. London: Macmillan & Co., Ltd. 1904.

The author offers this work, not as a final word, but as a suggestion for further investigation. The field he enters is not without interest to the popular mind nor without possibilities to the investigator, but it certainly is a field of scientific research hitherto unentered to such an extent. Five of the chapters have, in substance, previously appeared in print; the rest of the material is new. The work will be of interest not only to the casual reader, but particularly to medical men, although it presents facts which, in the main, are well known by physicians. But here they are collected and presented in sequential form. It is the author's aim to set forth the influence of weather on human passions, crime and mental growth and development. Among subjects considered are the sources and nature of weather proverbs, animal weather lore, the weather lore of the "skye influences," the weather and its effect on crime, insanity, suicide, drunkenness, etc. In the preparation of this work the author has availed himself of the assistance of school teachers, wardens of penitentiaries, superintendents of public schools and of asylums for the insane, officials of the United States Weather Bureau and others.

STRABISMUS, OR SQUINT, Latent and Fixed. A Supplement to the Errors of Refraction. By Francis Valk, M.D., Professor of Diseases of the Eye, New York Post-graduate School and Hospital. Cloth. Pp. 171. Price, \$1.75. New York and London: G. P. Putnam's Son. 1904.

While we agree with Edward Jackson that much ink and paper have been wasted in vain attempts to elucidate the many problems that arise in connection with oculo-muscular anomalies and that much of the literature of heterotropia is valueless, it is a praiseworthy task to have stated, as Dr. Valk has done, the principal facts, theories and hypotheses that constitute our present knowledge of squint. Dr. Valk has done some original work in this department of ophthalmic surgery, a fact that gives him a special claim to speak with authority. We agree with him in always preferring, in heterotropia or heterophoria, either shortening or advancement, with or without tenotomy, to tenotomy alone. The various "tucking" operations, however, do not, in our judgement, have a place in ophthalmic surgery, i. e., there does not appear to be a muscular anomaly requiring operative interference whose readjustment can not be more successfully and more neatly accomplished by the average operator through the medium of an advancement, or a shortening without "tucking." We would draw Dr. Valk's attention to one statement in which we think he is in error. On page 121 he says: "I refer the reader to cases of congenital absence of the outward movements of the eyes—seeming convergent squint—where I think the check ligaments may have a very important influence, as in these cases there is a very decided limitation of the outward movement of the eye without any evidence or history of paralysis. I do not think this has been suggested before." This fact has been discussed by Motais and Maddox. Dr. Elliott Colburn of Chicago, writing in the *Ophthalmic Record* for January, 1897, also describes, in an illustrated article, the relations of the check ligaments to convergent squint with limitation of the outward excursion of one eye. The publication of Dr. Valk's book is justified by recent advances in "ophthalmic myology," as Savage phrases it, and the work will be a valuable addition to every ophthalmic surgeon's library.

ADOLESCENCE, ITS PSYCHOLOGY AND ITS Relation to Physiological, Anthropology, Sociology, Sex, Crime, Religion and Education. By G. Stanley Hall, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. Vols. 1 and II. Cloth. Pp. 590 and 784 respectively. Price, \$7.50. New York: D. Appleton & Co. 1904.

The importance of puberty and adolescence as a critical

period is becoming more and more recognized. There have been many important contributions to the subject, but the two volumes of the present work constitute by far the most elaborate and complete study that has yet appeared. The author, moreover, believes that he has opened a new line in his genetic ideas of the soul, which pervade the work and "mark an extension of evolution into the psychical field" that is of the utmost importance. How far his conviction in this regard is supported by the facts is a matter that must be estimated by competent authorities, and only after a very careful perusal of the work. The idea that the development of the individual and the race can best be elucidated by careful study of childhood and adolescence is not entirely new, but Dr. Hall has certainly given us more suggestive points and worked out his theory more elaborately than perhaps has been done by anyone heretofore.

Of the nearly fourteen hundred pages that compose the two volumes, several hundred in the beginning are devoted to physical changes, normal and morbid, that take place during the period of adolescence, including under this designation the period from the first indications of puberty to full maturity. This covers a range of from five to fifteen years at least, and may be extended still farther into early adult life. The growth of the body from early infancy to maturity forms the subject of the first chapter, and the special importance of favoring conditions during the development of sexual maturity are specially emphasized. It is at this period of stress that variations and reversions are liable to occur, and the equilibrium of the organism is most seriously disturbed. In the second chapter the details of growth of parts and organs during adolescence are taken up, and the importance of training to prevent abnormal tendencies is pointed out. It is at this time that mental and bodily culture is the problem of life. Next follows a chapter on the growth of motor power and function, a subject that is, when one considers it in all its relations, one of the most important of those discussed in the work, and involves as much as any other, perhaps the future of our race. The value of various forms of exercise, the importance of the play element, are all fully treated. Dr. Hall considers this one of the greatest problems of our present civilization. The "basal activities that shaped the body of primitive man have been suddenly swept away by the new methods of modern industry." There is here, perhaps on his part, a slight lack of recognition of the fact that human evolution proceeds through local and individual degenerations, a fact well illustrated by the evolution of the human jaw and teeth, and pointed out by Talbot, whose important work on dental deformities is not referred to by the author. We doubt whether mankind will ever be so specialized, as, for example, the soldier ants, but we do not know what physical changes future social evolution may bring forth. In any case, we can not exclude the possibility of further local arrest of development in the future evolution of the race. This chapter is, perhaps, one of the most practically important in the work, and is well worth careful perusal by teachers as well as by physicians.

The chapter on diseases of body and mind is a very good general résumé of our modern knowledge concerning these disorders as they affect the growing youth; especially that portion treating of the mental disorders of the period. One would hardly, however, appreciate the actual rarity of juvenile paresis from Dr. Hall's remarks on the subject, and its importance is, perhaps, overestimated by him as a disorder of adolescent life. He follows largely the ideas of Kraepelin, but holds that the term dementia precox, which became so popular under the inspiration of that author, is not altogether satisfactory, and that there are two important links missing in our knowledge of precocious mental decay. These links are knowledge of the actual changes that occur and lack of sufficient record of the earlier symptoms before the full recognition of the disease. He believes also that it is important that teachers and others who have to do with youth should be acquainted with these morbid forms, and wide-awake to the earliest and mildest of these symptoms. It is of the

utmost importance, he holds, to the study of normal genetic psychology that a careful study should be made of these types of premature decay. The failure of normal youthful development into a sane maturity he thinks will be the real cause of any possible future degeneration of the human race.

The chapters on juvenile criminality, sexual development and periodicity are noteworthy discussions of their subjects that can not be noticed in detail for lack of space. Like the other chapters in the work which have special medical bearings, they give evidence of careful study on the subjects on the part of the author, whose conclusions are generally those that may be accepted as agreeing with the consensus of opinion of those most qualified to judge. The chapter on adolescence in literature, biography and history, which concludes the first volume, is an interesting bit of literary criticism. The author holds that ephemic literature should be recognized as a class by itself and have its own place in the history of letters and criticism.

The second volume contains the discussion of the more particularly psychologic and sociologic aspects of adolescence. It is not less interesting and even more suggestive than the part already noticed. The author seems to favor the idea of the pre-existence of the soul, at least to a certain extent, as elucidating the problems of genetic psychology, and holds that the undue interest in its future has been one of the drawbacks in its study. He is particularly severe on certain methods in education, and is not at all a partisan of co-education. The ultra-feminization of the high schools is one of the leading modern evils, and the effect of the higher education of the adolescent female is, he believes, disastrous to fecundity, and is, therefore, a race danger. The statistics that he has collected appear to favor these views. It is fair to say, however, that there are experienced educators who do not agree with him as to the unavoidable evils of co-education. Boys and girls, according to Dr. Stanley Hall, require a different discipline, moral regimen and moral atmosphere and different methods of work. While co-education may tend to a refinement of manners on the part of the boys, he does not consider this an unmixed advantage. The boy of 15 who is a perfect gentleman has, he believes, something the matter with him. The brute and animal element should, he thinks, be allowed to work itself off in a normal way. On the other hand, the bachelor woman has overdrawn her account with heredity, so that in the full development of her type she is sterile, and this he calls the very apotheosis of biologic selfishness. The concluding chapter on adolescent races and their treatment is an interesting one, though some may question the author's views in some particulars. The typical savage is not always a perfectly lovable creature, and when sophisticated with the average un-Christian civilization which he meets, is still less of one. It may be a question also whether the term adolescent is properly applied to all the inferior races, and whether some of them are not rather in a state of permanent infantilism. Kipling's characterization as "half devil and half child" seems sometimes to close observers the most correct, and it is doubtful whether the world's progress is consistent with their continuation in their autochthonous development. Dr. Hall's quasi-condemnation of certain missionary methods is hardly fair, considering the fact that they have constantly to contend with the active hostile influences of civilization itself. There is very much, however, of truth in his remark that there is need of study of methods in mission work to avoid mistakes that may otherwise be made.

In conclusion, we may say that these two volumes form a treasury of facts and well-digested opinions that should be utilized, not only by physicians, but by teachers and parents generally. It is one of the most fruitful and suggestive works that has of late appeared. It has its drawback to the general reader in the richness of its philosophic vocabulary, and few persons of average culture will be able to interpret some of the terms which the author uses with such freedom; even with the aid of the latest dictionaries it is somewhat difficult. Fortunately, however, the context generally supplies the deficiency.

Miscellany.

Hospitalization of Contagious Diseases.—At the hospital connected with the Paris Pasteur Institute all kinds of contagious diseases are received and taken care of in the same pavilion. About 2,745 patients have thus been sheltered since 1900, including 524 cases of smallpox, 443 of diphtheria, 163 of erysipelas, 136 of measles, 7 of declared hydrophobia, and 192 mothers of sick children or the children of sick mothers. During this entire time there has been contagion of others only in 8 instances—5 of smallpox, 2 of erysipelas and 1 of diphtheria. The mortality has been 18 per cent. in smallpox, 11 per cent. in diphtheria, 2.17 per cent. in scarlet fever, and 6.75 per cent. in erysipelas. The hospital is on the cell or box plan, each separate chamber containing but one or two beds at most, with an entrance on the central corridor and also on a large piazza to be used when it is desirable to shut off the chamber from the rest of the building. There are six "boxes" on each side of the corridor. The walls between them are of glass. Each "box" is cemented and can be washed with the hose. Each has its independent supply of hot and cold water, electric light and gas, and when it is desirable to isolate the nurse with the patient two cells can be thrown into one. Each patient entering the hospital is vaccinated if there are any cases of smallpox in the hospital and each child receives a preventive injection of 5 c.c. of antidiphtheria serum if there is any diphtheria. The dishes, linen, etc., used for each chamber can be disinfected on the spot and none are ever taken out of the pavilion. Every morning and usually evenings, too, the floor is wiped up with a cloth wet with 1 to 50 javel water or a 1 to 200 solution of cresylene. Twice a week the floor of the entire hospital is washed with water and black soap. The erysipelas infection was traced to a rubber comb imperfectly sterilized with sublimate. Since then metal combs have been used and boiled. The cases of contagion of smallpox all developed after an incubation, showing that they must have become infected the first day or possibly before entering the hospital. The case of diphtheria was contracted from some doll's clothes brought from outside to a child. Infection in one case was traced to the cord with which the blind was raised and lowered in the convalescents' room. Martin describes the functioning of this contagious diseases pavilion in the *Bulletin de la Société Méd. des Hopitaux de Paris*.

The Comparative Intellectual Powers of the Two Sexes.—The *Lancet* says that a comparison between the mental attributes of the two sexes has practical as well as scientific interest, for from the economic standpoint it is obvious that the world's intellectual work must eventually fall into the hands of those of either sex, who, by reason of their mental capacities, are best fitted for this purpose. The comparisons drawn by Dr. J. de Kőrösy, the director of municipal statistics at Budapest, are certainly deserving attention, if only for the extensiveness of the observations on which they are founded. As director of municipal statistics he has had opportunities of comparing the examination records of nearly 1,000,000 children, girls and boys, who have received their education both in elementary and in higher grade schools. As gauged by successes and failures the comparison is greatly in favor of the girls, and even as regards proficiency in arithmetic, a subject usually regarded as the special prerogative of boys, the balance of proficiency inclines obviously to the side of the girls. The intellectual superiority of girls, as revealed by the test method applied by Dr. Kőrösy, is so unexpected and so entirely opposed to the teaching of the world's history that we naturally turn to other possible sources of explanation apart from inherent intellectual superiority to reconcile pre-existing conception with the statistical figures drawn from the Hungarian archives. The vulnerable features of these statistics, if, indeed, inferences drawn from the intellectual capacity of the girl can be applied to that of the grown woman, is that they refer to a period of life which both in boys and girls is subject to disturbances, sexual and otherwise. These disturbances are so fundamentally bound up with the general development of the organism, intellectual and organic, that it behooves us to be particu-

larly careful in making any sort of a comparison between the two sexes. The unexplained factors which apparently conduce to a form of intellectual precocity in girls, taken in conjunction with the biologic tendency for the establishment of an inverse relationship between the rate of organic development and the duration of a physiologically useful life, may offer some explanation of the fact that nearly the whole work of human progress can be traced to the maturer activities of the male and not of the female intellect.

Best Method of Artificial Respiration.—Experiments to test the amount of air which can be made to enter the lungs in the prone and in the supine positions are reported by the London *Lancet* as having been made by E. A. Schäfer to determine the effectiveness of the methods of performing artificial respiration, of Howard, Sylvester and Marshall Hall. The subject was a youth, the amount of whose tidal air in natural respiration was examined in the supine and the prone positions. With a respiration-rate of 13 the average amount of exchanged air per respiration was 489 cubic centimeters and per minute 6.460 cubic centimeters in the supine, and with a respiration-rate of 12½ it was 422 cubic centimeters and 5.240 cubic centimeters in the prone posture. The subject was then tested by the Sylvester method (supine). With a respiration-rate of 12.8 per minute an average of 178 cubic centimeters of air was exchanged per respiration and 2,280 cubic centimeters per minute, or slightly over a third of the normal exchange per minute for the individual. With Howard's pressure method (intermittent pressure applied to the lower ribs), the subject being in the supine posture and the average respiration-rate being 13.6, the average exchange per respiration was 295 cubic centimeters and per minute 4.020 cubic centimeters. In the case of the Marshall Hall method, "the patient is laid prone and rolled over to one side and back again, and so alternately. When in the prone position, pressure was exercised upon the back of the chest." Here, with an average respiration-rate of 12.6 and allowing for the rolling-over movement, the exchange per respiration is put at 254 cubic centimeters and the rolling without pressure at 192 cubic centimeters. In the prone pressure method, the one advocated by Schäfer, the compression is obtained in the same way as in Howard's method, but the patient lies prone with a coat folded beneath the lower part of his chest. The respiration-rate being 13, the average exchange per respiration was 520 cubic centimeters and 6,760 cubic centimeters per minute. It is clear that the experiments narrated above show that only in the case of the last method can an amount of tidal air be forced into the lungs which equals the normal exchange. Schäfer investigated these methods, and his conclusions refer to these methods alone, and he is mainly concerned with the resuscitation of the drowned; still, the fact that one method stands a long way in front of others as regards the amount of air which it effectually exchanges places that method first in all cases in which it is essential to empty and to fill the lungs rapidly. The prone posture is not one which is so easily to be employed in cases of suspended respiration in chloroform poisoning, but is undoubtedly the best in cases of drowning, as it not only gives the most free ventilation of the lungs, but also efficiently drains the air passages of water. Even in cases of suspended respiration under anesthetics when the operation has been commenced and is not one involving celiotomy, there appears no insuperable objection to turning the patient face downward while artificial respiration is carried out in the manner suggested.

Association News.

Portland Special.

Physicians in the East are planning a delightful itinerary in connection with the trip to Portland next year. It will include stops at Niagara Falls, Lake Minnetonka, Yellowstone Park, and Butte, Mont. The return trip will include stops in San Francisco, Los Angeles, Sacramento, Salt Lake City, Glenwood Springs, The Garden of the Gods, Denver and Omaha. The

expense is estimated at \$325 for each person. This will include all expenses except hotel bills at Portland and San Francisco. Information concerning this trip can be obtained by writing Dr. F. H. Wiggan, 55 West Thirty-sixth street, New York City.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. A., week ending Dec. 10, 1904:

Van Dusen, James W., asst.-surgeon, granted thirty days' leave of absence.

Appel, Daniel M., deputy surgeon general; Appel, Aaron H., surgeon; Metcalfe, H. F., asst.-surgeon, and Vedder, E. H., asst.-surgeon, called from San Francisco on the *Lagan*, en route to Manila.

Woodson, R. S., asst.-surgeon, will proceed to Hot Springs, Ark., for treatment.

Banister, J. M., March 21, 1905; Raymond, H. I., March 21, 1905; Bradley, A. E., April 21, 1905; Richard, Charles, May 12, 1905; Gibson, R. J., May 12, 1905, and Egan, Peter R., May 19, 1905. The above named surgeons are relieved from duty in the Philippine Division, to take effect on the dates opposite their respective names, and will then proceed by the first available transport to San Francisco, and on arrival report by telegraph to the military secretary of the Army for further orders.

Pollhemus, A. S., surgeon, retired from active service on account of disability incident to the service.

Johnson, R. W., surgeon, when services are no longer required at Louisiana Purchase Exposition grounds, will proceed to Fort Crook, Neb., for duty.

Fuller, Leigh A., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Fort Bayard, N. M., and ordered to Fort Clark, Texas.

Arthur, Wm. H., and Glennan, James D., surgeons, appointed members of an Army retiring board to meet at War Department from time to time.

Geer, Charles C., asst.-surgeon, is directed to report in person to president of an Army retiring board, War Department, for examination by the board.

Wythe, Stephen, contract surgeon, granted an extension of one month to his leave of absence.

Rietz, Hugo C., dental surgeon, returned to Fort Sheridan, Ill., November 30, from temporary duty at Fort Brady, Mich.

Chambers, William H., dental surgeon, returned to duty November 26 at San Francisco from leave of absence.

Oliver, Robert T., examining and supervising dental surgeon, granted leave of absence for one month.

Dickenson, Clarence F., contract surgeon, granted leave of absence for three months, with permission to visit the United States.

Enders, William J., contract surgeon, left Fort Morgan, Ala., December 3 on leave of absence.

Wall, Francis M., contract surgeon, arrived at Fort Morgan, Ala., December 3 for temporary duty.

Boak, S. Davis, dental surgeon, returned to duty at Fort Slocum, N. Y., December 2 from leave of absence.

Shellenberger, James E., contract surgeon, returned to duty at Fort Sam Houston, Texas, December 2 from leave of absence.

Mason, George L., dental surgeon, granted an extension of twenty-three days to his leave of absence.

Lauderdale, Clarence E., dental surgeon, returned to duty at Fort Sam Houston, Texas, December 3 from leave of absence.

Brooks, John D., contract surgeon, left Fort Meade, S. D., December 4 on leave of absence for one month and fifteen days.

Navy Changes.

Changes in the medical corps of the Navy, week ending Dec. 10, 1904:

Wheeler, F. W., surgeon, detached from the *Philadelphia*, ordered home and granted sick leave for three months.

Seaman, W. P. A., detached from the *Wabash* and ordered to the Navy Yard, Boston.

Brownell, C. B., surgeon, detached from the *Amphitrite*, December 20 and ordered to the *Itora*.

Urie, J. F., surgeon, sick leave extended three months from Dec. 9, 1904.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ended Dec. 7, 1904:

Gassaway, J. M., surgeon, granted extension of leave of absence for one day November 27.

Carmichael, D. A., surgeon, to proceed to Washington, D. C., for special temporary duty. To proceed to Evansville, Ind., for special temporary duty.

Cumming, H. S., P. A. surgeon, granted leave of absence for seven days.

Von Esdorf, R. H. P. A. surgeon, relieved from duty in connection with the exhibit of the Service at the Louisiana Purchase Exposition, St. Louis, Mo., and directed to proceed to Washington, D. C.

Billings, W. C. P. A. surgeon, granted leave of absence for ten days from December 23.

Holt, J. M. P. A. surgeon, granted leave of absence for one day, Nov. 25, 1904, under Paragraph 191 of the Regulations.

Ebersole, R. E., asst.-surgeon, granted fifteen days' extension of leave of absence from December 6.

Stiles, Ch. Wardell, zoologist, granted leave of absence for three days from Nov. 30, 1904, under Paragraph 191 of the Regulations.

Ballard, J. C. A. A. surgeon, granted leave of absence for three days from Dec. 9, 1904.

Echemendin, D. M., A. A. surgeon, granted leave of absence for thirty days from December 1.
 Goldsborough, B. W., A. A. surgeon, granted leave of absence for two days.
 Safford, A. V., A. A. surgeon, granted leave of absence for nine days from December 10.
 Gahn, H., pharmacist, granted leave of absence for fifteen days from December 8.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Dec. 9, 1904:

SMALLPOX—UNITED STATES.

California: San Francisco, Nov. 19-26, 1 case.
 District of Columbia: Washington, Nov. 26-Dec. 3, 1 case.
 Illinois: Chicago, Nov. 26-Dec. 3, 12 cases, 2 deaths.
 Indiana: Hammond, Nov. 23-30, 1 case.
 Kentucky: Louisville, Nov. 24-Dec. 1, 6 cases.
 Louisiana: New Orleans, Nov. 26-Dec. 3, 4 cases, 2 imported.
 Michigan: Nov. 26-Dec. 3, Detroit, 1 case; Grand Rapids, 1 case; at 62 localities, Nov. 19-26, present.
 Missouri: St. Louis, Nov. 26-Dec. 3, 22 cases, 5 deaths.
 New York: Elmira, Nov. 26-Dec. 3, 1 case.
 Ohio: Zanesville, Nov. 12-19, 1 case.
 Pennsylvania: Philadelphia, Nov. 26-Dec. 3, 1 case.
 South Carolina: Georgetown, Nov. 30-Dec. 6, 2 cases.
 Tennessee: Memphis, Nov. 19-Dec. 3, 1 case.
 Wisconsin: Milwaukee, Nov. 19-Dec. 3, 39 cases.

SMALLPOX—FOREIGN.

Belgium: Brussels, Nov. 12-19, 1 death.
 Brazil: Pernambuco, Oct. 15-31, 48 deaths.
 France: Nov. 12-19, Lyons, 1 case; Paris, 16 cases, 3 deaths.
 Great Britain: Nov. 12-19, Dundee, 1 case; London, 1 case; Manchester, 18 cases, 18 deaths; Glasgow, 1 case; Newcastle-on-Tyne, 6 cases, 1 death; South Shields, 2 cases; Leeds, Nov. 19-26, 1 case; West Riding, including Dewsbury and environs, Oct. 1-31, 137 cases.
 India: Bombay, Nov. 1-8, 2 deaths; Madras, Oct. 29-Nov. 4, 1 death.
 Italy: Catania, Nov. 17-24, 2 deaths; Palermo, Nov. 5-12, 9 cases, 6 deaths.
 Russia: Nov. 5-12, Moscow, 2 cases, 2 deaths; St. Petersburg, 7 cases.
 Turkey: Constantinople, Nov. 13-20, 30 deaths.

YELLOW FEVER.

Brazil: Pernambuco, Oct. 15-31, 1 death.
 Ecuador: Guayaquil, Nov. 8-16, 1 death.
 Mexico: Coatzacoalcos, Nov. 19-26, 1 case, 2 deaths.
CHOLERA.
 Russian Empire: Astrakan (suburb), Oct. 14-16, 3 cases, 2 deaths; Baku, Oct. 11-18, 60 cases, 24 deaths; Morsha, Oct. 8-17, 51 cases, 23 deaths; Samara district, Oct. 10, sporadic.

PLAGUE.

Brazil: Pernambuco, Oct. 1-31, 1 death.
 India: Bombay, Nov. 1-8, 52 deaths.
 Japan: Formosa, Sept. 3-10, 1 case, 1 death.

Medical Organization.

Arkansas.

EIGHTH COUNCILOR DISTRICT MEDICAL SOCIETY.—At the second meeting of this organization, held at Little Rock, December 6, Dr. Stroder U. King, Little Rock, was elected president; Dr. James H. Voris, Conway, vice-president; Dr. Roscoe L. White, Little Rock, secretary, and Dr. S. Paul Vanghter, Little Rock, treasurer and librarian.

Maryland.

CAROLINE COUNTY MEDICAL SOCIETY.—This society was organized at Denton, November 23, on the standard plan. Dr. Charles M. Ellis, Elkton, was made temporary chairman, and Dr. Fred. N. Nichols, Denton, temporary secretary. The following officers were elected: Dr. Enoch George, Denton, president; Dr. James R. Phillips, Preston, vice-president; Dr. Fred. N. Nichols, Denton, secretary, and Dr. Theodore Saulsbury, Burrsville, treasurer.

PRINCE GEORGE COUNTY MEDICAL ASSOCIATION.—On November 26 this society, at a meeting held in Washington, D. C., adopted the standard constitution and by-laws and elected the following officers: President, Dr. L. A. Griffith, Upper Marlboro; vice-president, Dr. William O. Eversfield, College Park; secretary, Dr. William H. Gibbons, Croom; treasurer, Dr. Arthur O. Etienne, Berwyn, and censors, Drs. Charles A. Fox, Beltsville; Nelson A. Ryan, Bowie, and Van Lear Perry, Hyattsville.

North Dakota.

CASS COUNTY MEDICAL SOCIETY.—At the meeting of this society, held in Fargo, December 28, the standard constitution and by-laws were adopted.

South Carolina.

LAURENS COUNTY MEDICAL SOCIETY.—At a meeting held in

Laurens, November 28, over which Dr. Job J. Boozer, Clinton, presided, and Dr. Rolfe E. Hughes, Laurens, acted as secretary, the society was reorganized with the following officers: Dr. Job J. Boozer, Clinton, president; Drs. William H. Dial, Laurens, and John H. Miller, Cross Hill, vice-presidents; Dr. A. J. Chrystopher, Laurens, treasurer, and Dr. Rolfe E. Hughes, Laurens, secretary.

Texas.

TARRANT COUNTY MEDICAL SOCIETY has been incorporated at Fort Worth by Drs. Isaac L. Van Zandt, Preston L. Hooper, Edgar D. Capps and others, without capital stock.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
 Western Surgical and Gynaecological Association, Milwaukee, Wis., December 28-29.
 Pan-American Medical Congress, Panama, Jan. 2-6, 1905.
 American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Nov. 23, 1904.

John B. Murphy in the Chair.

Symposium on Criminal Abortion.

THE DUTY OF THE MEDICAL PROFESSION IN RELATION TO CRIMINAL ABORTION.

DR. C. S. BACON estimates that from six to ten thousand abortions are induced in Chicago every year, a majority of which are married women. To collect data on the subject, to call the attention of the profession to it, and to exercise an influence toward restraining the evil and checking the debauchment of the minds of the profession and the community, a committee of the Council of the Chicago Medical Society was appointed about a year ago. This committee has now arranged for a symposium as a feature in its work of education.

From the medical and social sides of the problem, four reasons are given for repressing the practice of abortion. (1) It is an injury to the embryo or fetus destroyed, for the fetus is a living, human, independent being, and has the right to existence which belongs to all human beings, and it should be protected in this right. (2) It is an injury to the mother, for it is an unjustifiable risk to her health and life. (3) It is an injury to the relatives of the unborn child and to the mother. (4) It is an injury to the state. According to the common law, the fetus is not considered a being until after quickening, and therefore it is not a crime to destroy it. After quickening, its destruction, either by the mother or by a third party, is a misdemeanor, but not a crime punishable by imprisonment. According to the Illinois statutes, which take the place of the common law, there is no distinction between an animate and an inanimate fetus, and the induction of abortion is punished by imprisonment for from one to ten years. The consent of the mother does not absolve the third party who does the act. Intent is the essence of the crime, and the efficiency of the means employed is not considered. If the mother dies, the act is murder. Notwithstanding the prevalence of the crime, there are practically no accusations nor indictments for abortion unless the mother becomes seriously ill or dies. Even in the latter case her relatives generally try to prevent any investigation in order to shield her reputation. The influence of the physician should be exerted to persuade the injured mother or her friends to act. In case of her death, it is his duty to report the case to the coroner as he would any other case of homicide. If a case comes to trial, it is necessary that the physician know the rules of procedure of courts and the rules of evidence. In Illinois no communications to physicians are privileged. Attention is called to the great importance of a dying declaration, which may become the chief factor in producing the conviction. It must be voluntary, made when the patient has given up hope

of recovery, and should state that a certain individual has committed the act.

To illustrate some of these points, Dr. Bacon reported a case of successful prosecution of a midwife for manslaughter. It showed the necessity for obtaining unimpeachable evidence of the existence of pregnancy, and the importance of the dying declaration. Dr. Bacon also called attention to the need of maternity asylums for the unmarried.

MORAL AND RELIGIOUS OBJECTIONS TO ABORTION.

REV. PETER J. O'CALLAGHAN, of the Order of Paulists, said that it was one of the triumphs of the ancient church to have practically eradicated the crime of abortion, and that the Roman Catholic Church stands to-day where she stood a thousand years ago. She declares that no man has the right to destroy, by any direct act, the life of an innocent human being. In the face of a sentiment which has persuaded a large section of the medical profession that direct abortion is sometimes not only justifiable, but even commendable, that church has unflinchingly declared that the direct taking of an innocent human life is always murder, no matter what be the stage of its existence. In 1884 her authoritative teaching body was asked whether it was safe to teach, in Catholic schools, that the operation of craniotomy is sometimes justifiable. The answer was that it was not safe so to teach. In 1889 the same body was asked if any operation at all looking to the direct killing of the child *in utero* was justifiable. The question was also answered in the negative. Again it was asked if this should be done when absolutely necessary to save the mother, and in 1895 this question was answered in the negative. Again, the formal question was asked, if, in extraterine conception, any operation be justifiable which meant the death of the child. This was answered in the negative.

This church, therefore, has constantly said that no one has a right on any occasion to procure directly, by any act of his, the death of any human being. It maintains the right of the unborn child to live just as much as the right of the mother to live. If one or the other must die, or both die, and if both die without act of ours, the responsibility is not ours. Such, said the speaker, is the position of the Catholic Church. Although these are not dogmatic definitions of Roman Catholic doctrine, they are the authoritative decisions of that church on the question of abortion. The reason for the uncompromising position in this matter is found in the decalogue, "Thou shalt not kill." Principles of conduct can not be arbitrarily confined to particular cases. If it is right to take human life to save the mother's life, it is right to take a human life to save a mother's honor. If it is right to destroy the unborn child in order to avoid the suffering that shame brings, it is right to destroy a child whose birth would mean for others the sufferings of poverty. If there is such a thing as therapeutic abortion that is commendable, Father O'Callaghan thinks that there is no such thing as a criminal abortion that is reprehensible. Legislators may determine that some conditions justify abortion, while other conditions do not, but their judgment will not control the consciences any more than their present laws inconvenience the majority of those that are now guilty of what is called criminal abortion.

CRIMINAL ABORTION AS IT COMES BEFORE THE CORONER'S OFFICE.

MR. JOHN E. TRAEGER, coroner of Cook County, said that before his advent in the coroner's office he had little or no opportunity to know to what extent criminal abortion was practiced, especially in a large, cosmopolitan city like Chicago. He found, after investigation, that many of the abortions are induced by midwives who make a specialty of it, and whose business cards announcing their vocation could be found in some of the houses of ill-fame in the city, being distributed by the landladies or inmates to the men, who might some time want that kind of service. In consulting the records of the office, he found that there had been very few persons held to the grand jury, and fewer still ever convicted of the crime of criminal abortion. This news discouraged him, and he made up his mind to devise some way to stop it. During the past

four years, with the assistance of the state's attorney, four of those midwives were sent to the Joliet penitentiary. The first year of his term, he investigated 42 cases of criminal practice; the second year it fell off to 27; last year it was further reduced to 18; but this year it would reach 35, which is an increase of nearly 100 per cent. He held six midwives and one physician to the grand jury this year, and had already convicted two. In investigating the cases of abortion that came to his office, he finds that the cause for the act differs in almost every case, that is, among married women; in some cases on account of poverty, in others on account of children coming too fast, and the society woman, who has not time to devote to maternal cares; and last, but not least, the dwellers in modern flats. It has got so nowadays that a married couple with babies is denied admission to an apartment house or flat building, and it is his opinion that the attitude of landlords in refusing to rent to families with small children and in allowing that impression to go out broadcast is indirectly the cause of much of the criminal practice in Chicago. He thinks the discussion as to the causes of the practice and its cure can be safely left to physicians. He thinks that it is the duty of physicians, and that it is his duty to try to check the practice—their's by advice to the women who come to them for assistance, and his by punishing the guilty who have violated the law.

THERAPEUTIC AND CRIMINAL ABORTION.

DR. CHARLES B. REED stated that, in the advance of moral feeling, the opinion has developed that in certain cases where the lives of both mother and child are imperiled and one can be saved, the child should be sacrificed, since the value of the mother to the State is far greater than that of the unborn babe. Hence, where certain diseases or complications appear in or exist during the course of gestation and threaten the integrity of the case, a broad human sentiment now permits, nay, even demands, the destruction of the fetus. When this situation eventuates before the viability of the child, it is recognized as a prophylactic or therapeutic abortion, and becomes a justifiable measure in the presence of such conditions as hyperemesis gravidarum and eclampsia, which do not yield to treatment. In certain cases of beginning and advanced pulmonary tuberculosis, cardiac disease, insanity, severe nephritis, or serious and irreducible uterine displacements with dense adhesions, the operation is justly performed. In cases of absolutely contracted pelvis, where the patient refuses cesarean section, abortion is sometimes desirable, although the relative dangers of the two operations do not greatly differ in skillful hands. The results of therapeutic abortion, when executed in a careful, scientific way, are generally good, and the indications for its performance are found both in and out of marriage.

Abortion in all its phases is necessarily more common in the married state, and it has been said that almost half of all child-bearing women have an abortion before the thirty-fifth year. It is also true that the medical man is most frequently approached by married women who desire the removal of the socially inconvenient egg. For this situation there is no excuse. When the product of conception is deliberately destroyed for social reasons only, and without physical justification, in a woman married or single, it constitutes a criminal offense before the human and moral law. It is ignorantly maintained by many that the dislodgment of the egg before quickening is in no sense reprehensible, because it is thought that the egg is not alive. This is a distinction of degree only, and a species of special pleading, for the fertilized egg contains all the hopes and possibilities of a mature fetus, and, while quickening usually occurs at the sixteenth week, the fetus is practically fully formed at an earlier period. The normal attitude of the enlightened professional man is hostile to abortion. It is well attested that nearly all of the desperate and fatal complications found in abortions occur in criminal cases. The deaths from such attempts are frequent, and embrace a large range of causative conditions, among which as the most important are perforation, peritonitis, septicemia,

pyemia, tetanus, endometritis, endosalpingitis, air embolism, abscesses, pneumothorax, thrombophlebitis, phlegmasia alba dolens, etc.

Legal restrictions are relatively recent in origin, but none the less drastic. It is not the murder of a living child which constitutes the offense, but the destruction of gestation by wicked and unnatural means. The moment the womb is instinct with embryo life, gestation has begun, the crime may be committed. The liability of the mother, in the eyes of the law, is the same as that of the third person, and in many states is made equally culpable with the act. In Illinois, the attempt is punishable by imprisonment in the penitentiary for from one to ten years, and if the death of the mother results therefrom, it constitutes murder. But the law, unsupported by popular sentiment, has proved ineffective, and in many cases no attempt is made even to secure its enforcement, and the abortionist rests in security. It devolves on the physician to keep the light before the public mind, not only in general, but in particular instances.

The artificial conditions which drive unmarried girls to abortion should be everywhere strenuously opposed, and even illegitimate motherhood might soon become a bearable penance. Let the legal and moral enactments be what they will, a broad humanity demands the protection of the mother and the illegitimate unborn babe. Maternities should be established and maintained, and homes and places of refuge founded and supported for the woman awaiting confinement. There should be charity for the unfortunate girl who, with unreasoning animalism, attempts to escape exposure and humiliation by abortion. Teach chastity, teach restraint, but, above all, protect the devoted victim of her own strength, or weakness, from yielding to the eternal dominant impulse, and enable her to pass through her gestation and delivery free from the lofty scorn of an unsympathetic sisterhood.

CRIMINAL ABORTION AND NEWSPAPER ADVERTISING.

DR. RUDOLPH W. HOLMES said that he has become convinced that abortions among the better classes are essentially brought about by social causes. He believes that where one abortion occurs from the diverse pathologic causes, many more are produced by the abortionist's instruments, drugs, or other measures. Education is absolutely indispensable to a proper realization of the heinousness of destroying the unborn child; the physician is the one, above all others, who may be the most influential in deterring women from having their desires fulfilled. Well-directed arguments concerning the dangers of having the operation done are, to his mind, more effective than too strong presentations of the moral aspect. So soon as the physician presents to the woman that she is doing a criminal offense, is breaking a moral law, he arouses her enmity from the suggestion implied that she is immoral or a criminal.

The common law, which is founded on ancient and medieval customs, has fostered the belief that the fetus did not have life until quickening was noted by the mother. To this day the states of Connecticut, Mississippi, Minnesota, Arkansas and Oregon accept this obsolete interpretation of the common law in their statutes; other states and most countries, by legislative action, have removed such absurd qualifications as "quick with child" from their statutes defining criminal abortion. Although this really nonsensical belief that the fetus is endowed with life by the accidental circumstances of the mother feeling fetal movements has been done away with in medicine, law and theology, the laity still tenaciously adheres to the old idea. The present law in Illinois, as in nearly all other states, makes a great distinction between an abortion which does not destroy the life of the mother, and when she dies: the former is the felony of abortion, the latter is the felony of murder. Such a law is discriminative, as infanticide is murder, so should feticide be murder; the abortionist, directly, maliciously, with "malice aforethought," deliberately kills the fetus, while it is far from his intention to kill the woman. Dr. Holmes is positive that the daily papers, magazines, and even some so-called religious papers

are most fruitful means of disseminating the knowledge concerning the means for producing abortion, by covertly suggesting where the appliances may be obtained, the drugs bought, or even the instrumental methods which may be carried out. There is hardly a daily paper in Chicago which does not regularly print a list of advertisements of professional abortionists. That a veiled advertisement may be brought in as evidence of the criminal intent of the abortionist has been amply settled in Massachusetts, and would undoubtedly be accepted in the courts of other states.¹

Dr. Holmes briefly reviewed the laws concerning the sale of abortifacients, and stated his belief that the time has come for this society to take an active part in aiding the prosecution of notorious abortionists. This may be accomplished in various ways: 1. By bringing moral suasion on newspaper management, so that they will refuse all advertisements of a suggestive nature; a committee of this society might act as an advisory board of censors. 2. By working in friendly conjunction with the State Board of Health, Chicago Department of Health, the state attorney's office, and with the coroner. If work is carried on along these lines, he thinks an enormous amount of data would be collected which would be of inestimable value to the several legal bodies.

THE COMMON AND STATUTE LAW OF ILLINOIS.

MR. J. M. SHEEAN, attorney for the medicolegal committee, briefly reviewed the history of criminal abortion. According to the ancient English common law, fetal life was held to begin only at the quickening, and until such time no offense could be considered committed by an operation. No offense of any kind, with the woman's consent, was recognized as punishable. If, without the mother's consent, abortion was induced, simple assault was punishable. This law remained until a short time prior to the separation of this country from the mother country. Then certain statutory enactments were passed in England which did not become laws in this country, but which were followed in many of the states. It was made an offense, a misdemeanor, merely to commit abortion or to induce premature delivery, even though the child had not quickened. In addition, there was a provision, if the death of the mother resulted, murder was the crime committed by one who was either the principal or accessory. In Illinois, which adopted the common law, so far as it existed up to 1607, this condition was found, until the first criminal code was enacted, that abortion was defined in a manner slightly different from the crime as it exists on the statute books to-day. Until 1867, the crime of abortion in Illinois was defined as follows: "Whoever, by means of any instrument, medicine, drug, or other means whatever, causes any woman pregnant with child to abort or miscarry, or attempts to procure or produce any abortion or miscarriage, unless the same be done for *bona fide* medical or surgical purposes, shall be imprisoned in the penitentiary."

This statute remained until the year 1867; in 1867 the legislature changed the statute, and enacted it as it now stands on the statute books, and in lieu of the words "for *bona fide* medical or surgical purposes," the provision of the Illinois statute is, "Unless same were done as necessary for the preservation of the mother's life." In interpreting the words, "necessary for the preservation of the mother's life," it has been held that it must be an actual physical necessity; that is, the mental depression which may come because of the unfortunate condition of the mother; the threats of suicide, the probability of insanity, the nervous condition in which the mother at that time finds herself because of her surroundings, because of brooding over her condition are not within the medical law; they are not conditions that will justify a physician or surgeon in saying that it is necessary for the preservation of the mother's life that her child should be destroyed. The courts, in interpreting these words, have properly held that it must be an actual physical condition which renders improbable the continued life of the mother unless the life of the child be destroyed. Whether practical

1. THE JOURNAL, June 23, 1900, p. 1612.

enforcement of the law as it stands is to be brought about is dependent on public desire, public demands. Mr. Shecan said that the law itself is as far advanced as is the public conscience. Indeed, it is further advanced, apparently, than the public demand for its enforcement would require, and so, if anything is to be accomplished, it is not by making appeals to the legislature for a modification of the laws nor for a more stringent law, but public conscience should be so stimulated as to require and demand that the law, as it stands to-day, should be strictly enforced.

SHALL COMMUNICATIONS OF PHYSICIANS BE PRIVILEGED?

DR. HAROLD N. MOYER said that unquestionably the privileged communication or medical secret has stood in the way more largely than any one factor in the prosecution of the abortionist. The common law never had but one privileged communication, and this was not the result of a statute, but simply grew up as a part of the practice of courts, namely, a communication between an attorney and his client was regarded as privileged. Dr. Moyer quoted the Roman law, the French law and the New York statute in regard to privileged communications. The New York statute reads: "A person duly authorized to practice physics or surgery shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity." He said that this statute might put an onus on the physician. The privileged communication does not apply to this state, a fact not generally known to the profession. The communication of a patient to a physician is absolutely unrestricted and open to the inquiry of the court, and this absolves a physician from all legal responsibility in case he goes into court with questions of this kind.

Some years ago Dr. Moyer urged a member of the legislature to obtain the enactment of a statute making the communications of physicians privileged ones. He regretted he made such a request, and is glad that it bore no fruit, and if to-day he heard of any attempt to have the legislature pass such a law, he would do his best not to have it passed. Such a law, he said, is not useful to the community, and imposes an extraordinary burden on the profession in some particulars. The courts will protect physicians. A communication made under the seal of the confessional is not a privileged communication in this state, yet he has never heard of a court in Illinois that has attempted to invade the sanctity of the clergyman's office. The courts are capable of protecting physicians against the wrongful use or abuse of medical evidence, and the matter could be safely left to them.

DISCUSSION.

MR. FLETCHER DOBYNS, assistant state's attorney, said that the state's attorney can do nothing in prosecuting abortionists until he has complete evidence, and prosecutions frequently fail because evidence has not been properly obtained. He referred to the manner in which evidence should be prepared. The court instructs the jury that every material allegation in the indictment must be proved beyond reasonable doubt. It must be proved that a woman was pregnant, and that an operation was performed to induce abortion. It must be proved that such an abortion was not necessary to save the life of the mother, and that she died as a result of it. It is absolutely necessary for a physician in making his examination to make it carefully and exhaustively and to preserve his data, so that he can refresh his mind, and be able to take the stand and say with absolute accuracy and certainty that the woman was pregnant. This would help the state's attorney in proving to the jury beyond a reasonable doubt that pregnancy did exist. The next point to prove to the jury is that it was not necessary to perform an abortion to save the life of the mother; and the physician must be able to take the stand and to tell the conditions he found, the treatment of the patient, and to give his reasons clearly to the jury to show why it was not necessary to induce an abortion to save the life of the mother. Furthermore, it is necessary to show that death resulted from the operation by which the abortion was produced.

The symposium was further discussed by Dr. M. O. Heckard, Mr. H. H. Hart, Mr. Charles Allen, Dr. Lucy Waite and Dr. Rosalie M. Ladova.

Travel Notes.

XX.

GRANT MEDICAL COLLEGE AND THE HOSPITALS OF BOMBAY.

NICHOLAS SENN, M.D.

CHICAGO.

MARSEILLES, FRANCE, Oct. 3, 1904.

Bombay, with its 800,000 inhabitants, is the commercial metropolis and medical center of India. The city has many and varied medical institutions that awaken the interest of the professional visitor. The most important among these is the Grant Medical College, the largest medical school in India. For sixty years it has been the Mecca for native young men in that part of India who were desirous of entering the ranks of the medical profession. Thousands of graduates have left its doors well prepared to serve their countrymen as reliable and competent physicians. From a modest beginning it has developed into a great medical school with an attendance of more than 600. The personnel of the students is an interesting one. The mixture of colors, from the almost pure white of some of the Eurasians to the coal black of some of the Hindus, and the variety in dress, from Parisian to the most picturesque costumes makes up an interesting picture for the foreigner.

The Mohammedan population of India is large but, as a rule, its young men manifest little desire for a higher education and the number of medical students from this source is small. On the other hand, the Hindus take kindly to the professions of law and medicine and the bulk of the medical students is recruited from the high caste Hindus. The Parsee element of the population is well represented in the medical schools, and the strange headdress of the males of these people figures conspicuously in all the classrooms.

The female medical students number about sixty and, with the exception of two or three white women, they are Hindus, Parsees and Eurasians. What are known as half-castes in Ceylon are designated in India by the more euphonious word, Eurasians, meaning a mixture of Europeans with Asiatics. The female medical students have won for themselves here, as elsewhere, an enviable reputation as enthusiastic, hard workers, who, when the time for graduation comes, are never found at the undesirable end of the class. Their subsequent professional career is often, however, a very checked one. Some receive hospital positions with small salaries, rupees 100 to 200 (\$32 to \$64) a month; others enter private practice, but seldom meet with great success; some marry, and not a small percentage sooner or later abandon their profession and turn their attention to some other vocation.

The professors are selected from the Indian Medical Service with special reference to their aptitude to teach the different branches. The principal chairs, medicine, surgery and obstetrics, are occupied by men who have had an extensive experience, while the primary branches, especially pathology and bacteriology, are usually taught by the younger members of the service. Native graduates hold subordinate positions in the teaching force as assistant professors, instructors, demonstrators, tutors, etc. The professors who belong to the civil branch of the Indian Medical Service receive a salary accorded to their military rank and in addition they receive some remuneration from the college for their services to that, for instance, a lieutenant colonel who has been in the service for 20 years may have an annual income of \$4,800. In the event of his death, his widow receives a pension of \$750 a year and each of his children \$150 a year, the sons until they reach the age of 21 years and the daughters until they become married. The pensions are provided by a fund to which each officer contributes. When an officer gets married he pays into this fund 2,000 rupees (\$640), and 1,000

rupees (\$320) after the birth of every child. At the end of 25 years, on retiring, he receives a pension of \$2,500 a year. The teaching duties of these men are so exacting that they are given but a slight chance to increase their income by private practice, which is, however, permitted.

The original Grant Medical College, so called in honor of one of the former governors of Bombay, is a substantial, venerable, two-story stone building. With the increasing demand for space, additional buildings have been erected. The anatomy building (Fig. 1.), now nearing completion, is a two-story, massive stone building, with marble floors: the upper story is the dissecting room, which is flooded with light from all directions. It is unquestionably the finest dissecting room in the world. Connected with it is a small separate building, covered with wire screen for the purpose of excluding vultures and crows, in which the bodies are prepared and the bones of the dissected subjects are cleaned and mounted.

The chemical and pathologic laboratories are inadequate for the present requirements and it is hoped that separate buildings will soon be erected for each of these very important primary branches. With an ever increasing attendance, the lecture rooms will also soon become too small. The curriculum of study for the M.B. and B.S. degrees extends over five years and includes the following studies:

First Year.—Biology, botany, chemistry, practical chemistry, materia medica, practical pharmacy.

Second Year.—Anatomy, botany, chemistry, practical chemistry, materia medica, practical pharmacy, physiology.

Third Year.—Physiology, histology and practical physiology, anatomy.

Fourth Year.—Medicine, surgery, pathology, hygiene, diseases of women and children, demonstrations in pathology, clinical practice in medical, surgical and obstetric wards. Attendance at male and female out-patient rooms. Attendance at pathologic room.

Fifth Year.—Surgery, medicine, diseases of women and children, operative surgery, clinical practice in medical, surgical, obstetric and surgical wards, attendance at pathologic room.

A glance at this curriculum shows what attention is paid to the primary branches, especially chemistry, anatomy and botany, the last of these entirely ignored in most of our medical colleges and the first and second only too often treated in a stepmotherly way. The students are not pestered with unnecessarily frequent examinations, as only two examinations a year are held, at the end of each semiannual term.

The military pupils, of whom there are now 86 in attendance and who finish their studies in four years, have a somewhat different curriculum of study to follow. It is as follows:

First Year.—Anatomy, descriptive and surgical, dissections, anatomy and physiology, materia medica, chemistry and practical chemistry, compounding dispensary.

Second Year.—Anatomy, descriptive and surgical, dissections, anatomy and physiology, materia medica, chemistry and practical chemistry, compounding dispensary.

Third Year.—Medicine and clinical medicine, surgery and clinical surgery, diseases of women and children, hygiene, pathology, hospital practice and out-door dispensaries, post-mortem examinations.

Fourth Year.—Medicine and clinical medicine, surgery, clinical and operative surgery, diseases of women and children, practical toxicology, clinical, medical, surgical, obstetric, and ophthalmic wards.

Fourth year students and third year military pupils attend in rotation at the male out-patient rooms as arranged by their teachers. Female pupils attend at the female out-patient rooms. Four and five didactic lectures, from 10 to 3 or 4 p. m., are delivered daily except Saturday, on which day only two lectures are given, during the forenoon. The clinics in the Jamsjee Jeejeebhoy Hospital begin at 7 or 7:30 a. m. and are held daily. This is the hospital in which the clinical teaching in medicine and surgery is done exclusively. The present teaching staff consists of eleven professors, one demonstrator and eleven tutors. Lieut.-Col. H. P. Dimmock, I.M.S., is principal of the school and professor

of obstetrics, gynecology and diseases of children, and Lieut.-Col. Quicke, I.M.S., is professor of surgery, operative surgery and surgical anatomy.

The final examination in this college appears to be quite a severe one, as every year only about 45 per cent. of the candidates for graduation are recommended to the Bombay University, with which the college is affiliated, for the degree. Those who fail may come up again for examination at the close of the next or of any other subsequent term.

The military pupils are prepared for the assistant surgeon branch of the Indian Subordinate Medical Department. They must be of European or Eurasian parentage, not less than 16 and not more than 18 years of age. They must pass a satisfactory physical examination and are examined in the following subjects: English.—Handwriting, dictation, composition, explanation of idioms and grammar questions. History and geography.—The outlines of English and Indian history, and the elements of physical and general geography. Mathematics.—Arithmetic: The four simple rules, vulgar and decimal fractions, reduction, practice, proportion, simple interest, extraction of square root. Algebra: The four simple rules, proportions, simple equations; Euclid, first book. Vernacular.—Hindustani, colloquial.

They are educated at government expense. Pupils who obtain less than 33 per cent. of marks in each subject of their final examination will be liable to removal from the college.



Fig. 1.—Anatomy Building, Grant Medical College.

Such pupils, however, will be allowed to remain for a further period (to be fixed by the principal in each case) in the college to continue their studies at their own expense. Military assistant surgeon graduates from this department of the college are employed in hospitals of British troops and in military and civil appointments; those in civil employment being available for military duty in time of war or other urgent necessity. This branch of the military medical service is entitled to the following pay:

1. Senior assistant surgeon, with honorary rank of captain, 400 rupees (\$128).
2. Senior assistant surgeon, with honorary rank of lieutenant, 300 rupees (\$96).
3. Assistant surgeon, first class, 200 rupees (\$64).
4. Assistant surgeon, second class, 150 rupees (\$48).
5. Assistant surgeon, third class, 110 rupees (\$35.20).
6. Assistant surgeon, fourth class, 85 rupees (\$27.20).

In addition to this pay they receive allowances when on special duty, and traveling expenses, and pensions on retiring from the service. Retirement is compulsory at the age of 55 years.

PATHOLOGIC MUSEUM.

The pathologic museum of Grant Medical College contains a very large amount of material illustrative of tropical diseases. It is the result of accumulation of specimens for 60 years and should contain more than it does, but the opposition to postmortem examinations is so violent and persistent

that permission is only seldom obtained. No Parsee corpse has ever been touched by a pathologist except under medico-legal pressure. Not many years ago a postmortem was made on a Mohammedan and when the fact became known it gave rise to a riot in the hospital grounds, which it was found difficult to suppress. Since that time the Mohammedans employ a salaried guard, who watches the approach of grim death in the hospital, and, if the patient is a Mohammedan, he sees to it that the corpse escapes the postmortem knife. The Hindus furnish the material for the museum almost exclusively.

This unreasonable objection to postmortem examinations by a large proportion of the population of Bombay has seriously interfered in collecting a larger material. A catalogue of specimens in the Pathologic Museum was prepared by Capt. G. F. Gordon, I.M.S., in 1903, and was published by the government in the form of a well bound and well printed book of 247 pages. I will quote here a description of only a few of the most interesting specimens:

Pneumonic Plague.—The lung is solid throughout, greatly enlarged, and the visceral pleura covered with slate colored blotches, which are subserous hemorrhages. This specimen was from a patient aged 26, who was ill about three days. One section of the lung was filled with light colored masses, which were surrounded by areas of acute congestion. The lower were more markedly affected by consolidation than the upper lobe. There were several hemorrhages in the cellular tissue of the posterior mediastinum, and the other viscera were acutely congested.

Syphilitic Fibrosis of the Lung.—A portion of the left lower lobe, showing broad bands of fibrous tissue running through it, the largest proceeding from the base of the lung in an upward direction. The section shows very little lung parenchyma, and that in a most condensed state. Numerous openings of vessels and dilated bronchi are seen, closely agglomerated from the shrinking process which has gone on. The affected portion of the lung seems to be shut off from the more healthy part by a broad band of fibrous tissue. The specimen was taken from a man whose leg was amputated for chronic ulceration; a Hindu aged 40 years. There were a few caseous nodules in the right lung; the capsules of the liver and spleen are greatly thickened, especially of the latter. There was a gumma in the spleen; both testicles had undergone fibroid degeneration with thickening of the tunica vaginalis. There was a left hydrocele.

Aneurism of the Heart.—At the upper posterior part of the left ventricle, immediately to the right of the mitral valve, is a pouched condition of the septum measuring fully 1 3/4 inches across at its mouth and an inch deep at the deepest part. The pouch is lined with thick, opaque endocardium. The right group of chordæ tendinæ is thickened. There is thickening and contraction of the mitral orifice. In the right ventricle is a patch of opaque endocardium at a point covering the pouch in the septum. The patient was a male Mohammedan, aged 60; ill for weeks. The aorta was atheromatous; a breaking down gumma was found in the liver, the capsule of which was extensively scarred. The right kidney was atrophied and contained sand-like calculi; left kidney hypertrophied; fibroid left testicle; ulceration of large intestine. It is suggested that it is a case of syphilitic myocarditis, with resulting fibroid degeneration causing weakening of the septum.

Malarial Hepatitis.—Section of a highly pigmented liver, which is hard and has a mottled appearance on the surface. The surface of the section is granular. Such livers are, as a rule, slightly enlarged, uniformly tender, associated with slight jaundice, some evidence of bronchitis at the base of the right lung, and therefore they are often difficult to distinguish from cases of hepatic abscess.

Hepatic Abscess.—This shows the upper surface of the liver, where an abscess had burst through the diaphragm. There were three large abscesses in the right lobe. One had intricate connection with the diaphragm, which formed the upper wall of the abscess cavity. In this were two minute perforations, which communicate through the thickened pleura, with a

pneumonic patch in the base of the right lung. The patient was a Mussulman, aged 28. The illness commenced with an attack of dysentery, three months prior to admission. No signs of dysenteric ulcerations were found in the bowel at the postmortem examination.

Enormous Calculus of the Bladder.—This stone (uric acid and urates) is probably one of the largest stones ever removed from the human bladder. About half of the stone is shown in the central compartment and the fragments are grouped around it. The operation in this case was performed in 1876 or 1877 by the late Apothecary White at Tando Aylhar Dispensary, near Hyderabad, in Sindo. The patient was a man 25 years old and had suffered from symptoms of stone since childhood. An attempt was made to extract it by the lateral operation, but this being unsuccessful, the suprapubic operation was performed. Even now it was found impossible to extract the stone. By means of some improvised instrument (a craniotomy forceps), the stone was broken in pieces and removed. The patient lived for about twelve hours after the operation. The weight of the stone was 30 ounces and 95 grains.

Ainhum of the Small Toe.—This curious condition generally commences on the inner and plantar surface of the little toe. It begins as a narrow groove on the skin, which slowly deepens. The groove involves the whole circumference of the digit, the distal portion of which swells up as if it had been constricted

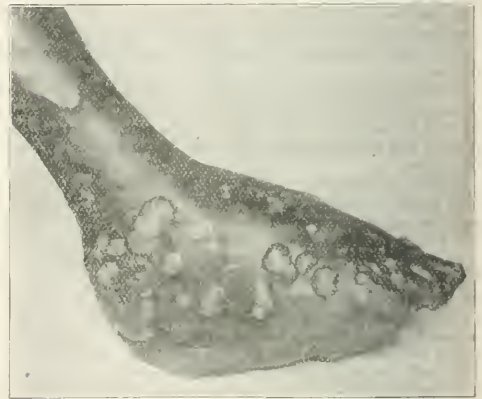


Fig. 2.—Madura foot. Amputation by Professor Quicke.

by a ligature. The digital portion finally becomes a round, dangling mass and, after some years, drops off. The fourth toe is next affected, and so on.

Mycetoma or Madura Foot.—The shape of the foot is characteristic (Fig. 2). The disease is absolutely localized to the foot, the circumference of the leg above the ankle not being increased. The skin of the foot is covered with pellets, some of which have been cut across to show the yellow fatty material of which they are composed. A window has been cut on one side of the foot. A capsule of thick, dense, fibrous tissue envelopes the foot and this hardened tissue is honeycombed with small cavities, which lodge the yellow bodies in the interior of the bone, which has fallen away from the tissues and which can be seen riddled with large communicating cavities. The specimens were obtained by amputation and presented to the museum by the operator, Prof. Quicke (Fig. 3).

Anesthetic Leprosy.—A dissection of a leprosy foot made by the late Dr. Van Dyke Carter. The nerves are considerably thickened, especially on the plantar surface. The great toe has been lost, and all the digits, except the middle one, are partially absorbed.

Guinea Worm.—This is a long, thin worm from 12 to 40 inches long. The female only is known as a parasite in the human body. It wanders into the loose subcutaneous tissues

of the leg, scrotum and sometimes the upper limb, and there generally forms an abscess or it may form a vesicle from which the extremity projects, when it can be gradually removed by slow traction extending over some days, the protruded portion being wound round a stick.

Jamsetjee Jeejeebhoy Hospital.—The Jamsetjee Jeejeebhoy is one of the oldest and best known of the many Bombay hospitals. It bears the name of the Parsee who built it at his expense and presented it to the government in 1845, the same year that Grant Medical College opened its doors to medical students. Mr. Jamsetjee Jeejeebhoy was a poor man, but made a fortune by buying and selling bottles nearly a century ago, hence the hospital is still well known under the name of "Bottle Hospital." Mr. Jamsetjee Jeejeebhoy was knighted by Queen Victoria in recognition of his many deeds of charity, and a full size statue of stone in a half reclining position in the main entrance hall of the hospital does honor to the memory of its founder. The hospital is for the exclusive use of the native sick poor and is maintained entirely at government expense. The hospital is an immense one-story stone building, with accommodations for 360 patients. It is an old-fashioned structure, which lacks many of the important

into an operating room supplied with the most primitive outfit for asepsis. What this hospital is sadly in need of is a new and separate operating theater and a more complete set of surgical instruments. It is a great injustice to the surgical staff to be obliged to perform 5,000 operations annually under such trying circumstances. All hospital surgeons in India confess that it is extremely difficult to prepare a native for operation. A patient recently admitted to the surgical wards of Professor Quicke for the purpose of undergoing an operation for the radical cure of an inguinal hernia, brought with him the following sources of infection: Scabies, ringworm, diffuse furunculosis and pyorrhea alveolaris. (Fig. 3.)

The nursing of this institution leaves much to be desired. The trained female nurses are inadequate in number, and it is only recently steps have been taken to organize a training school. Most of the nursing is done under their supervision by male and female ward attendants. The house staff, consisting of three medical officers of the Indian Subordinate Medical Department, is made up of a house surgeon and two assistant house surgeons. The house surgeon has charge of the property, his work being largely that of an executive officer, but, in the absence of the regular attending staff, he attends to the emergency cases, medical and surgical. The first assistant surgeon has charge of the drug room and dispensary, and the second assistant attends to the admission of patients and makes the preliminary examinations. The fourth and fifth year students do much of the dressing, under the supervision of the house surgeon and attending staff, and they assist at operations. The bedside clinics are an important feature of the clinical teaching in this, as well as in all other medical colleges in India. The attending staff of this hospital consists exclusively of the clinical teachers of Grant Medical college.

(To be Continued.)



Fig. 3.—Keloid of punctured lobe of ear. Excision, with good cosmetic results, by Professor Quicke.

features of a modern hospital, and it is about time that it should give way to a new building better adapted for present requirements.

Three new two-story stone pavilions were opened in 1892, the Sir Dinshaw Petit Hospital for diseases of women and children, the Bai Motlaibai Maternity and the Ophthalmic Hospital, each with a capacity for about forty patients. These new buildings are modern in their construction, are well furnished and have excellent little operating rooms. The nursing is also better than in the old hospital. About 800 women are delivered annually in the Maternity Hospital, and two students attend each case; this gives them an excellent opportunity to become conversant with practical obstetrics. The most careful aseptic precautions are employed and sepsis in in-patients is almost unknown. The delivery room has all the austere appearances and simplicity of an operating room. Two women were in labor when I visited this department of the hospital.

Professor Dimmock showed me a number of interesting cases on which he had recently performed major gynecologic operations. In the old building, a small ward has been converted

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Urticaria.

The treatment of urticaria, according to the *Med. News*, consists of purgatives, intestinal antiseptics such as salol, benzozaphthol and quinin or alkalies. The following is recommended locally:

R. Acidi carbonici (puræ).....	.5ss	2|
Glycerini .....	.5iiss	45|
Aque .....	.5v	150|
M. Sig.: Apply locally.		

Lotions containing chloral in strength of 5 to 200 are also recommended. As an ointment the following:

R. Zinci oxidi .....	.3ss-3i	2-4|
Cocaine hydrochlor.....	gr. v-x	30-60|
Lanolini .....	.5i	30|
M. Fiat unguentum. Sig.: Apply locally.		

If the pruritis is rebellious an application of a paste or a plaster as a protecting envelope will be necessary. Edema of the glottis is a serious complication and requires hot applications to the neck, hot foot-baths, hot fumigations and the administration of ether, spiritus etheris compositi and acetate of ammonia. In some cases tracheotomy is necessary. In chronic urticaria the diet should be carefully guarded, and wine should be prohibited. The bowels should be moved daily and alkalies and intestinal antiseptics given, such as charcoal, sodium bicarbonate and magnesia. Sufficient elimination by the kidneys should also be secured.

Thrush.

The following combinations are recommended by *Rev. Francis de Med.* in the treatment of thrush:

R. Sodij bicarb.	5i	4
Sodij boratis	3ss	2
Syr. idææ	3vi	24
M. Sig.: To be used as a mouth wash. Or:		
R. Glycerini	3vi	24
Amyli		
Sodii boratis, aa.	5i	4
M. Sig.: Apply with a camel's hair brush.		

Carbolic Acid Poisoning.

Chas. V. Burke, in *N. Y. and Phila. Med. Jour.*, states that Epsom and Glauber's salts are of no value as antidotes of carbolic acid poisoning. He regards alcohol as of great value and if given promptly and followed by lavage, will save life. The stomach tube should be fairly stiff, as some force is required to introduce it, as the mucous membrane is roughened and dry on account of the caustic effect of the acid. The swallowing reflexes are also abolished and there is more or less spasm present. A weak alcoholic solution should be used for the washing. He, therefore, recommends whisky in as large quantities as can be borne, introduced by the stomach, hypodermically and by rectum.

Aborting Buboes.

The following ointment is recommended in aborting buboes:

R. Ung. hydrarg.	}
Ung. belladonnæ	
Ichthylol	
Lanolini, aa. ....		3i 8

M. Fiat unguentum. Sig.: Apply locally on gauze and renew once a day.

Burnside Foster, according to *Buffalo Med. Jour.*, recommends that the patient be put to bed, a calomel purge administered followed by calcium chlorid, grain 1/12 (.005) every three hours. An ice-bag should be placed over the bubo. By this treatment the bubo is aborted within a week.

Horwitz recommends that a small opening be made into the bubo with a very small bistoury and peroxid of hydrogen or mercuric chlorid, 1 to 5,000, be injected. After the cavity is cleansed it is filled with sterilized vaselin containing 10 per cent. of iodoform and an ice pack applied.

Dysentery.

The prophylaxis of the treatment of dysentery, according to Kolbassenko in *Med. News*, consists in:

1. Avoiding overexertion.
2. Supplying most nutritious diet.
3. Drinking the best water possible.

In moderate cases the patient should be placed on a mild liquid diet and a warm abdominal bandage applied, saturated with alcohol. The following emulsion should be given:

R. Tinct. iodidi	gtt. viii	50
Olei ricini	3iv-3vi	15-25

M. Sig.: At one dose, to be repeated two or three times a day.

By administering the iodine in the castor oil it reaches the intestine better and the iodine is liberated.

After the acuteness of the attack has subsided the author recommends the following suppository:

R. Ichthyolei	gtt. ii-viii	12-50
Xeroformi	gr. v-viii	30-50
Bismuthi subnit.	gr. xv-xx	1-130
Antipyrini	gr. vi	35
Lanolini		
Olei theobromati, aa q. s.		

M. Fiat suppos. No. i. Sig.: One or two such suppositories to be inserted daily.

Where there is a great deal of intestinal irritability, grain 1.3 to 1/2 (.02-.03) of the extract of opium or belladonna may be added. Ichthyol is considered as a local astringent and disinfectant, antipyrin as an astringent, antiseptic and analgesic.

Warm injections of water containing a few drops of creolin are also highly beneficial.

Chronic Blepharitis.

The following combinations are recommended by *Amer. Med.* in the treatment of chronic blepharitis:

R. Ung. hydrarg. rubri.	gr. iss	90
Plumbi acetatis.	gr. 3, 4	95
Adipis benzoinati	gr. lxxv	5
M. Sig.: Apply locally once or twice daily. Or:		
R. Zinci oxidi		
Plumbi acetatis, aa.	gr. 3 4	95
Olei amygdalæ dulcis.	gr. viiss	50
Liq. petrolati	gr. lxxv	5
M. Fiat unguentum. Sig.: Apply locally.		

Congenital Syphilis.

A. Ravogli, in *Critic and Guide*, states, in speaking of the treatment of congenital syphilis, that a syphilitic must be nursed only by its own mother. Nurse girls must be cautioned against kissing the babe in the mouth. In this connection several cases are mentioned where syphilis was contracted through carelessness or ignorance.

The treatment of congenital syphilis, both local and constitutional, is similar to the acquired.

When the little patient is covered with eruptions it should be bathed in a solution of mercury bichlorid every day for ten or fifteen minutes. The solution should be prepared by dissolving from two to four tablets of seven grains of mercuric chlorid in six gallons of warm water in the bath, making a 1 to 12,000 strength solution.

THE CORYZA.

To relieve the coryza the nurse should be directed to remove the purulent secretion with a wet rag or cotton and inject by an ordinary glass dropper a solution of mentholated sodium bicarbonate:

R. Sodij boratis	3ss	2
Mentholi	gr. i	96
Aq. camphoræ		
Aque dest., aa.	3iiss	45

M. Sig.: To be injected into the nostrils while the babe is held in the erect position in order to prevent choking.

FISSURES AND MUCOUS PATCHES.

Fissures and mucous patches around the nose, on the lips, tongue and genitals, should be touched with a 3 per cent. solution of silver nitrate, and afterward washed with sterilized water to remove the excess of silver.

Ulcerated surfaces and excoriated papules are usually dusted with calomel and covered with dry absorbent cotton. If the dry dressing is non-indicated on account of forming crusts, the following salve is recommended by the author:

R. Hydrarg. precip. alb.	gr. iv-vi	25-40
Bismuthi subcarb.		
Zinci oxidi, aa.	3ss	2
Acidi carbolicæ	gtt. vi	40
Liq. petrolati	3i	30

M. Fiat unguentum. Sig.: To be applied locally.

In cases of ulcerated cutaneous gummata the employment of emplastrum hydrargyri is preferable. In some cases the application of iodoform powder, iodoform gauze or iodoform salve is valuable.

CONSTITUTIONAL TREATMENT.

As in acquired syphilis, mercury is indicated in these cases, administered by ingestion, subcutaneously or by inunctions. In cases with secondary symptoms, when the general nutrition is not too much affected, mercury administered by ingestion is preferable. Calomel is in this way recommended, giving it in doses of 1/10 grain (.006) two or three times a day combined as follows:

R. Hydrarg. chloridj mitis.	gr. ii	12
Sodij bicarb.	gr. x	65
Sach. albi.	gr. x	65

M. Fiat chartulæ No. xx. Sig.: One powder twice daily in a little water or milk.

Mercury may be given in the form of the gray powder, one grain (.06) four times a day.

If the patient is troubled with diarrhea when calomel is given, then mercurial inunctions should be resorted to as follows:

R. Ung. hydrargyri
Lanolini, aa ʒss 15

M. Fiat unguentum. Sig.: Twenty grains to be rubbed daily into the soles, palms, back, axillæ and thighs alternately. After the inunction has been applied the area should be covered with a piece of lint to maintain the ointment in contact with the skin.

In grave cases of congenital syphilis deep injections into the muscles are advised. The gray oil in five drop (.30) doses of the 20 per cent. solution has been so administered once a week injected into the gluteal region.

Potassium iodid is recommended along with the mercurial treatment, especially when the tenderness of the joints shows epiphysitis or periostitis, given in doses of from 10 to 20 grains (.65-1.30) daily.

As soon as decided improvement has taken place the mercurial preparations may be substituted by a ferruginous tonic, in order to correct the anemia and to improve the nutrition of the patient. The specific treatment must be carried on for a year or longer, changing the preparations as necessary.

PROPHYLAXIS.

When symptoms of congenital syphilis appear in a newborn babe the parents should be placed on specific treatment. The mother should take antisyphilitic treatment for four months during her pregnancy in two or three periods. The effect thus produced on the fetus is very great and produces a wonderful diminution in the ravages of the disease.

Medicolegal.

May Recover Damages for Second Miscarriage.—The Court of Civil Appeals of Texas says that, in *Rapid Transit Railway Company vs. Smith*, the wife of the latter party was injured, June 8, in a collision of cars. She was pregnant at the time, and the accident caused her to miscarry the next day. In the following November, having again become pregnant, she miscarried again, which the physician said was the probable result of the accident; and the court does not think that the allegation of a second miscarriage, November 15, was too remote for a recovery.

Confinement of Person Acquitted of Crime for Insanity.—Chapter 1 of the Public Laws of North Carolina of 1899 provides that: "When any person accused of the crime of murder shall have escaped indictment or shall have been acquitted on the trial on the ground of insanity, * * * the court before which such proceedings are had shall in its discretion commit such person to the Hospital for the Dangerous Insane to be kept in custody therein for treatment and care as herein provided," etc. In holding this statute unconstitutional, the Supreme Court of North Carolina says, in *re Boyett*, that the right and duty of the state to provide for the care and treatment of its insane, with such confinement and restraint of their liberty as may be necessary for that purpose, was conceded. It is made the duty of the General Assembly to do so by Sec. 10, Art. 11, of the Constitution of North Carolina. It was also conceded that the state may, pursuant to general laws, and after proper judicial proceedings, confine insane persons for their own protection and that of other persons. It is also true that, to meet sudden emergencies, and prevent either self-destruction or injury or harm to other persons, an insane person may be restrained temporarily without adjudication of his insanity. The writers and courts have not undertaken to define the limitations of the power which the state has to deal with these unfortunate people, except by the announcement of general principles essential to their welfare and the protection of the public. This court does not propose to discuss this delicate subject. A very different question is presented when the legislature undertakes to confer

on courts discretionary power to confine persons in asylums or hospitals and makes no provision for notice or adjudication before the order for confinement, or for review of such discretion after the person is committed. It is well settled that a person acquitted by a jury on the ground of insanity existing at the time of the commission of the act is entitled to all of the protection and constitutional rights as if acquitted on any other ground. The fatal infirmity in the statute under consideration is that the power to commit is vested in the court to be exercised "in its discretion." No provision is made for notifying the person whose liberty is involved, nor is the court required to make any investigation either by itself, by examination of witnesses, by calling to its aid medical experts, or otherwise. It may be that the wisdom of the legislature will find, within constitutional limitations, a remedy for the objectionable features of the statute. The court does not wish to be understood as saying that a person acquitted of a grave crime on the ground of insanity may not be detained for a reasonable time, so that by some appropriate proceedings the condition of his mind may, either under the direction of the judge presiding or some other judicial officer or commission, be examined into for the purpose of ascertaining whether his own safety and that of other persons or the public generally requires that he be committed to the hospital for treatment and care. It is well settled that it is not necessary that a jury trial be had; it is sufficient if the inquiry be had in some way and by some tribunal conforming to the constitutional requirement of due process of law. Another and equally fatal objection to this particular statute is that it provides that a person acquitted of a capital felony and committed to the hospital can not be released except by an act of the legislature. It is a fundamental principle that every person restrained of his liberty is entitled to have the cause of such restraint inquired into by a judicial officer. The judicial department of the government can not by any legislation be deprived of this power or be relieved of this duty.

Validity of Health Laws—Compulsory Vaccination.—The public health law of New York provides that "no child or person not vaccinated shall be admitted or received into any of the public schools of the state, and the trustees or other officers having the charge, management or control of such schools shall cause this provision of law to be enforced. They may adopt a resolution excluding such children and persons not vaccinated from such school until vaccinated." The question was presented by the case of *Viemeister vs. White* whether the legislature was prohibited by the Constitution from enacting that such children as have not been vaccinated shall be excluded from the public schools, the Constitution requiring the legislature to "provide for the maintenance and support of a system of free common schools, wherein all the children of this state may be educated." The Court of Appeals of New York upholds the law. It says that a statute entitled a health law must be a health law in fact as well as in name, and must not attempt in the name of the police power to effect a purpose having no adequate connection with the common good. When the sole object and general tendency of legislation is to promote the public health, there is no invasion of the Constitution, even if the enforcement of the law interferes to some extent with liberty or property. The right to attend the public schools of the state is necessarily subject to some restrictions and limitations in the interest of the public health. A child afflicted with leprosy, smallpox, scarlet fever, or any other disease which is both dangerous and contagious, may be lawfully excluded from attending so long as the danger of contagion continues. Public health, as well as the interest of the school, requires this, as otherwise the school might be broken up and a pestilence spread abroad in the community. So a child recently exposed to such a disease may be denied the privilege of our schools until all danger shall have passed. Smallpox is known of all to be a dangerous and contagious disease. If vaccination strongly tends to prevent the transmission or spread of this disease, it logically follows that children may be refused ad-

mission to the public schools until they have been vaccinated. It must be conceded that some laymen, both learned and unlearned, and some physicians of great skill and repute, do not believe that vaccination is a preventive of smallpox. The common belief, however, is that it has a decided tendency to prevent the spread of this fearful disease and to render it less dangerous to those who contract it. While not accepted by all, it is accepted by the mass of the people, as well as by most members of the medical profession. It has been general in New York state and in most civilized nations for generations. It is generally accepted in theory and generally applied in practice, both by the voluntary action of the people and in obedience to the command of law. Nearly every state of the Union has statutes to encourage or directly or indirectly to require vaccination, and this is true of most nations of Europe. It is required in nearly all of the armies and navies of the world. Vaccination has been compulsory in England since 1854, and the last act upon the subject, passed in 1898, requires every child born in England to be vaccinated within six months of its birth. It became compulsory in Bavaria in 1807; Denmark, 1810; Sweden, 1814; Württemberg, Hesse, and other German states, 1818; Prussia, 1835; Roumania, 1874; Hungary, 1876; and Servia, 1881. It is aided, encouraged, and to some extent compelled, in the other European nations. It is compulsory in but few states and cities in this country, but it is countenanced or promoted in substantially all, and statutes requiring children to be vaccinated in order to attend the public schools have generally been sustained by the courts. A common belief, like common knowledge, does not require evidence to establish its existence, but may be acted on without proof by the legislature and the courts. The fact that the belief is not universal is not controlling, for there is scarcely any belief that is accepted by every one. The possibility that the belief may be wrong, and that science may yet show it to be wrong, is not conclusive; for the legislature has the right to pass laws which, according to the common belief of the people, are adapted to prevent the spread of contagious diseases. In a free country, where the government is by the people through their chosen representatives, practical legislation admits of no other standard of action. While the court does not decide and can not decide that vaccination is a preventive of smallpox, it takes judicial notice of the fact that this is the common belief of the people of the state, and with this fact as a foundation it holds that the statute in question is a health law, enacted in a reasonable and proper exercise of the police power.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia, December 3.

- 1 *Presence of Tubercle Bacilli in the Urine of Patients Suffering with Pulmonary Tuberculosis. Randle C. Rosenberger.
 - 2 *The Roentgen Treatment of Malignant Disease of the Breast. Charles L. Leonard.
 - 3 Review of Some Malignant Cases. Charles L. Leonard.
 - 4 *Status of Our Knowledge of Sero-Therapeutics. D. H. Bergey.
 - 5 *Concerning the Suppression of the Acetone Bodies in Diabetics. Heinrich Stern.
 - 6 *A New Reflex: Paradoxical Flexor Reflex. Alfred Gordon.
 - 7 *Operative Technic in Stone in the Ureter. J. P. Crawford.
1. Tubercle Bacilli in the Urine.—Rosenberger examined the urine for tubercle bacilli in 25 cases of pulmonary tuberculosis in which there was positively no involvement of the genito-urinary tract. A few isolated tubercle bacilli were found in only three cases, and no clumps nor groups of bacilli were observed, as are usually seen in cases of tuberculous cystitis, nephritis, etc.

2.—See abstract in THE JOURNAL of September 24, page 908.

4. Present Knowledge of Sero-Therapeutics.—Bergey calls attention to the fact that recent investigations appear to indicate that a class of immune serums must be formed which

possess properties that are entirely different from the antitoxins and the bactericidal immune serums in that they are neither antitoxic nor bactericidal in their action. The best known of this class of serums are the pneumococcus, the staphylococcus and the streptococcus serums. Bergey cautions that too much should not be expected from the therapeutic application of these serums, and says that it is evident that we have a great deal to learn as to the best method of preparation of these serums as well as to the character of the serums themselves and the manner in which they bring about curative results.

5.—See abstract in THE JOURNAL of November 5, page 1410.

6. Paradoxical Flexor Reflex.—Gordon has observed a new reflex in cases, the history of which points to organic disease of the nervous system, and especially of its motor tracts; it is always associated with exaggerated knee-jerks; in some cases the Babinski reflex is present, in some not. In a majority of cases Gordon found the sign on the side, where the Babinski was either absent or slight, although in a certain number of cases it was present alongside of a Babinski. It was present in obscure cases in which the Babinski was absent. The reflex is elicited in the following manner: The patient assumes the prone or sitting position, with the feet on a stool. The feet are slightly rotated externally to obtain complete relaxation of the muscles of the leg. The examiner must place himself to the outer side of the leg; the thenar and hypotenar muscles of his right hand are placed on the inner surface of the tibia of the patient and the fingers pressed deeply on the middle or the lower portion of the calf muscles so as to transmit the pressure to the flexor muscles of the deep layer; sometimes pressure must be combined with lateral movements of the superficial muscles. If the reflex is present, extension of the great toe or of all the toes will be noticed. Gordon examined 30 cases, 2 of spastic paraplegia, 3 specific meningomyelitis, 2 of traumatic myelitis, 1 of ataxic paraplegia, 2 of spinal syphilis, 3 of transverse myelitis, 1 of amyotrophic lateral sclerosis, 3 of cerebrospinal syphilis, 12 of hemiplegia, 1 case of rigidity of the spine with cord symptoms, and 1 case of paresis, with the following result: In 12 cases the reflex was present, together with the Babinski. In 10 cases the Babinski was present, but the paradoxical reflex was absent, or vice versa; and as in 9 cases the Babinski was distinct but the paradoxical reflex slight on the same side, it is seen that in 19 cases, against 12, the two reflexes showed a tendency to replace each other. Only in 6 cases were both reflexes absent at the same time. Gordon has given this sign the name of "paradoxical flexor reflex." He also examined a great number of patients showing an involvement of other portions of the nervous system than the motor tract, also a great many normal individuals, and found that the reflex was inevitably absent in all these persons.

7. Operative Technic in Ureteral Stone.—A positive diagnosis having been made of stone in the bladder area by means of the Roentgen ray, Crawford advises its removal by means of a suprapubic cystotomy rather than by the usual extraperitoneal operation. In the case cited of ureteral stone, Crawford dilated the mouth of the ureter with the end of the index finger, constantly teasing the sphincter for nearly an hour until sufficient dilation was obtained to permit the delivery of the stone, which was one and three-eighths inches in diameter, without laceration of the bladder wall.

Medical Record, New York.

December 3.

- 8 *The Treatment of Epilepsy in Connection with Anto- and Heterotoxins. Allan McLane Hamilton.
- 9 Tachycardia and Its Relation to Injuries. U. F. Martin.
- 10 *Two Cases of Fench's Purpura. Oliver C. Smith.
- 11 *Infant Feeding: a Simple and Safe Method for the General Practitioner. F. H. Glazebrook.
- 12 Physical Examination, Therapeutics and Results of Modern Medicine. A. Pleq for More Accurate Physical Diagnosis. Warren Schoonover, Jr.
- 13 Acute Appendicitis Occurring on the Eighth Day of Typhoid: Operation; Recovery. George H. Williams.

8. Treatment of Epilepsy.—Hamilton is convinced that

many apparently hopeless cases of epilepsy can be greatly benefited, if not cured, by carefully following ordinary hygienic rules and such means as favor the elimination of waste and toxic products, the institution of proper mental occupation and the avoidance of stress and strain. Hamilton inclines very strongly toward the belief that toxemia, either of gastrointestinal origin or due to the introduction into the circulation of certain familiar cocci, or the generation and accumulation in the blood of cholin, the result of the breaking down of nerve tissue, enters more largely into the pathogeny of epilepsy than is generally supposed. He says that regulation of the diet should include a consideration of the idiosyncrasies of the patient, but nitrogenous food should be interdicted as far as possible. No large quantity of food should be given at any one time. If intestinal autotoxis exists, cholagogues and appropriate ferments, as well as antiseptics, should be prescribed. Everything possible should be done to prevent the lighting up of gross intracerebral pathologic processes and the resulting formation of cholin. The equilibrium of the arterial pressure should be everywhere maintained. Bromids should be given only in doses sufficient to diminish the activity of the cortical motor cells.

10. **Henoch's Purpura.**—Smith cites two cases of this affection. The first, a boy, aged 9, developed purpural spots on the legs and abdomen two days after a blow on the abdomen. The purpura became general, there were severe abdominal pains, and the albuminous urine contained blood. The onset of symptoms pointing to intestinal obstruction necessitated the performance of a laparotomy. The intestine was found collapsed and ecchymotic. The bowel was lifted up and douched, and the abdomen was closed with as much normal saline solution in it as it would hold. The bowels resumed their peristaltic action, and all the other gastrointestinal symptoms gradually abated, but the patient died one month later from a renal involvement, which was not relieved by decapsulation of both kidneys. The second case, a boy, aged 16, was very similar to the first case and was treated in the same manner. Improvement followed and the patient was discharged cured four weeks later. Smith believes that an exploratory laparotomy in cases presenting grave abdominal symptoms, even though purpura may exist at the time, is not only permissible, but indicated. Therefore, Henoch's purpura is not to be regarded as entirely a medical disease. An interesting fact in Smith's cases was that filling the abdomen with salt solution was followed within a few hours by a resumption of intestinal peristalsis and improvement in all the other abdominal symptoms.

11. **Infant Feeding.**—The method of preparing milk for infants is described by Glazebrook as follows: For children under 3 months of age, the top 9 ounces of a quart bottle of milk, that has stood until the cream has separated, are removed by means of the Chapin dipper, and 6 ounces of this are diluted with 24 ounces of dextrinized barley water, for the preparation of which explicit directions are given. One and a half ounces of sugar of milk are also added. A good average milk contains in the top 9 ounces about 12 per cent. fat, 4 per cent. proteid, and 4 per cent. sugar. When diluted as above, the result is: Fat, 2.4 per cent.; sugar, 6 per cent.; proteids, 8 per cent. Any desired strength of these ingredients may be obtained by using more or less of the 9 ounces of milk. For older children, the top 16 ounces are removed. These contain about 8 per cent. fat, 4 per cent. proteid, and 4 per cent. sugar. To 10 ounces add milk sugar and barley water as before. The mixture contains: Fat, 2.35 per cent.; sugar, 6 per cent., and proteids, 1.2 per cent. By adding 1 ounce of sugar to every 25 ounces of food, the sugar percentage is always 6, a good average amount. The percentage of fat and proteid may be varied by using more or less of the top 16 ounces of milk. Glazebrook also says a word in favor of condensed milk, especially in those cases where the infant, owing to careless or ignorant feeding, does not seem to tolerate fresh cow's milk in any form. He has used it in a great many cases which were given up as

hopeless, and improvement was almost immediate. This may be explained by the fact that the vacuum process of condensing milk seems to make the curd more assimilable, or it becomes more friable. In order to get the percentage of fat and proteid in correct relation to each other, top milk or cream should be added to an equal amount of condensed milk.

Medical News, New York.

December 3.

- 14 *Second Note Relative to the More Efficient Utilization of the Spark-gap Radiations. Henry G. Piffard.
- 15 *Extrauterine Pregnancy; Its Diagnosis. Report of Cases. Isaac Ivan Lemann.
- 16 *Pancreatitis. W. D. Haggard.
- 17 *Laundry Hygiene. Ira S. Wile.
- 18 Some Remarks on Diphtheria Bacilli. E. Andrade.
- 19 Intermittent Claudication and Analogous Phenomena (Angina Pectoris, etc.). Arthur J. Patek.
- 20 *Misocainia in Medicine. Achilles Rose.
- 21 A New Case of Chloroma with Leukemia, with a Study of Cases Reported Since 1893. George Dock and Aldred Scott Warthin.

14. **Spark-Gap Radiations.**—Supplementing a "preliminary note" as to the "rays" given out by his "ultra-violet" condenser spark-gap lamp, Piffard says that these rays exert a very powerful influence on the skin; and that the reaction is similar in character to that of the α -rays and of radium, and that it appears much more promptly. Like them also, it may produce a curative or a destructive effect, according to the intensity of the spark and the duration of its application. He says that if the appliance be used with a coil, the single Leyden jar should be employed, with inner armature connected with one of the secondary terminals and the outer armature with the other terminal of the secondary of the coil. The lamp is then connected directly to the secondary by its cords. He prefers an interrupter adjusted to give a current of from 5 to 6 amperes through the primary of the coil. The armatures should not exceed 40 square inches of foil in each. This is for the three-spark lamp. For the one-spark "ionizer" a lesser amount of energy is preferable. The first application should never exceed 10 minutes. If the apparatus is connected with a static machine, two Leyden jars are used, the armatures of which should each have a foil surface of at least 100 square inches. The outer armatures of the jars should be connected together, and the lamp terminals connected to the pole pieces of the static machine. The first application should not exceed 15 minutes, with the spark from 15 to 20 millimeters for the lesion.

15. **Extrauterine Pregnancy.**—Lemann believes that this disease is a far more frequent one than is generally supposed, and that our knowledge of it is very indefinite and unsatisfactory. By maintaining an attitude of alertness and by carefully investigating all conditions of menstrual irregularities and colicky pains, Lemann thinks it possible to make an accurate diagnosis and thus save the lives of some patients who otherwise would perish. If the diagnosis is obscure, but there is present a boggy or fluctuating mass on either side of the uterus, an exploratory operation, either through the abdomen or the vaginal fornix, is justifiable.

16. **Pancreatitis.**—Haggard's article is a complete and thorough review of the entire subject.

17. **Laundry Hygiene.**—Wile has studied this question with reference to infection of employes from patrons' clothing, and the infection of patrons through their own clothing handled by the laundry employes suffering from some infectious or contagious disease. The results of his study demonstrate the hopelessness of arriving at a satisfactory solution of this problem. It appears, however, that laundering is an efficient hygienic method of promoting cleanliness without marked danger to the patron and with comparative safety for the employe.

20. **Misocainia.**—Rose offers this term as a substitute for that proposed by Lombroso, *misoneisus*, meaning the deep-rooted inclination of mankind to combat new ideas. He calls attention to the rôle misocainia has played in the history of medicine, and cites a number of instances, such as the introduction of calisaya bark by Juan del Vejo, the discovery of

the circulation by Harvey, percussion by Auenbrugger, Semmelweis's work in connection with the etiology of puerperal fever, and others.

New York Medical Journal.
December 3.

- 22 *Cases of Epilepsy Cured Without Drugs. Ambrose L. Ranney.
23 Some Observations on the Nonoperative Treatment of Squint: the Worth Amblyoscope. Wm. Campbell Poley and H. Maxwell Langdon.
24 Early Intrauterine Death with Undue Delay in the Occurrence of Abortion Thereafter (Missed Abortion). James Oliver.
25 *Should Pulmonary Tuberculosis Be Treated at Home? R. W. Craig.
26 Pregnancy and Successful Parturition in a Patient with Advanced Carcinoma of the Cervix. Charles A. L. Reed.
27 *An Accident with the Antrum Trocar. Benjam Douglass.

27. **Epilepsy.**—Ranney's experience in investigating the causes of epilepsy for nearly twenty years has led to the following conclusions: Epilepsy is not necessarily an organic disease; hence, there is always hope of a radical cure. A very large proportion of epileptics suffer from some type of reflex, ocular, abdominal, genital, or other local sources of nervous irritation. Of these reflexes, the eyes are unquestionably the most frequent source of trouble. No medication should ever be employed to control epileptic convulsions until every possible exciting cause has been intelligently sought for and scientifically combated. The refraction of all epileptics should first be carefully determined under the influence of a mydriatic and, if necessary, corrected by properly prescribed glasses, before positive conclusions are arrived at regarding any mal-adjustment of the eye muscles, from which a large proportion of epileptics unquestionably suffer. After the correction of errors of refraction by glasses for a time, the tests for mal-adjustments of the eye muscles should again be made. Ranney considers this step of vital importance, and insists that it should always be done most accurately and scientifically, as one radical and permanent cure of epilepsy without drugs offsets a thousand failures. The percentage of cure of chronic epilepsy under skillful eye treatment will naturally be modified greatly by the abnormal eye conditions found, the physical condition of the patient, the amount of drugs that have been given, and the complications that may co-exist with eyestrain. To colonize epileptics or to place sufferers of that type in private sanitariums without any investigation of the eyes and eye muscles, can not be too strongly condemned, says Ranney. He thinks that a large percentage of epileptics suffer from eyestrain (if there be first deducted from the total number the comparatively small number of cases that owe their epileptic seizures directly to some organic lesion of the brain or to a depression of the skull). The duration of eye treatment in epilepsy varies from three months to three years. Most of the work is done during the first six weeks; but long intervals of rest, between the successive operative steps that are commonly demanded, often extend the period of treatment considerably whenever the convulsive seizures are not totally arrested.

25. **Home Treatment in Pulmonary Tuberculosis.**—Craig reviews the benefits accruing to tuberculous patients from a residence in a comparatively warm, dry and equable climate, especially that of lower California and Arizona, and compares these with the conditions obtaining in the home treatment of tuberculosis. He says that when carried out under intelligent direction, the results obtained from climatic treatment are in such marked contrast to those secured where patients lived in boarding houses and hotels, that the most skeptical will be convinced of the advantages of the former over the latter.

27. **Accident with Antrum Trocar.**—Douglass reports an instance where the instrument designed by him perforated the outer wall of the antrum with the result that when water was injected it passed directly into the tissues of the cheek. The patient was put to bed, ice cloths were applied and within forty-eight hours the water had been absorbed without any reaction occurring. In explaining this unusual accident he assumes that the needle was not pushed through the nasal wall in the proper place, or that the antrum was very small

or entirely absent. He advises caution in the use of the trocar.

Boston Medical and Surgical Journal.
December 1.

- 28 *Certain Unfavorable Calamities Following Surgical Operations. Maurice H. Richardson.
29 Pulmonary Tuberculosis and Sanatorium Treatment. Vincent Y. Bowditch.
30 *Mechanical Restraint and Seclusion of Insane Persons. Charles W. Page.
31 *Pott's Disease Treatment at a Late Stage. Remarks on the Pathologic Anatomy. E. W. Taylor.

28. **Unavoidable Calamities Following Surgical Operations.**—The conditions discussed by Richardson are suppression of urine following hysterectomy; infection of the knee-joint, general septicemia and death following arthrotomy; post-operative hemorrhage; phlebitis following abdominal operation and after operations on the uterus or ovaries with subsequent pulmonary embolism; septic meningitis following myectomy, and sudden death from pulmonary embolism after abdominal operations; fatal capillary hemorrhage following operation on jaundiced patients, and postoperative death for which no adequate cause can be found. Six illustrative cases are cited, distributed over a period of fifteen years, and among some five thousand abdominal operations. Richardson is of the opinion that these disasters can not be foreseen and prevented, and that such cases must be looked on as the hazard of any surgical operation.

30. **Mechanical Restraint and Seclusion of the Insane.**—Page denies these methods of treating the insane. He says where restraint is permitted the general spirit of the management breathes coercion, antagonism and enforced submission. When non-restraint is the undeviating rule, tact, persuasion and sympathy soften and mellow every act towards the patients. The employment of mechanical restraint gives the attendants a wrong sense of their personal power over patients, such a physical advantage that they instinctively incline to self-assertion; to issue peremptory commands; to use ill-considered, irritating speech; to make threats; in short, to intimidate all but the most quiet patients. His experience in an insane hospital has convinced him that being in earnest is the solution of the non-restraint question. The ruling authority over and above the nursing staff must be in earnest; and this signifies clear insight as to the evil and its remedy; certainly as to what can be done with the insane by virtue of patience, sympathy and tact; with determination, watchfulness, faith and enthusiasm.

31. **Pott's Disease.**—The case cited by Taylor is interesting from the fact that the disease developed in an adult male, aged 45, following an attack of typhoid fever, that the process in the spine progressed steadily to involvement of the cord, resulting in a practically complete paraplegia, and that persistent treatment produced a definite amelioration of the condition in spite of the serious damage to the cord, as shown at the postmortem held five years after the onset of the trouble. Although the patient was otherwise non-tubercular, there was tuberculous disintegration of the lower thoracic vertebra; constriction of the lumen of the spinal canal; wide-spread degeneration and deformity of the cord at the level of the eleventh dorsal vertebra; secondary degeneration above and below this level. There was no intradural tuberculosis. The onset of the disease was rapid. There was marked predominance of motor over sensory symptoms in spite of extensive degenerations in the sensory areas. The extreme local injury to the cord was suggestive of a myelitis.

St. Louis Medical Review.
December 3.

- 32 Inhibitory Action of X ray on Malignant Growths. George C. Johnston.
33 Treatment of Skin and Glandular Diseases by the X-ray. Russell H. Boggs.

Lancet-Clinic, Cincinnati.
December 3.

- 34 *The Treatment of the Morphin Habit. Curran Pope.
35 *Perineal Prostatectomy. Joseph Rilus Eastman.
36 Pathology and Treatment of Internal Hemorrhoids. Wells Teachner.
37 Case Report—Tubercular Peritonitis Treated with Cinnamon Oil. Wm. Muhlberg.

34.—See abstract in THE JOURNAL of Nov. 12, page 1491.

35.—Ibid., Oct. 29, page 1326.

American Journal of the Medical Sciences, Philadelphia.

November.

- 38 *A Study of Ulcer of the Stomach and Duodenum. Campbell P. Howard.
 39 *Intermittent Hyperchlorhydria as an Occasional Cause of Recurrent Vomiting in Children. Irving M. Snow.
 40 *Medical Treatment of Gastric Ulcer. Samuel W. Lambert.
 41 *Surgical Treatment of Gastric Ulcer. Joseph A. Blake.
 42 Case of General Miliary Tuberculosis with an Open Foramen Orale as a Factor in Its Production. Walter H. Buhlig.
 43 A Biephthalmitis. Theodore D. Appel.
 44 Two Cases of Violent but Transitory Myokymia and Myotonia Apparently Due to Excessive Hot Weather. David L. Edsall.
 45 Papilloma of the Bladder Complicated with Pyonephrosis. with Remarks on the Surgical Treatment of Papilloma. Charles Greene Cumston.
 46 *Some Unsettled and Important Problems in the Treatment of Acute Lobar Pneumonia. Beverley Robinson.
 47 *Cerebral Skiagraphy. G. E. Fahnestock.
 48 The Presence of Organic Acid in the Urine in Cases of Rheumatoid Arthritis. Helen Baldwin.
 49 *The Diagnostic Value of Leucocytosis. G. W. McCaskey.
 50 The Presence of Air in the Veins as a Cause of Death. James S. Greene.

38. Study of Gastric and Duodenal Ulcer.—Howard's study is based on a series of 82 cases of round ulcer that occurred in the Johns Hopkins Hospital during a period of about fifteen years, or 0.18 of the total number of cases admitted. In this series there were 7 duodenal ulcers. As compared with gastric cancer, the respective incidences were 1 to 225 and 1 to 56 general admissions. In the hospital mentioned, gastric ulcer is, relatively, as common in men as in women, the contrary to the usual idea. In the male the percentage of greatest frequency was between the ages of 40 and 50, a decade later than usual; while in females it was, as usual, in the third decade. The cases were relatively more frequent in the colored race than in the white, the ratio being 4.5 to 1. Ulcer is also, relatively, more frequent among the Germans. Vomiting occurred in 85.3 per cent.; pain in 82.9 per cent., and hematemesis in 75.6 per cent. In 36 cases there was a loss in weight of more than 10 pounds, and in 9 of 40 pounds or more. Hyperchlorhydria was present in only 17.6 per cent. Heredity played little or no part. In 47 of the cases there was a definite history of previous stomach trouble. In the majority it was described as indigestion. There was a positive history of trauma in 7 cases. In 53.6 per cent. of cases there was a history of the use of alcohol, and in 19.5 per cent. to excess. In 15.8 per cent. there was a definite history of syphilis—either recent or old. Tuberculosis in one or another of its manifestations was present in 13.4 per cent. of the cases. Arteriosclerosis was present in 48.8 per cent.; to a marked degree in 22 per cent. In 50 per cent., pain was the chief complaint; in 47.5 per cent., stomach trouble; in only 6 per cent. was the history of vomiting of blood volunteered by the patient. Only 8 cases (9.7 per cent.) might be termed acute; the remaining 74 existed for periods ranging from two months to twenty years. The blood picture was one of chloranemia (hemoglobin, 58 per cent.; red blood corpuscles, 4,071,000; white blood corpuscles, 7,500). Hemorrhage was the cause of death in 8.5 per cent. of the total number of cases, and in 29.5 per cent. of the fatal cases. Perforation was rare (3.6 per cent. of the series). General peritonitis occurred in but one instance (1.2 per cent.). Ulcus carcinomatosum was rare—4.8 per cent. of the series. The average duration of the disease for the entire series was 4.1 years. Howard concludes that operation is indicated in all cases of perforation or perigastric adhesions and in cases of copious or recurring hemorrhage, when medical means have failed after a fair trial. The results obtained in the 82 cases are tabulated as follows: Died, 24 (29.3 per cent.); well, 14 (17.1 per cent.); improved, 39 (47.6 per cent.); unimproved, 3 (3.6 per cent.); not treated, 2 (2.4 per cent.). In the cases that received treatment there was a mortality of only 18.8 per cent.; and in those receiving medical treatment alone, 8.6 per cent. Eleven of the 24 fatal cases died from some intercurrent affection, the ulcer being recognized only at autopsy. There were 16 deaths among the males and 8 among the females.

39. Intermittent Hyperchlorhydria and Recurrent Vomiting in Children.—The object of Snow's paper is to direct attention to the curious symptom-complex called cyclic, periodical, or recurrent vomiting of children, with the idea (1) that the condition is not as rare as is generally supposed; (2) that it is relatively easy of diagnosis, an examination of the vomited matter being most important; (3) that at least in some cases the gastric irritability is due to an intermittent hyperchlorhydria, a secretory neurosis, causing the sudden hypersecretion of free hydrochloric acid and gastric juice. Vomiting is the main symptom of the malady and the subject, except for the attacks, is in perfect health. The vomiting attacks occur at irregular intervals, begin with slight premonition, continue usually a few days, and cease suddenly, leaving the patient with an unimpaired appetite and digestion. Snow advises that the alkaline treatment should always be tried, although it is difficult to estimate the effect of treatment in an affection that may terminate spontaneously at any time. In dangerous conditions nutrient enemata, chloral by rectum, and hypodermics of morphin and strychnin may tide the patient over a dangerous crisis.

40. Medical Treatment of Gastric Ulcer.—The therapeutic indications are formulated by Lambert as follows: First.—To assist nature in the process of repair. (a) By regulating the diet. 1. To protect the ulcer from mechanical injury and consequent further extension of the ulceration. 2. To keep the ulcer at rest. (b) By administration of drugs. 1. To stimulate cicatrization. 2. To cover and protect the ulcer from chemical irritation. 3. To neutralize the gastric acidity, whether due to the normal acid or to any of the abnormal acids of fermentation. (c) By improving the general health, by careful feeding and hygiene. Second.—To prevent loss of flesh and strength by feeding through other channels than the stomach. Third.—To combat individual symptoms and complications as they arise. Lambert lays great stress on rest in bed and milk diet. During the rest the patient should receive daily alcohol spongings and baths, and mild forms of massage to the arms, legs and back. Rectal feeding is begun as soon as the patient is settled in bed, nothing but water and pieces of ice being given by mouth, for from four days to a week, according to the severity of the case. The treatment of complicated as well as of uncomplicated cases is discussed in detail by Lambert, but nothing new is offered. During the past 10 years 52 cases were admitted to the hospital, 4 being relapses of cases previously treated. Of the 52 cases, 11 died, a mortality of 21.15 per cent. Thirty-five cases were treated in the medical and 17 in the surgical wards. Of the former, 30 had hematemesis, 2 of whom died; 3 abandoned treatment in from 2 to 4 days, and the remaining 2 were cases of relapse, occurring without hemorrhage. Of the 17 cases admitted to the surgical division, 3 were admitted moribund, suffering from a general perforative peritonitis, and all died without interference. Of the 14 cases operated on, 1 died after an operation to relieve a cicatricial stenosis; 2 cases were operated on for gastralgia, and in both healed ulcers only were found; 3 cases were operated on for hemorrhage, and of these 2 recovered and 1 died. Eight cases of peritonitis due to a perforated ulcer of the stomach were operated on, with a mortality of 50 per cent. Lambert concludes that the statistics of these few cases do not allow of any particular generalization, except to emphatically point out the fact that surgical procedure, in certain cases, offers the only road to recovery.

41. Surgical Treatment of Gastric Ulcer.—Blake considers the surgical treatment of phases of gastric ulcer, namely, perforation, cicatricial contraction and obstruction, hemorrhage, and chronic gastric ulcer, *per se*, and concludes that it should be, at least, largely surgical. Surgical treatment, he says, should be instituted not as a last resort but before the starvation, the long suffering from pain, dyspepsia, and fermentation absorption have reduced the patient until he is beyond surgical help.

46. **Acute Lobar Pneumonia.**—Robinson urges that judicious rational treatment should be begun immediately and continued during the attack. The most useful single agent, as a preventive and curative, is creosote, used preferably as inhalations, properly given and continued for a sufficient length of time. Extremes of treatment in any direction, whether toward the use of so-called specifics or the employment of certain drugs, notably digitalis and strychnin, should be strictly avoided.

47.—See abstract in THE JOURNAL of Sept. 24, page 909.

49. **Diagnostic Value of Leucocytosis.**—McCaskey considers a routine enumeration of the white cells in the peripheral blood of sufficient importance to be made a regular procedure, so far as possible, in all cases. A single leucocyte count is entirely insufficient as a basis of conclusion in any given case, and should be followed up by several made under different conditions. An increase beyond 10,000 or 12,000 leucocytes in the peripheral blood indicates varying grades of intoxication with chemotactic substances of some sort or another. The leucocytes indicating suppuration are the neutrophils, while the eosinophiles indicate particularly cutaneous affections or parasitic diseases. Lymphocytosis signifies an irritative lesion of the lymphatic apparatus. Therefore, a differential count should be made in all cases to determine the type of cell which has been the subject of the principal increase, where such increase exists, and such records carefully kept and collated as a basis for the determination of the clinical significance of leucocytosis in the future. In the diagnosis of malignant disease, McCaskey has found a leucocytosis to be of very subordinate value, and when present is probably not due to the malignant disease *per se*, but to co-existing chemotactic toxins.

Medical Age, Detroit.

November 25.

51. *A Contribution to the Study of the Prognosis of Syphilis. Noah E. Aronstam.

51. **Prognosis of Syphilis.**—According to Aronstam, syphilis is a curable affection, provided treatment is begun early and as faithfully and persistently carried out. He says that at least three, if not four, years of continuous treatment is required to bring the morbid process under control, with all dangers of recrudescence eliminated. The indications of the total cessation of the destructive condition consist of the absence of all manifestations and lesions for a period of not less than two years, a steady gain of body weight, or at least no loss of same, and the propagation of healthy children. Unfortunately, concludes the author, these indications are, at the present juncture of our knowledge of the prognosis of syphilis, far from positive and reliable.

Archives of Ophthalmology, New York.

November.

52. *Case of Melanosarcoma of the Limbus in an Eye with Normal Vision, Followed by Enucleation. George Houston Bell.

53. Clinical Contribution to the Study of the Innervation of the Iris. C. Magnani.

54. Important Clinical Points in Perimetery, with Special Reference to Traumatic Neurosis. L. Wollfberg.

55. Gonococcus Theory. Herman Urbahn.

56. Cortical Reflex of the Pupill. O. Haab.

52. **Melanosarcoma of Limbus.**—Bell reports a case of alveolar melano-sarcoma of the limbus. The iris and fundus were normal and the vision was 20/20 plus. There was paralysis of the external rectus muscle and a consequent diplopia. The preauricular glands on the left side were the only ones that were enlarged. The eye was enucleated and all the external rectus muscle was removed. Healing after the operation was normal and uneventful. Bell has reviewed the literature on the subject very carefully and concludes that most cases of epithular sarcoma demand radical treatment just as soon as the diagnosis is confirmed microscopically. He believes that it is unfair to jeopardize the life of the patient by a compromise in the treatment in the way of an abscission because that operation is useless. In 44 cases of abscission, recurrences occurred in 36.

55. **The Gonococcus Theory.**—Urbahn, who has devoted considerable time to the study of the morphology and biology

of the gonococcus, says that this germ will grow in the ordinary nutritive media, but that glycerin-agar alone is not sufficient for a differential diagnosis. Jellied blood serum, in connection with glycerin-agar, may suffice to distinguish gonococci from similar cocci, especially from the meningococci and nearly related varieties. There appear to be bacteriologic differences between various stocks of gonococci, but it remains to be determined whether these differences exist clinically. Whatever other differences may be found, the three characteristics of form, staining, and relation to pus corpuscles must be possessed by all varieties of cocci to enable them to be classed as gonococci, and until it has been determined whether or not the gonococcus is a distinct variety with special characteristics, that name should be reserved for it alone, and the name pseudogonococcus be avoided.

Annals of Gynecology and Peditary, Boston.

November.

57. *Embolism Following Operation. Sam S. Dearborn.

58. *Pregnancy Complicated by Tumors of the Uterus. D. S. Fairchild.

59. The Value of Postoperative Local Treatment in Gynecology. J. Kiddle Coffe.

60. Hysterectomy Regarded with Reference to Its Influence on Subsequent Pregnancy. (Continued.) M. Oul.

61. The Early Diagnosis of Cancer of the Fundus. Hunter Robb.

57. **Embolism Following Operation.**—In order to obtain more definite information as to the occurrence of postoperative embolism and all factors connected therewith, Dearborn addressed a circular letter to twenty-five of the most prominent surgeons of Boston and vicinity. The replies to these letters appear to show that thrombosis and embolism are more common after operations in the pelvis than after operations in any other part of the body. Further, that it is possible that many cases of pleurisy, pneumonia and pulmonary abscess following operation are due to emboli. Large emboli almost always cause speedy death by syncope or asphyxia; very small emboli usually run a favorable course. Dearborn says that any sudden increase in pulse rate during convalescence, temperature remaining about normal, should remind one of the possibility of thrombosis, and that, if there are evidences of phlebitis or of thrombosis, absolute rest in bed must be insisted on.

58. **Uterine Tumors Complicating Pregnancy.**—Fairechild holds that the discovery of a tumor complicating pregnancy is no certain indication for an operative procedure even when it is first apparent that mechanical difficulties of a very grave nature exist, but a watchful care should be exercised, and when it is found in the first four months that the uterus can not rise into the abdominal cavity, or that an abortion is almost certain to occur, the abortion should be left to nature or a supravaginal hysterectomy made. If the uterus is advancing into the abdominal cavity, no interference should be permitted unless grave pressure symptoms should appear as a remote probability, amounting to almost a certainty, when a supravaginal hysterectomy may be made. If, in the later months of pregnancy, a tumor springing from the neck or the lower segment of the uterus threatens to block the pelvis and seriously interfere with delivery, the question of removing it may be considered in anticipation of labor at about the seventh month. In the great majority of cases, when the immediate and seeming dangers are past, the case will go on to the period of labor to be treated according to the indications present at that time, either through the spontaneous effort of nature or by some operative procedure, probably cesarean section and a Porro operation.

Southern Medicine and Surgery, Chattanooga.

November.

62. *A Review of the Histories of One Thousand Consecutive Cases of Appendicitis. A. J. Ochsner.

63. The Management of Typhoid Fever. George E. Petty.

64. *A Successful Treatment for Dellirium Tremens. George E. Petty.

62. **Review of One Thousand Consecutive Cases of Appendicitis.**—The following classification is made by Ochsner of these cases: Chronic appendicitis or interval operations, 540; mortality, .5 per cent. Acute appendicitis without perforation, 255 cases; mortality, 1.9 per cent (of these 6 entered the

hospital within 36 hours after the beginning of the attack). Acute appendicitis, perforated or gangrenous, without abscess, 55 cases; no deaths (of these, 5 entered the hospital within 48 hours after the beginning of the attack). Acute appendicitis, perforated, with abscess, 117 cases; mortality, 3.4 per cent. Acute appendicitis, with diffuse peritonitis, 33 cases; mortality, 30 per cent. Of the total number of 1,000 cases, 22 died, giving a mortality percentage of 2.2. Of the 255 acute appendicitis cases without perforation, 200 were operated on immediately on entering the hospital and 55 were treated by gastric lavage and absolute prohibition of food and cathartics of every kind by mouth, the nutrition being accomplished by means of small enemata. Of the 55 cases perforated or gangrenous, but without abscess, 21 were operated on at once and 34 were first starved until they seemed in a safe condition for operation. In most of these cases the appendix was completely surrounded by the omentum and held away from all other intra-abdominal structures. Of the 117 cases of acute appendicitis in which abscess had formed, 39 were operated on at once and 78 were treated by prohibition of all nourishment and cathartics by mouth until their condition seemed sufficiently improved to make the operation appear safe. Of the 33 cases entering with diffuse peritonitis resulting from perforated or gangrenous appendicitis, all were treated at first with gastric lavage and exclusive rectal feeding. Of this class, a number were in a dying condition when they arrived at the hospital, which accounts for the high mortality in this class of cases. Seven of these cases were not operated on for the reason mentioned, but they are counted among the deaths in order to include the entire mortality of all cases treated. Among the 3 deaths in 540 cases of chronic appendicitis, with interval operations, one case, a weakly woman, 27 years of age, who had been ill much of the time during her entire life, had an acute attack of appendicitis two years before entering the hospital and a second attack one year later, since which time she had never been free from pain. The appendix was adherent, partially obstructed at the cecal end, and contained a small amount of pus; pelvis secondarily infected, uterus retroverted and adherent together with ovaries and tubes in pelvis. The patient died four weeks after operation from exhaustion, probably due to absorption from the raw surface in the pelvis. Oschner suggests that if this case had been drained the patient would probably have recovered. The second case was that of a married woman who previously had suffered from puerperal infection, and for 12 years had constantly suffered from subacute appendicitis following an acute attack. This patient, too, died from exhaustion. In the third case the chronic appendicitis was complicated with a double pyosalpinx necessitating the removal of both tubes, the right ovary and the appendix. The patient succumbed to the loss of blood incident to the ligature cutting through the ovarian artery. Oschner feels that these three deaths could have been avoided if the operation had been confined to the removal of the diseased appendix. In the next group the five patients who died were operated on immediately on entering the hospital because their condition seemed to indicate that the infectious material was confined to the appendix. Oschner says that if these five cases had been added to the 55 cases of this group in which gastric lavage was employed and which received neither food nor cathartics by mouth, it is likely that 3, or possibly 4, might have recovered. In all these operations he endeavored to reduce the traumatism to a minimum. All unnecessary manipulations were avoided. The surrounding peritoneal cavity was protected with warm, moist gauze pads. In cases of circumscribed abscess the appendix was removed when it seemed as though this could be accomplished safely. Drainage was used whenever it seemed as though the peritoneum might not be capable of disposing of any infection which might remain. It is much better, says Oschner, to drain too often than to err in the opposite direction. Irrigation was not employed in any of these cases, because his experience was less satisfactory when this means was frequently employed. Oschner concludes from these observations that in the

treatment of acute appendicitis neither food nor cathartics should be given by the mouth, that large enemata should never be given, and that gastric lavage should be employed, especially in patients suffering from nausea or vomiting.

64. Treatment for Delirium Tremens.—Pettey advocates the free administration of veratrum viride and cites several cases in which results were extremely satisfactory. In cases where the administration of this remedy was begun within from four to six hours from the beginning of the delirium, the mind would be clear in from three to four hours, but in cases where the delirium had continued for a longer period a longer time was required to overcome it. A full initial dose should be given and then the dose should be repeated as often and in such quantities as are necessary to establish the full physiologic effect of the remedy. The pulse should be brought down to fifteen or twenty beats below normal and held there until the circulation has become fully equalized and the mind becomes clear. In the meantime, free purgation should be obtained to remove the toxic matter from the system and thus remove the exciting cause of the delirium. In one case, Pettey gave an initial dose of 12 minims (27 drops) of Norwood's tincture hypodermically. An hour later the effects of the drug began to be manifested, and in another half hour the patient was given 6 minims more of the veratrum. At the end of fifteen hours he awoke and had no further trouble.

Interstate Medical Journal, St. Louis.

November.

- 65 Strabismus: the Necessity for Its Early Treatment. Harry C. Baker.
 66 The Female Breast: Some of Its Notable Characteristics as to Structure and Functions, Their Elements and Pathology. Thomas H. Manley.
 67 *The Recognition of Important Eye Lesions by the General Practitioner. G. F. Saker.
 68 Typhoid Perforation—a Favorable Case. Francis Reder.
 67.—See abstract in THE JOURNAL of Oct. 22, page 1251.

The Alienist and Neurologist, St. Louis.

November.

- 69 Insane Suicide, Insane Homicide or Murder, Which? A Study of the Mooney Case. James G. Kiernan.
 70 Outlines of Psychiatry in Clinical Lectures. C. Wernicke.
 71 Microscopic Adolescent Survivals in Art, Literature and Pseudo-ethics. James G. Kiernan.
 72 The Louisiana Purchase Exposition, the Neurasthenic and the Brain-Tired. Charles H. Hughes.
 73 Heredity: Its Influence for Good or Evil. Martin W. Barr.

Richmond Journal of Practice.

October.

- 74 The Attitude of Physician and Patient to the Science and Art of Medicine. William S. Gordon.
 75 Intestinal Perforation in Typhoid Fever. Hugh M. Taylor.

Detroit Medical Journal.

November.

- 76 Pathology of Prostatic Hypertrophy. Max Ballin.
 77 Symptoms of Prostatic Hypertrophy and Some Remarks on Treatment by Perineal Operation. Frederick W. Robhins.
 78 Recent Progress in Roentgen Ray Technic. Preston M. Hickey.
 79 Urinary Conditions In Hysteria: with a Report of Three Cases of Hysterical Anuria. Herbert M. Rich.
 80 Nomenclature of the Various Affections of the Mastoid. Emil Amberg.

St. Louis Courier of Medicine.

November.

- 81 Excision of the Knee-Joint, with Report of Case. A. J. Steele.
 82 The Surgery of Typhoid Fever. W. W. Keen.
 83 Remarks on the Surgery of Typhoid Fever. Norville W. Sharpe.

American Practitioner and News, Louisville.

November 1.

- 84 Report of Eye Cases. Wm. Cheatham.
 85 Acute Gangrenous Cholecystitis, with Report of Cases. F. W. Samuel.

Oklahoma Medical News-Journal, Oklahoma City.

November.

- 86 Medicolegal Evidence in Poisoning by Nux Vomica and Its Alkaloids. Charles Blickensderfer.
 87 The Surgeon's Assistant. (Preparation for an Operation.) F. L. Clark.
 88 Railway Surgeon's Duty to the Employee. A. F. Grayson.

Medical Fortnightly, St. Louis.

November 25.

- 89 Some Experiences in the Treatment of Cystitis. B. B. Grif-fith.
 90 Auto-intoxication. C. W. Pfeiffer.
 91 Fracture of the Dorsal Vertebra. Berton W. Hole.
 92 The Practical Value of the Immunity Theory. A. P. Wasserman.

Canadian Practitioner and Review, Toronto.

November.

- 93 The Medical Society: Its Uses and Equipment. John Hunter.
 94 Adeno-myoma of Uterus. Thomas S. Cullen.
 95 Silk Ligature in Intestinal Anastomosis. A. Groves.

Buffalo Medical Journal.

December.

- 96 Care of the Insane. C. A. Van Der Beek.
 97 A Recent Epidemic of Scabies. E. Wood Ruggles.
 98 The Treatment of Infected Wounds of the Extremities. Marshall Clinton.

Woman's Medical Journal, Toledo.

November.

- 99 The Mammary Gland and Lactation Influenced by Anatomic Conditions Disturbing Circulation. Mary E. Bates.
 100 Abortion Complicated by Hemorrhage and Hysterical Elbow. Eliza H. Root.
 101 Laug and Intestinal Troubles in Young Children. Kate Wilde.
 102 Children's Diseases in China. Mary V. Glenton.

Virginia Medical Semi-Monthly, Richmond.

November 25.

- 103 Other Sera, Including Those of Typhoid Fever, Cholera, Dystery and Tuberculosis. Emmon G. Williams.
 104 Organotherapy. L. G. Pedigo.
 105 The Treatment of the Diseases of the Liver. Hubert Richardson.
 106 Random Notes of a Physician's Vacation. James Dudley Morgan.
 107 Prognosis. John M. Batten.
 108 The Trachelomata and their Degenerations. Wm. de Berniere Maender.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

November 26.

- 1 *Trypanosome Diseases. Robert Koch.
 2 *"Tick Fever." Philip H. Ross and A. D. Milne.
 3 Note on the Role of the Horsefly in the Transmission of Trypanosoma infection, with a Reply to Colonel Bruce's Criticisms. Leonard Rogers.
 4 Trypanosomiasis in the Anglo-Egyptian Soudan. (Preliminary Note.) Andrew Balfour.
 5 Sleeping Sickness (Trypanosomiasis): the Prevention of its Spread and the Prophylaxis. Cuthbert Christy.
 6 Bacteriology of Certain Parts of the Human Alimentary Canal and of the Inflammatory Processes Arising Therefrom. John T. Hewetson.

1. Trypanosome Diseases.—Koch's paper is a historical review of the general morphology and symptoms of tsetse fly disease, surra, mal de Caderas, sleeping sickness, and a classification of trypanosome diseases, a review of immunization experiments and the prophylactic measures to be employed for the prevention of these affections.

2. Tick Fever.—Ross and Milne give the results of their observations in eight cases of fever following the bites of ticks, the *Ornithodoros savignyi*. These ticks are of a grayish-yellow color and vary in size up to the dimensions of a little finger nail. Their habitat is in the old and dirty thatch of huts and in the cracks of mud walls and mud floors, where they secrete themselves during the day, coming out at night to feed. The incubation period varies from one to five days. The most prominent symptoms of the fever are severe pains in the head, mostly in the occipital region, sometimes cough, pains in the back and the limbs, sometimes splenic tenderness, vomiting; pulse varies from 90 to 120; half of the cases observed had diarrhæa. The skin is hot and dry, the conjunctivæ are congested and the tongue is mottled with a slight yellow fur. All the cases seen by the authors made a good recovery, though the treatment is practically nil.

The Lancet, London.

November 26.

- 7 *The Treatment of Enteric Fever. F. Foord Caiger.
 8 The Life History of Saprophytic and Parasitic Bacteria and Their Mutual Relation. E. Klein.
 9 *Clinical Observations on the Anæsthetic Effects of Methyl Chlorid, Ethyl Chlorid and the So-called "Somnoform." Frederic W. Hewitt.
 10 *Memorandum on the Red Light Treatment of Smallpox. J. T. C. Nash.
 11 Further Note on the Red Light Treatment of Smallpox. T. F. Ricketts and J. B. Byles.
 12 The Mechanism of the Aortic Valves in Health and Disease. R. J. Ewart.

7. Treatment of Enteric Fever.—Caiger's paper considers this subject under the following headings: 1, Specific treatment; 2, antipyretic, and 3, antiseptic treatment. After re-

viewing the results obtained by the serum treatment of typhoid fever and by previous inoculation with attenuated cultures of the typhoid bacillus, and urging further investigations, the author says a word in favor of the cold bath as an antipyretic. But the principal topic of his paper is the use of the essential oil of cinnamon as an antiseptic. His results have been favorable. He has treated 147 cases with the cinnamon and of this number 14 died, representing a mortality of 9.5 per cent. After careful observation of the progress of the individual cases comprising the series, Caiger expresses the firm conviction that in the large majority of attacks the influence of the cinnamon was a good one, and that a certain proportion of the patients who recovered would not have done so had the cinnamon been withheld and the treatment conducted on purely expectant lines. The favorable effects which were noted as attending the administration of the drug were:

1. The temperature in the majority of cases ran at a lower level than is customary in enteric fever, the mean of the daily records taken every four hours approximating 101 instead of 102 or more during the full development of the fever. This effect was a good deal more pronounced in cases brought under treatment at a comparatively early stage of the disease.
 2. The patients remained for the most part drowsy throughout their illness, many of them evincing a constant tendency to sleep, as a result of which mental rest was secured and delirium was less frequent. Here, again, the good effect of early treatment was apparent.
 3. Intra-intestinal decomposition, as evidenced by abdominal pain, distension and fetor of the stools, was controlled to an extent which was really very striking. That the oil of cinnamon is especially efficient as an intestinal antiseptic is evidenced by the fact that, with the exception of several patients in whom the condition was present at the time of their admission to the hospital, no single instance of meteorism occurred among the 147 cases which were treated with it. To obtain the full effect of the cinnamon a dose of from 2½ to 5 minims of the essential oil should be given every two hours from the time the case first comes under treatment until the temperature has fallen to normal. Caiger is in the habit of continuing its administration every four hours during the first week of convalescence and then three times a day for a week longer. It is well, however, to give the drug in smaller doses to begin with so as to accustom the patient gradually to its very pungent taste. By commencing with a dose of 2½ minims and increasing it to 4 or 5 minims in the course of a few days, the likelihood of vomiting being induced by the cinnamon is materially diminished. Care should be taken that the quality of the oil is above reproach. The better quality oil is distilled from the cinnamon bark, and this only should be used. The oil distilled from the leaves of the tree should never be used medicinally. In view of the fact that in three instances progressive cardiac enfeeblement developed where there was no special reason to anticipate its occurrence, Caiger adopted the practice of giving a grain of sulphate of quinin with each dose of the cinnamon in all cases where a careful daily physical examination reveals a suspicion of cardiac failure. The result has so far been reassuring. Bacteriologic experiments have shown that an appreciable, though slight, inhibitory influence on the growth of the typhoid bacillus begins to be exerted by cinnamon oil in a dilution of about 1 in 26,000, and that when its strength approaches 1 in 1,000, its antiseptic effect is complete. The paper concludes with a consideration of the expectant plan of treatment, and the treatment of special forms of typhoid as well as the complications of the disease.

9. Methyl Oxid, Ethyl Chlorid and Somnoform.—Hewitt has made a very careful study of the anæsthetic effects of these substances, and his paper may be summarized as follows: When methyl oxid is largely diluted with air, the mixture does not produce a very satisfactory form of anæsthesia. Mixtures sufficiently concentrated to produce satisfactory anæsthesia are too pungent to be pleasant. As compared to the anæsthesia obtainable by customary means, that produced by methyl oxid is of like type and is not uncommonly followed by nausea and distress. Although a long administration may

lead to a long available anesthesia, unpleasant after-effects are liable to result. As with other anesthetics, it is difficult to produce a satisfactory analgesia. Ethyl chlorid is a useful anesthetic for certain cases. It is a fairly good substitute for nitrous oxid when this gas can not be obtained. It is, however, somewhat uncertain in its action. Its chief drawback lies in the frequency with which it produces unpleasant after-effects—headache, nausea, vomiting and an undesirable feeling of depression. As a routine anesthetic for short dental operations ethyl chlorid is distinctly inferior to nitrous oxid and oxygen, although it produces a longer anesthesia. In small children, who are about to undergo some brief dental or throat operation, and in those adults who are bad subjects for nitrous oxid or nitrous oxid and oxygen, ethyl chlorid will generally answer well. By adding ethyl chlorid to nitrous oxid a very deep form of anesthesia is induced with extraordinary rapidity, the method having the advantage of destroying consciousness more pleasantly than with ethyl chlorid alone. Somnoform does not produce such good results as pure ethyl chlorid and is distinctly more dangerous.

10. **Red Light in Smallpox.**—Nash reports three cases which he thinks were benefited by the red-light treatment. The first patient, an unvaccinated boy between 9 and 10 years of age, was admitted on the eighth day of the disease, when suppuration was imminent and the course of his temperature showed evidence of slight secondary fever, but even this, says Nash, was lessened by red-light influence. The second patient, a boy, aged 3 years, was vaccinated for the first time on the day of his admission to the hospital. The eruption appeared two days later, the initial symptoms being very severe. There was no suppuration, and on convalescence only five small scars were left. The third patient, a woman, aged 33, vaccinated, was admitted on the second day of the disease. There was no suppuration or secondary fever. These three cases were of the discrete type. By having red panes fitted to the windows ventilation was not interfered with, nor were red curtains hung about to exclude rigidly every possible ray of ordinary light. Such a procedure Nash considers both unhygienic and uncalled for.

Bulletin de l'Académie de Médecine, Paris.

Last indexed page 1605.

- 13 (LXVIII, No. 35). *Thermoacrophore. Oswalt.
 14 (No. 36). Sur une mission relative à l'étude des Instituts vaccino-gènes à l'étranger et sur la transformation du service de la vaccine de l'Académie en Institut vaccino-gène supérieur. Kelsch.
 15 *La cure marine de la scrofule. A. d'Espine.
 16 (No. 37). Inauguration du monument de L. Ollier. Guyon. See news columns last week.

13. **Application of Superheated Air to the Eye and Face.**—Oswalt's apparatus permits the local application of superheated air to any part of the face. His tests have shown that the open eye can tolerate, without injury, a temperature of 180 C. The sensitiveness of the lids is the only obstacle to still higher temperatures. The heat is supplied by a gas jet under a spiral tube connected with a rubber bulb. He has found this an effectual means of curing rebellious blepharitis, keratitis, chronic iridochoroiditis, and especially neuralgia and tic douloureux. Gautier presented the apparatus to the *Académie* and added that he could speak from experience as to its efficacy; it had relieved him of a neuritis of the brachial plexus which had proved rebellious to all other measures.

15. **Seaside Treatment of Scrofula.**—D'Espine reports the work done at the Dollfus asylum in Cannes since 1886. About 950 children have been received during this period, all but about 150 being scrofulous and tuberculous. The results observed proclaim anew the importance of the sea air and bathing for such children, combined with a mild climate which allows them to be out in the sunshine all day and to have the windows open at night. Tuberculous peritonitis also seems benefited by these factors.

Presse Médicale, Paris.

- 17 (No. 85). *Regles opératoires pour la guérison de la méningite purulente aigue généralisée. M. Lermoyez and L. Bellin.
 18 Hystéro-traumatisme oculaire et accidents de travail. F. de Lapersonne.

- 19 De l'interrogatoire d'une malade au point de vue gynécologique. F. Jayle.
 20 (No. 86). *Sérotérapie de la fièvre typhoïde. Chantemesse.
 21 (No. 87). Report of French Congress of Internal Medicine.
 22 *Thrombo-phlébite mésentérique primitive. Mignon and Dopfer.
 23 *Les doses considérées en tant que facteur variable en thérapeutique. P. De Ybarra.
 24 (No. 88). *Nouvelle méthode permettant l'étude de la motricité et de la sécrétion vraie de l'estomac (of stomach). L. Meunier.
 25 (No. 89). Transmissibilité de la dysenterie émbilienne en France. (Commenced in No. 84.) C. Dopfer.
 26 29 *Report of French Congress of Surgery.
 30 (No. 90). *Pain in Movable Kidney.—De la douleur dans le rein mobile. Th. Tuiffier.
 31-36 *Report of French Congress of Urology. (Commenced in No. 86.)
 37 (No. 91). La réduction non-saignante de la luxation congénitale de la hanche (Lorenz method). J. Gourdon.
 38 Trousse auto-stérilisatrice d'urgence (emergency case). J. Parmentier.
 39 (No. 92). *De la pyélonéphrite gravidique. F. Rochard.
 40 *Traitement du cancer par la méthode du Prof. Adamkiewicz. A. Réault.
 41 *La respiration à forme cérébrale dans les infections digestives. Nobécourt. Abstract.

17. **Operative Treatment of Diffuse, Acute, Otogenic Purulent Meningitis.**—The two cases of this form of meningitis, cured by lumbar puncture and drainage above and below, reported by Lermoyez at the International Congress of Otolaryngology last fall, are here described in detail and four imperative rules formulated: The necessity for opening and draining the middle ear, with exploratory craniotomy if required, renders necessary extensive petro-mastoid evacuation, exposing the dura. If this proves ineffectual the dura must be opened with an X incision, and, if necessary, this be supplemented by exploratory puncture of the temporal lobe, not deeper than 4 cm. This will drain the lateral ventricle if distended by an encysted hydrops, or it may evacuate some latent cerebral abscess. Lumbar puncture should be made and repeated. The fluid should be withdrawn in quantities of at least 15 c.c. at a time. In one of the cured cases four punctures were made in nine days. This measure is useful for the prognosis, as well as for the relief it affords, the removal of the toxic fluid and the stimulation imparted by the reproduction of the latter. The fourth and final rule is to respect the labyrinth, even when it shows evidences of necrosis. In the 2 cases necrosis was observed, but no attempt was made to interfere, and the process gradually healed spontaneously after elimination of some sequestra. The middle ear healed completely with no evidence of disturbances in equilibration.

20. **Serum Treatment of Typhoid Fever.**—Chantemesse obtains the serum by injecting horses with soluble typhoid toxin. Since his first communication in 1897 his total mortality has been only 4 per cent. During the same period the mortality in the 14 other hospitals of Paris, under like conditions, has been from over 13 to 26.8 per cent., averaging 18 per cent., while in the Bastion 29 under his charge the mortality has been only 22 out of 545 cases, that is, 4 per cent. He cites Murchison, Griesinger, Curschmann, Harte and Flint to the effect that perforation occurred in 2.6 per cent. of the 8,160 cases of typhoid in their statistics. Perforation occurred in his material in 1.6 per cent., that is, in 10 out of the 545 patients; 2 were successfully operated on. The proportion of perforations in the fatal cases is larger than in other statistics, which shows that the serum does not materially reduce the danger of this complication after the lesions are once established. The serum must be injected early to prove efficient. No perforation was noted in any instance in which the serum was injected before the seventh day of the disease. It stimulates the defensive processes in the spleen, glands and bone marrow, but it requires the co-operation of the organism to cure. The principles of its administration are diametrically different from those of antipyretic serum. With the latter, the longer the duration of the disease and the more severe, the larger the dose, but with the antityphoid serum, the sicker the patient, the smaller the doses should be. The serum treatment is combined with baths, as usual; in fact, the latter are particularly needed to control the slight reaction from the serum. Josias of Paris and Brunon of Rouen have used the serum in 220 cases and have witnessed a reduction of the mortality to a third of its former figure.

22. **Primary Mesenteric Thrombo-Phlebitis.**—Mignon reports a case with postmortem findings. The affection exhibits two distinct phases; in the first there are intermittent pains in the abdomen, alternation of constipation and diarrhea, and malaise, with or without temperature, corresponding to the degree of inflammation of the mesentery. The second phase is characterized by signs of intestinal occlusion, as the disturbance in the circulation of the mesentery paralyzes the intestine and entails gangrene, at certain points. The seat of the pain, usually in the left flank, and the absence of distension of the large intestine are valuable hints. After several days of vague symptoms the second phase developed in the case reported, and the operation was undertaken on the tenth day, the diagnosis wavering between ileus and an insidious epithelioma. The patient succumbed in stercoremic coma within twenty-four hours. Three years before he had been under treatment for phlebitis of the left internal saphena, but otherwise was healthy.

24. **New Method of Testing the Stomach Functions.**—Meunier remarks that a substance for testing the stomach functions should not be absorbable through the stomach mucosa nor modify the elements of the gastric juice in their secretion nor dosage, while it should be capable of exact and rapid dosage and should form with the test meal a homogeneous mixture. Mathieu uses oil and Sahli uses butter for testing the stomach functions, but neither of these substances blend homogeneously with the stomach contents, while they modify decidedly the gastric secretions. Meunier believes that a small amount of iron added to the Ewald test meal answers all the above conditions. After the test meal of 60 gm. bread and 250 gm. water, he gives 30 c.c. of a solution of iron containing 1 mg. of iron to the cubic centimeter. This gives a proportion of 1 mg. iron to 10 c.c. of fluid in the stomach content. The motor proportion, that is, the proportion between the volume of the meal evacuated from the stomach and the volume ingested, varies in the normal subject between .7 and .9. The secretory proportion, that is, the proportion between the volume of pure gastric juice and the volume of the test meal evacuated, ranges in health from 1.2 to 1.5. Each stomach seems to have a constant composition for its own secretion. The variations in the acidity in a single subject seem to be merely apparent differences, probably due to the secondary secretion of Strauss, Pawlow and Alder, or to dilution of the gastric juice. He follows the Mathieu-Remond technic for obtaining the diluted stomach content one hour after the test meal. The fluid is separated into two parts, one to be chemically analyzed, the other to serve for the color test for the iron. For example, 120 c.c. of fluid are found in the stomach after the test meal of 300 c.c., and colorimetric dosage of the iron in the stomach content shows that there are 4.8 mg. in the 120 c.c. of fluid. As each milligram of iron corresponds to 10 c.c. of the original test meal, we know that there can be only 10x4.8 mg., that is, 48 c.c. of the original test meal still in the stomach, and 300 minus 48 c.c., which equals 252 c.c., have passed into the intestines. The motor proportion is, therefore, 252 divided by 300, which equals .87 in this case. As 120 c.c. were found in the stomach, and as only 48 c.c. were due to the test meal, the remainder, 72 c.c., represents the pure gastric juice. The secretory proportion is, therefore, 72 divided by 48, which equals 1.5. In 57 subjects examined the results of these tests corresponded invariably with the clinical data and progress of the cases. He prepares the iron solution by dissolving 1 gm. of pure iron in 10 c.c. of hot distilled water to which 2 c.c. of pure sulphuric acid have been added. After it is dissolved he adds 2 c.c. of pure nitric acid. The solution is slowly evaporated to remove the excess of acid, and is then diluted with distilled water to 1,000 c.c. Part of the stomach content is mixed with from 8 to 10 drops of pure hydrochloric acid to each 20 c.c. of the fluid. Ten c.c. of this mixture are filtered on paper containing no iron and are heated to boiling, with 10 drops of pure nitric acid to peroxidize the iron. Distilled water is then added to bring the amount to 10 c.c. When cooled, 5 c.c. of a 1 to 20 solution of ammonia sulphocyanate are added and the filtered fluid is ready for color comparison with a 1 to 20 dilution of the

mother solution given the subject. Ten c.c. of this solution are diluted with 5 c.c. of the ammonia sulphocyanate solution and the colorimetric test applied as usual.

26. **Blood Count in Surgery.**—Tuffier reviews the symptomatic value of the blood count during the operation, in infections and suppurations, in intestinal surgery, in cases of cancer, hydatid cyst, chronic glandular disease and in gynecologic affections. His conclusions are that examination of the blood has become an indispensable part of the surgeon's acquirements. It is liable to render the greatest services if the findings are interpreted at the bedside and in a wise and prudent manner. His experience has been that in case of cancer there is a marked and progressive reduction in the reds, paralleled by reduction in the hemoglobin, without much disturbance in the corpuscular value. There is also a hyperleucocytosis of from 10,000 to 15,000 with polynucleosis: 70 to 80 per cent. of the neutrophile polynuclears. The proportion of sugar in the blood is also increased, to 3 per 1,000 in some instances. These findings are not invariable, but when noted are presumptive evidence of cancer. The hyperleucocytosis occurs earlier, more constantly and is more considerable in sarcoma than with other tumors. As a rule, in his experience eosinophilia with a leucocytosis of 10,000 to 12,000, and a normal proportion of reds, or slightly above normal, were found with hydatid cysts; anemia with polynuclear hyperleucocytosis with cancer, and pronounced hyperleucocytosis with intense polymleociosis without anemia and without eosinophilia accompanied abscesses in the liver.

27. **Traumatic Separation of the Epiphyses.**—Kirmisson's long address on this subject was followed by a discussion in which Frolich called attention to the nervous complications that may follow separation of an epiphysis. These have included in his experience radial paralysis, atrophy of the muscles of the shoulder and cubital paralysis. Willems remarked that radiography is of little use in the diagnosis when the subjects are under 4, on account of the preponderance of cartilage in the part. Bardesco reported a case of separation of the lower epiphysis of the tibia in a child of 2. It was not reduced, and fourteen years later the leg was found 6 cm. shorter than its mate, while the femur was 5 cm. longer. Reiboul has observed 2 cases in which the separated epiphysis had turned completely around, requiring incision and wire suture to restore it to place. Walther thinks surgical intervention should be the rule in recent cases. In 2 thus treated he found that the obstacle to reduction had been interposition of a fragment of bone or periosteum. Kocher urged the necessity for surveillance even after apparently perfect reduction. In one instance he found that the separation had recurred after reduction and apparent healing in a cast. The function of the limb did not seem to be impaired. Kirmisson reviewed the symptoms and diagnosis of separation of the lower epiphysis of the femur, upper and lower of the humerus, lower of the radius, upper of the femur and lower of tibia and fibula. The age and the site of the lesion near a joint should suggest the possibility of separation of the epiphysis. The after-results of such a lesion are still a matter of conjecture. Careful study of the cases, with radiography, watching them afterward for years, are the only means for determining the remote results of such an accident. Some of the epiphyses are more important than others in respect to growth later, especially the lower epiphysis of the femur, the upper of the humerus and the upper of the bones of the leg. The age has also a great influence, as the more ossification that has already taken place, the less the after-disturbances. At the same time, the nature and severity of the trauma, the intensity of the inflammation, defective reduction and extent of resection of bone are factors in the prognosis.

28. **Nail in Treatment of Femoral Hernia.**—Roux of Lausanne concludes the radical operation for femoral hernia by fastening Poupart's ligament with a double-pointed nail driven into the crest of the bone. He has been doing this for eight years, and in 56 cases, operated on more than three years ago, there has been recurrence in only 2. The total material thus

treated has been 130. If the opening is very large he uses two or three of the nails with a suture. None of the nails has worked loose. They are made of nickled steel, and are quite long.

29. **Lever for Reduction of Congenital Dislocation of Hip Joint.**—Mencière of Rheims uses an apparatus, constructed on the principle of the lever, in reducing a congenital luxation. The force applied acts on the lever, not on the femur, and hence there is no danger of fracture.

30. **Pain in Case of Wandering Kidney.**—The pain may be continuous, or intermittent continuous, with exacerbations, or may occur in separate attacks. The subjects sometimes learn to put an end to these attacks by twisting the thorax in a certain way, which seems to restore things to place, as they say. The presence of a tumor in the lumbar region is sometimes the only means to differentiate these attacks from liver or kidney stone colics. The variation in the size of the kidney is the best sign, the tumor in the lumbar region during the attacks vanishing with their cessation. Another diagnostic aid is the examination of the blood for cholemia and segregation of the urine, which, repeated if necessary and the findings carefully interpreted, will solve the problem in dubious cases. The polyuria that follows the reduction of the tumor or the spontaneous cessation of the attack of pain is probably due to reflex excessive compensatory functioning of the normal mate.

31. **Color Cystoscopy.**—Czerny emphasizes the diagnostic importance of what has been named chromocystoscopy (intramuscular injection of 4 per cent. indigo carmin. See THE JOURNAL, xlii, page 69) combined with catheterization of the ureters or segregation of the urine.

32. **Urethroscope.**—Luys of Paris reports important results from the use of his urethroscope, which allows powerful topical applications exactly at the points in the bladder where they are needed, sparing the sound mucosa.

33. **Tuberculosis of the Kidney.**—The experience of Pousson of Bordeaux has been that the mortality in 9 cases treated by nephrotomy was 22.2 per cent., while it was only 1.58 per cent. in 19 treated by nephrectomy.

34. **New Symptoms of Pyelonephritis and Pyelitis.**—Bazy adds to the usual symptoms 3 others not described in the textbooks: nocturnal incontinence, sometimes superposed on nocturnal pollakiuria; a bladder-kidney reflex consisting in pain in the kidney when the subject has a desire to urinate, and, finally, pain on pressure of a point two finger-breadths from the median line above the horizontal ramus of the pubis, sometimes radiating toward the ureter.

35. **Decapsulation in Nephritis.**—Pâtean of Paris reported 5 cases which demonstrate that decapsulation is liable to prove a life-saving measure or, at least, prolong life in certain cases of parenchymatous nephritis or nephritis in cardiorenal subjects. It must be done while the organism is still capable of responding, before complete collapse of the means of defense, while oliguria still persists, with albuminuria or hematuria, and medical measures have proved ineffectual. Other speakers emphasized the benefits of nephrotomy or decapsulation in hematuric nephritis. Nephrotomy relieves the congestion, and decapsulation renders the relief permanent by providing a new circulation. These procedures have also a powerful algostatic, hemostatic and modifying action on the secretion of the kidneys. Pousson has had 3 patients with nephrorrhagia from nephritis, lithiasis or tuberculosis of the kidney cured by mere incision.

36. **Conservative Operations in Renal Retention.**—Albarran reports 4 cures in 4 subjects with renal retention. The ureter was found emerging from the pelvis at an abnormally high level. He resected the pelvic pocket below the opening into the ureter, leaving the latter intact and raising the floor of the pelvis to a level with the opening, cutting away as little of the kidney tissue as possible, but making it slope down to the opening into the ureter. In some of the cases he fastened the kidney to insure this slope.

39. **Gravidal Pyelonephritis.**—Rochard gives the clinical his-

tory of a case of extremely severe bilateral pyelonephritis in a woman of 30 in advanced pregnancy. The symptoms were so threatening that she was placed on the operating table, but at the last moment operation was postponed and she was normally delivered of twins ten days later, with immediate cessation of all the kidney symptoms. In Kendirdjy's statistics there were only 2 deaths in 62 cases of gravidal pyelonephritis. Expectant medical treatment is indicated, but if the physician's hand is forced, instead of operating on the kidney, premature delivery should be the rule, as the survival of the fetus is very doubtful in such severe cases. Cova has reported 21 cases in which nephrectomy was done, with resulting abortion in only 5. The danger of involvement of the second kidney is so great that it seems to be preferable to remove the cause, that is, the compression of the ureter by the distended uterus, rather than to attack the kidney.

40. **Cancer Treatment of Cancer.**—Renault reviews the various communications published recently on this subject. His conclusions are that cancer seems to have an unmistakable influence on the cancer, soothing the pain, lessening the physical signs, improving the general health and encouraging the patient, giving him a hope of cure. Whether it cures or not is another question, but it certainly prolongs life. Thirty-six cases have been reported this year as practically cured.

41. **Brain Symptoms in Alimentary Tract Infections.**—Nobécourt relates that infants affected with gastrointestinal troubles are liable to develop symptoms suggesting meningitis: strabismus, vomiting, Cheyne-Stokes respiration and a suggestion of Kernig's sign. Lumbar puncture shows the cerebrospinal fluid normal, and treatment of the digestive apparatus soon restored conditions to normal in his experience.

Revue de Chirurgie, Paris.

Last indexed page 1585.

- 42 (XXIV, No. 11.) Report of XVIIth French Congress of Surgery, Oct. 17-22, 1904. See abstracts 26-29 above.
43 Report of XXXIIIrd German Congress of Surgery, April 6-9, 1904.

Semaine Médicale, Paris.

- 44 (XXIV, No. 45.) *Rôle de l'hérédité en pathologie rénale. J. Castaigne and F. Rathéry.
45 Sur les maladies à trypanosomes. R. Koch. Abstract.
46 *La torsion incomplète du cordon spermatique. F. Lejars.
47 Unfermented Grape Juice for Cutaneous Affections. Hénod.
48 *Inferstitial Injections of Paraffin in Hay Fever. Brindel (Bordeaux). Abstract.
49 (No. 46.) *La dilatation idiopathique ou congénitale du colon. L. Cheluisse.

44. **Heredity in Pathology of the Kidneys.**—Castaigne and Rathéry present clinical and experimental data and pathologic-anatomic findings which testify that infants born to mothers with diseased kidneys have morbid kidneys. This weakness in the kidneys is sometimes so pronounced that they are unable to functionate properly, and the infants succumb during the first hours or days of life. Examination of the kidneys of such infants has disclosed invariably pronounced diffuse nephritis. The infants with less severe disturbances survive but display a "renal debility," with a tendency to albuminuria at the most insignificant causes, and the same is observed in animals. The serum and amniotic fluid of women affected with nephritis contain nephrotoxins and the passage of these nephrotoxins from the mother to the fetus was abundantly proved in the researches. Every woman affected with nephritis has certain substances in her blood serum which are highly toxic for the kidney. As these substances pass readily from the mother to the fetus, the latter is thus being constantly laved in these nephrotoxic humors. They may be so powerful as to render the infant non-viable, or they may permit its survival, but with weakened kidneys, a candidate for kidney disease and its consequences later.

46. **Torsion of the Spermatic Cord.**—Lapointe has recently collected 43 cases of complete torsion of the spermatic cord and 7 of incomplete, recurring torsion. Mohr has also observed 2 cases of the latter and Lejars describes another. His patient was a young physician, robust and healthy, with the exception of a small left varicocele. About 10 a. m. one morning he was suddenly seized with intense pain in the sub-

umbilical region, growing progressively worse, localized along the spermatic cord and testicle on the left side. When seen an hour later the abdomen was found retracted, sensitive to pressure on the left side, the testicle swollen and red, the cord thick and extremely sensitive, and no trace of hernia. There was no tenesmus, the pain did not extend along the ureter, and the pulse was good. On the assumption of torsion of the spermatic cord hot fomentations were applied and morphin injected. In three hours the entire syndrome had subsided and there has been no recurrence of the trouble since. These incomplete, spontaneously curable forms of torsion can not be demonstrated anatomically. They may yield to external manipulations, but careful surveillance is necessary to prevent complete torsion with its sequence of hemorrhagic infarct of the testicle. Enderlen's experimental research has shown that the testicle may recuperate within sixteen hours, but if the torsion has lasted twenty-two hours, consecutive atrophy is inevitable. An operation may be indicated in case the attacks recur frequently, to prevent complete torsion.

48. "Paraffinage" in Hay Fever.—Bründel has treated 5 or 6 patients with hay fever by injection of paraffin under the mucosa of the turbinates as in the treatment of ozena. The induration that forms around the paraffin prevents access of blood and thus the excessive secretion in hay fever is permanently cured.

49. Congenital Dilatation of the Colon.—This is called Hirschsprung's disease in Germany, Mya's in Italy, and Chéineuse claims the priority for a French physician, Oulmont, who described it in 1843. He reviews the literature on the subject and mentions that simple fixation of the dilated loop, although theoretically inadequate, has given good results in practice in the hands of Woolmer and Trezibicky. Enteroanastomosis has also been successfully applied, but the operation of election seems to be colectomy, as a number of reported observations apparently establish. This intervention, however, should be restricted to severe, threatening cases after failure of dietetic measures and systematic efforts to control the constipation.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 1318.

- 50 (XXXI, No. 40.) *Ein Vorschlag zur Operation des Kryptorchismus. R. Knif.
 51 (No. 41.) *Die Überdrucknarkose mittels peroraler Intubation (plus pressure narcosis through a tube). Kuhn.
 52 *Zur unblutigen Behandlungen cong. Hüftverrenkung (hip joint dislocation). A. Schanz.
 53 *Intestinal Brutto.—Über einen neuen "Knopf ohne Naht" zur lateralen Anastomose, bes. zur Gastroenterostomie bei Karzinom. Jaboulay.
 54 (No. 42.) *Action of X-rays on Cancer Tissue and Cancer Parasite.—Die Einwirkung der Röntgenbestrahlungen auf das Krebsgewebe und die darin enthaltenen Krebsparasiten. M. Schüller (Berlin).
 55 (No. 43.) *Experimentelle Untersuchungen über die Wirkung der Radiumstrahlen auf tierische Gewebe und die rolle des Lecithins bei derselben (action of radium rays on animal tissue). R. Werner.
 56 *Pessar zum V.-schluss des Anus preternaturalis. von Kuester.

50. Modification of Operation for Retention of Testicle.—Ruff modifies the Katzenstein technic by suturing the inguinal canal in such a way that the seminal cord is compressed to a certain extent. This compression is only sufficient to induce slight venous congestion in the testicle. This makes it larger and heavier, which prevents its slipping back and, by the traction, gradually lengthens the seminal cord. He has operated in this way on one subject and the results are most satisfactory in every respect.

51. Plus Pressure Narcosis Through a Tube.—THE JOURNAL has described Kuhn's method of intubation through the mouth or nose, and the possibility of thus bringing the anesthetic into direct contact with the lungs while avoiding any action from it on the upper air passages. He is preparing a compendious work on the subject, and merely announces here that all surgeons agree in commending this method of narcosis. He has found that it is possible to combine this mode of administering the anesthetic with the plus atmospheric pressure used by Brauer and Petersen for intrathoracic operations, a modification of the minus pressure of the Sauerbruch air chamber. No chamber nor apparatus of any kind is needed, merely the long tube. It passes through a broad rubber band

which covers the mouth airtight and fastens at the back of the neck. The nostrils are also closed airtight. The lungs and bronchial tree thus communicate solely with the long tube, and the chloroform can be easily applied. The tube is then connected with an oxygen tank to induce the plus pressure according to the Brauer-Petersen technic.

52. Non-Operative Treatment of Hip Joint Dislocation.—Schanz, in examining a child with this deformity, found that the luxation became spontaneously reduced when the thigh was brought over the abdomen in such a way that the axis of the femur crossed the umbilicus. He has since systematically used this technic. The assistant stands on the affected side and holds this side of the pelvis firmly pressed against the table. The operator, on the other side, draws the thigh up as described, placing the joint in flexion and adduction, and then exerts traction in the direction of the axis of the femur. Sometimes it is necessary to supplement the above by inward rotation of the thigh. Deep narcosis is not necessary. In older children it may be advisable to press on the trochanter in the direction of the axis of the femur. The head of the femur is thus replaced in the acetabulum, but it only lies loose there. In order to hold it there, the leg has to be placed in the retention position, as with the Lorenz and Hoffa technics, that is, in extreme abduction. This is painful and requires a trifle deeper narcosis. He then applies a plaster cast for from three to six weeks, and after its removal keeps the child in bed, but lets him use the leg as he pleases. When he begins to sit up in bed, a Heuser walking chair is supplied until he can walk alone. Any movements that might jeopardize what has been gained are inevitably painful for the child, and consequently he carefully avoids them. The results from this technic have been so far superior to what he had previously realized that Schanz commends it to the attention of all.

53. Button for Gastroenterostomy.—Jaboulay's button was illustrated in THE JOURNAL, xlii, page 1324. He has used it in 200 operations on the intestines. The mortality in 100 cases of carcinoma was only 18 per cent.

55. Action of Radium Rays on Animal Tissue.—Werner has been experimenting with capsules containing 10 mg. of radium bromid. He found among other things that the intensity of the physiologic action of the rays is not proportional to their fluorescence-inducing properties, nor to the duration of the exposure, but seems to obey certain very complex laws. Exposures of from sixteen to twenty hours cause changes in the tissues over an area from four to six times larger than the areas directly exposed. The penetration is not increased. Preliminary application of eosin did not seem to enhance the action of the rays to any appreciable extent. He found it possible, however, to enhance their action by preliminary brief, repeated freezing of the skin with ethyl chlorid or ether, by repeated dipping of the part in water at a temperature of from 49 to 51 C., by application of eron oil, by moderate, repeated venous congestion (the rabbit ear is a good object for these tests), by vigorous but brief and repeated expulsion of the blood from the part, and by repeated slight mechanical injury. These predisposing procedures must be repeated until the tissues become hyperemic and hypertrophied, with leucocyte infiltration. The exposures are then followed by a more prompt reaction, greater extension of the alterations and greater penetration. If the preliminary procedures are carried too far the tissues seem to become tougher and their susceptibility to the radium rays is lessened. It was found that the sores caused by exposure to the radium were very difficult to infect. Also that the radium was unable to dis-infect already infected wounds. Lecithin was exposed for two or three days to the action of the radium rays and was then injected subcutaneously. There was only very slight local reaction and all traces of it soon vanished, but two or three days after the injection the spot presented the phenomena of a typical radium burn, passing through all the phases of redness, swelling, blister formation, and necrosis of the epidermis. These facts suggest that the action of radium is

essentially an intoxication from the products generated in the destruction of lecithin, in addition to disturbance of the assimilation by changes in the lecithin. This harmonizes with the fact noted that tissues in which leucocyte infiltration has occurred are especially susceptible to the radium rays. He queries, in conclusion, whether the exposed lecithin has an elective action on elements especially rich in lecithin. If so, this suggests its possible application in therapeutics of leucocyte infiltrations, tuberculides and malignant tumors.

56. **Stopper for Artificial Anus.**—Two soft rubber balls communicate with each other by a small, short tube. The smaller ball is inserted collapsed into the intestine, which brings the other ball close against the outside of the anus. The balls are then inflated, which plugs the opening completely and the balls keep their place and are held firm without a bandage of any kind. There is no undue pressure, and the subject can turn the stop-cock to let out the air and remove and replace the stopper without aid.

Centralblatt f. Gynäkologie, Leipzig.

Last indexed page 1135.

- 57 (XXVIII, No. 41.) Lipome des Bauches (of abdomen). Fritz Michel.
- 58 Moderne Bestrebungen der Prophylaxe des Puerperal-Fiebers. W. Sigwart.
- 59 Zur Verhütung der Blennorrhoea neonatorum nach Credé. Ernst.
- 60 (No. 42.) *Improved Technic of Extramedian Symphyseotomy.—Weitere Erfahrungen und Verbesserungen der subcutanen Hebotomie. A. Döderlein.
- 61 Cryoscopy of Maternal and Fetal Blood.—Ueber den Gefrierpunkt des mütterlichen und fötalen Blutes sowie der Amnionflüssigkeit. F. d' Erchia.
- 62 Midwife or Birth helper?—Sollen wir die Bezeichnung Hebammen beibehalten?—Dahmann.
- 63 (No. 43.) Mechanical and Physical Features of Delivery.—Die mechanische Begründung der Haltungsveränderungen und Stellungsänderungen des Kindes unter der Geburt. H. Seibhelm.
- 64 *Zur Berechnung des "absoluten Heilungs-Procentes" in der Carcinom Statistic. E. Waldstein.
- 65 Gynecology and Obstetrics at Naturforscher Congress. Sept. 18-24, 1904.

60. **Improved Technic of Extramedian Symphyseotomy.**—Döderlein is enthusiastic in his appreciation of Gigli's mode of sawing the pelvis, apart from the median line, as a safe and simple operation in case of contracted pelvis. He has performed the operation eight times, and has somewhat modified Gigli's technic. He prevents undue gaping of the wound by tying a rubber band around the pelvis. This allows the sawed surfaces to separate enough to allow the passage of the head, but no farther. After delivery, the rubber band is removed and strips of adhesive plaster applied circularly around the pelvis. He considers it advisable to prepare for this extramedian symphyseotomy in dubious cases, but not to undertake it unless, in the course of the delivery, it proves actually necessary.

64. **Absolute Percentage of Cures in Carcinoma Statistics.**—Waldstein proposes a simple formula by which the absolute percentage of cures may be determined. It will enable the remote results of various technics and operators to be accurately compared, and shows the fallacies of the present antiquated methods of comparative statistics. The formula is:

$$\text{Absolute percentage} = \frac{O(100 - M)D}{10,000}$$

O per cent. represents the proportion of operable cases; 100 per cent. minus M per cent. represents the per cent. that survived the operation, M per cent. representing the mortality percentage, and the remainder, after subtracting M. per cent. from 100 per cent., representing the survivors. D per cent. represents the percentage of permanent cures. O per cent. of all the cancer subjects are operated on. Of this O per cent., M per cent. succumb from the operation. That is, M per cent. of O per cent. succumb. Expressed mathematically this gives $\frac{MO}{100}$ per cent. The survivors are, there-

fore, $O - \frac{MO}{100}$ per cent. The permanent cures must, therefore, be a certain percentage of this last term. The absolute percentage of permanent cures will, therefore, be D per cent. of $O - \frac{MO}{100}$ per cent., which may be expressed: $\left(\frac{100O - MO}{100} \right) \frac{D}{100}$. This can be simplified to the formula first given above:

$$A \text{ (absolute percentage)} = \frac{O(100 - M)D}{10,000}$$

By substituting L for the survivors (100 - M), the formula can be still further simplified to $\frac{OLD}{10,000}$

If the above factors (except the mortality) were the ideal 100 per cent., then the final absolute proportion of permanent cures would be the ideal 100 per cent.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

- 66 (XXX, No. 45.) *Nervous Affections Due to Wearing Out of the Nerves.—Die Aufbrauchkrankheiten des Nervensystems. L. Edinger.
- 67 Die ätiologische Begründung der Pocken-Diagnose (of small-pox). Jürgens.
- 68 Radikale Heilung des rachitischen und statischen Plattfusses mittels Sehnenplastik (tendon plastics for flat foot). I. Hevest.
- 69 Die Rückbildung und Heilung der Myome durch Faradisation. E. Witte.
- 70 Ueber die Verwendung der Gummihandschuhe bei der manuellen Placentar-Lösung nebst Bemerkungen über die Ursachen der Retention placentae (use of rubber gloves). E. Wormser. (Commented in No. 44.)
- 71 Ueber moussierende Sauerstoffbäder (foaming carbonated baths). L. Sarason.
- 72 Beteiligung der Arme an der Bekämpfung der Tuberculose als Volkskrankheit. F. Knaak.
- 73 Etwas über Methode und Lebrmittel für den Laien-Unterricht (for education of lay public). Diims.
- 74 Die Obliquus-Furche (groove). J. Stilling.
- 75 (No. 46.) *Immunization of Cattle.—Ueber Immunisierung von Rindern gegen Tuberculose (Perisucht) und über Tuberculose-Serumversuche. F. F. Friedmann.
- 76 Relations Between Tuberculosis of Birds and Mammals.—Die Geflügel-tuberculose und ihre Beziehungen zur Säugetier-tuberculose. L. Rabinowitsch.
- 77 Asthma und infektiöse Lungen-Lenden (Tuberculose. Pneumonie). Danges.
- 78 Ueber nervösen Halsschmerz (pains in the neck). G. Boeninghaus.
- 79 Ueber Influenzarückfälle (relapses in grippe). E. Apolant.
- 80 Aronson'sches Antistreptococcen-Serum bei puerperaler Sepsis. Hoffmann.
- 81 Beitrag zur Geschichte der Gebärmuttermolen (history of uterine moles). Bergmann.
- 82 *Report of Cancer Research Committee.

66. **Affections Due to Wearing Out of Nervous System.**—Edinger reiterates his former assertions in regard to the origin of certain nervous affections. He is convinced that the demands resulting from the normal functioning of the nerves cause a wear and tear which is not always replaced by normal repair. The nerve fibers become used up and their elements are not duly replaced. The cells of the organism are balanced so nicely that none can be destroyed but the neighboring cells proliferate to excess or usurp the place of the weaker cell. Edinger accepts this as the cause of a very large number of nervous affections from the mildest professional neuritis to tabes, paralysis, optic atrophy, muscular atrophies and combined sclerosis. The group also includes the majority of congenital nervous affections. The close connection between these affections is readily demonstrable and is further established by the transitional forms observed. He gives a number of striking examples to sustain this view and also cites the results of experimental research which further corroborate his theory that functional use may under certain circumstances entail the destruction of nerve tracts.

75. **Immunization of Cattle.**—Friedmann's announcements in regard to the value of turtle tubercle bacilli for rendering other animals immune to tuberculosis were summarized on pages 136 and 624 of vol. xlii. He has succeeded in rendering guinea-pigs immune to injections of virulent bacilli, and his experiments with cattle have been equally successful. A single injection confers a high degree of immunity on the cattle, and the turtle bacilli are apparently entirely harmless. These two points are the chief advantages of the turtle bacillus over others that have been used for this purpose. He describes experiences with prepared bovine serum, pig serum and guinea-pig serum in which he succeeded in protecting guinea-pigs by serum treatment against virulent infection.

82. **Cancer Research Committee.**—Von Leyden has founded a cancer dispensary on the principles of the tuberculosis dispensaries in vogue in France and elsewhere where the patients are taught the necessary hygiene and measures to take care of themselves and prevent contagion of others. The care over them is extended to their homes, families and even workshops. Special attention will be paid to x-ray and radium treatment

of cancer. Michaelis reported further successful inoculation of cancer in mice. Juliusburger has been sifting a life insurance material of 7,981 deaths from cancer during the fifteen years 1885 to 1899. The figures show that the number of cases of cancer among the well-to-do is much larger than among the working classes; also that the age limit is from 40 to 70 in the former and from 50 to 70 in the latter. The stomach and the genitalia are the most frequent sites. He was unable to detect any conclusive connection between trauma and the development of cancer. A hereditary tendency was apparent in 3 per cent. of the well-to-do subjects and in 18 per cent. of the others, the maternal influence being much more pronounced. There were more victims of cancer in good hygienic surroundings than in the reverse. Nothing was discovered in these thousands of cases that testified conclusively in favor of a parasitic origin.

Janus, Utrecht.

Last indexed XLII, page 274.

- 83 (IX, Nos. 1-2.) La pratique de l'ophthalmologie dans le Moyen Age Latin (during the Middle Ages). P. Pausier. 84 Paracelsus. Paul Schenk. 85 L'origine historique de la syphilis en Espagne (in Spain). L. Comenge. 86 Contribution à l'étude de la pathologie des races humaines. C. L. Van der Burg. 87 No. 3.) Die Regensburger Brillenmacherordnung (the Regensburger regulations for spectacle making). S. Nenburger. 88 Zur Geschichte der localen Diastole der Herzkammern (history). E. Ebstein. 89 Les maladies des pays chauds (tropical diseases). C. L. Van der Burg. 90 (No. 4.) Le médecin et la médecine dans la "Collection Hippocratique." L. Meunier. (Commenced in No. 3.) 91 Organisation des Unterrichts in der Prophylaxe und Tropenkrankheiten in Hamburg. D. Nocht. 92 La mortalité des enfants au-dessous d'un an en Norvège (infant mortality in Norway). A. Johannessen. 93 (No. 5.) Ein letztes wort zur Prioritätsfrage Holmes-Semmelweis. S. Baruch (New York). 94 Zur Hygiene der alten Aegypter. E. Hagemann. 95 Prophylaxie du Beri-Beri. C. L. Van der Burg. 96 Zu den anatomischen Abbildungen des Vesal (the Vesalins—Da Vinci plagiarism). E. Jackschath. 97 (No. 6.) Die Heilkunst in China (history of medicine in China). (Commenced in No. 4.) R. W. Von Zaremba. 98 Medizinische Kulturgeschichte (medicine and civilization). J. Pagel. 99 (No. 7.) Aus Arnaldo Cantani's Jugendzeit (history of acetone). L. Kleinwächter. 100 (No. 8.) Die transmission de la fièvre jaune et la prophylaxie. G. Reynaud. Report of French Yellow Fever Commission. See THE JOURNAL, page 983. 101 (No. 9.) L'immunité héréditaire. Etude de pathologie comparée de générations et de races en stalle lapidaire. O. Effertz. (Commenced in No. 7.) 102 Sonneustich in Mexico (sunstroke). O. Effertz. 103 "Life Insurance for Northerners in the Tropics.—Die Lebensversicherung." L. Van der Burg. 104 (No. 10.) Erbunten an August Breisky. L. Kleinwächter. (Commenced in No. 9.) 105 Diphtheria in the Tropics. J. De Haan.

93. Priority in Prophylaxis of Puerperal Fever.—Baruch quotes from a recent important German work by R. Dorn, "History of Modern Obstetrics," 1903, which seems to settle the Holmes-Semmelweis priority question in favor of Holmes.

101. Inherited Immunity Instead of Inherited Predisposition.—Effertz has been traveling unfrequented paths the world around for more than twenty-five years, and has been particularly interested in studying the comparative pathology of different generations and races. He regrets that this study is so neglected. The more interesting a locality in this respect, the fewer the physicians and the lower the standard of their intelligence. Men with brains like to live in the cities, and there is no ethnologic originality to be found in the towns. And yet the present generation is the last one in which such ethnologic studies are possible, as races are blending so fast; succeeding generations will have to go to the libraries and museums to study them. He has been much impressed with the variations in the frequency and virulence of the affections noted among various races. Others have explained this by "inherited predisposition," but he thinks that a much better explanation is an "inherited immunization." His idea is that all infectious diseases have a tendency to diminish in virulence. Diseases pass through three phases: The miasmatic phase, that is, when they are transmitted by insects able to travel over considerable territory. Then, as they become less malignant, they can be transmitted only by direct contact, and we say they are "contagious." Then, as they become still less

malignant, they require still more intimate contact for transmission, and we say they are "venereal." All infectious diseases are destined to disappear gradually from the earth, but they retire in good order, obedient to these laws of becoming more benign, more infrequent and more venereal. The cradle of a disease should be sought, therefore, in races which have passed through these stages and have acquired an inherited immunity, so that these races are most exempt from the disease. Immunization by saturation with the virus does not seem to impair the general health. "Nature strikes with her hand but cures with her feet." Effertz has been residing lately in a remote corner of tropical Mexico, and his articles on the amazing immunity of the natives to syphilis and to wound infections have been reviewed here (XIII, pages 745 and 988). Their bare legs always have some scratch or sore, and these small ulcerations in time have induced an immunity to wound infections. He thinks that their immunity to syphilis is also due to inherited immunization. There is an extremely mild venereal affection observed among them, and this, he thinks, is the relics of malignant syphilis in preceding centuries. It is liable to transmit malignant syphilis to foreigners. Diseases can be exterminated only by inherited immunization. This theory explains the successes of serotherapy. He urges other physicians to study these questions by races, generations and centuries. Nothing can be learned by study of a few individual families. He suggests a question blank as follows: Among what races do you practice? At what place? When did syphilis, smallpox, leprosy, malaria, whooping cough and measles first appear there? What is the virulence of these diseases among the indigenous race, among the Europeans and among other immigrated races? Do the natives go barefoot?

103. Life Insurance of Northerners in the Tropics.—Van der Burg reviews in detail the various findings in subjects who reside permanently or temporarily in the tropics, as bearing on the question of life insurance. Chronic diarrhea and psoriasis exclude the candidates. Latent malaria may be revealed by a dose of sodium sulphate. If recovery is not complete there is usually fever afterward, readily suppressed with small doses of quinin. Special examination is required of persons returning to a temperate from a tropical region, with particular regard to the manner in which they bear the change, and also in examining for symptoms not encountered in the temperate climes. The companies should refer such candidates to physicians who have practiced in the tropics, and especially in the particular regions whence the candidate comes. Nothing will take the place of the intuition of practical experience.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A LABORATORY MANUAL OF HUMAN ANATOMY. By Lewellys F. Barker, M.B. Tor., Professor and Head of the Department of Anatomy in the University of Chicago and Rush Medical College. Assisted by Dean De Witt Lewis, A.B., M.D., and Daniel Graisberry Revell, A.B., M.B., Instructor in Anatomy in the University of Chicago. Illustrated. Pp. 533. Price, \$5.00. Philadelphia and London: J. B. Lippincott Co. 1904.

THE ANATOMY OF THE BRAIN. A Study of the Human Brain from the Brain of the Sheep. A Manual for Students in Medicine, Biology and Psychology. By J. F. Burkholder, M.D., Professor of Anatomy in the Illinois Medical College. With an Introduction by Prof. Henry H. Donaldson, of the Neurologic Laboratory of the University of Chicago. With 32 Full-page Plates (5 Colored). Cloth. Pp. 175. Price, \$2.00, postpaid. Chicago: G. P. Engelhardt & Co.

PROCEEDINGS AND ADDRESSES OF THE SEVENTH GENERAL CONFERENCE OF THE HEALTH OFFICIALS IN MICHIGAN, Ann Arbor, Mich., Jan. 7 and 8, 1904. Under the Auspices of the State Board of Health. Paper. Pp. 112. Lansing: Wynkoop, Hallenbeck, Crawford Co. 1904.

PRACTICAL DIETETICS. Diet in Health and Disease. By A. L. Benedict, Buffalo, N. Y., Member American Gastro-Enterological Association. Green Buckram, Gift Size Title and Top. Pp. 400. Price, \$1.50 net. Chicago: G. P. Engelhardt & Co.

FIRST BIENNIAL REPORT OF THE STATE HOSPITAL FOR EPILEPTICS AT PARSONS, for the Two Years Ending June 30, 1904. Paper. Pp. 18. Topeka: George A. Clark. 1904.

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Addresses.

RELATIONS OF PATHOLOGY.*

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CHICAGO.

Ostwald, the inspiring interpreter of the great principles of science, states:

We have just passed through a period in which all sciences have been isolated, a period of specialization, and we find ourselves in an epoch in which the synthetic factors in science are gaining a constantly increasing significance. . . . Everywhere the individual sciences seek points of contact with one another; everywhere the investigator determines the value which his special results may have in the solving of the general problems. In short, all sciences are tending to be philosophical. Nowhere is this tendency toward fundamental explanation so great as in biology.

PATHOLOGY A DIVISION OF BIOLOGY.

Disease is the common lot of all forms of life—high as well as low, animal as well as vegetable—and it is the special province of pathology, the science of disease, to study life in its abnormal forms and activities. Hence pathology is a division of biology, and it is, in fact, pathologic biology, but its relationships as such have not always been so clearly appreciated as they ought to be; in part, this may be explained on account of the very special stress placed on its direct application to practical medicine in the service of the art of healing. For this and other reasons pathology in many respects has remained somewhat isolated among biologic sciences. The early pathologists took the almost exclusive standpoint of human medicine, and for a long time the vast resources of general biology remained practically unused in the study of disease. On the other hand, owing to lack of appreciation of the fact that disease is a phenomenon of life and to the unnatural separation of the biologic study of disease from general biology, the subject of disease has rather repelled the student of biology, who, therefore, seems to have neglected to utilize fully the approaches offered by pathology to a better knowledge of the phenomena of life.

In view of the extent to which man has busied himself with the study of all forms of animal life in all accessible parts of the world, is it not rather strange and an evidence of lack of co-ordination that the occurrence of cancer throughout the whole vertebrate kingdom should have been made out definitely only during the last year? Yet this demonstration by the Cancer Research Fund in London, as well as the further demonstration that cancer has the same fundamental characters as in man when it occurs in fish, reptile and bird,

render it extremely improbable that either climate or diet of man has anything to do with the direct causation of cancer, thus, putting an end to much needless speculation and materially narrowing the scope of a most important inquiry.

PATHOLOGIC PROCESSES IN EVOLUTION.

In some quarters disease has been regarded merely as an expression of inferiority and weakness, and as part, at least, of the means by which inexorable Nature carries out the verdict of extermination. Parasitism, for instance, has been designated as a weapon to eliminate those who fall below a certain standard. Consideration of the nature of disease from this point of view gives to disease merely a negative evolutionary significance, as it would cause no new and better qualities in the descendency. Closer examination would tend to show, however, that processes of disease may have a different significance of a more positive nature in evolution. There are numerous simple as well as complex physiologic processes which, when set in motion by abnormal conditions, appear to be of advantage not only to the individual, but also to the species. As examples of adaptive processes, at first sight of more special individual advantage, may be mentioned regeneration, hypertrophy, the interesting adaptations to new and strange conditions of which bones and vessels are capable, certain phases of thrombosis, and even atrophy which has been described as the faculty of an organ to adapt itself to conditions of diminished nutrition, thus circumventing necrosis, a faculty of great advantage when the period of diminished food supply is only temporary.

No one can fail to see much that is useful and advantageous in the complex reactions to injuries observed in inflammations, the significance of which has been greatly broadened through the well-known comparative study of Metchnikoff. In the ease of immunity, natural and acquired, our wonder knows no bounds, so marvellous are the precision and scope of the protective reactions, concerning which so much has been brought to light in recent years and which lend themselves well to comparative studies.

In the case of degenerations and tumors it is not possible to recognize any direct or indirect advantage, and certainly no one has yet been able to see malignant tumors in such favorable light.

In the instances first mentioned the pathologic reactions have physiologic prototypes; they are adaptations of physiologic processes. Regeneration and growth are taking place constantly in health. Phagocytosis, on which so much stress has been laid in inflammation, is merely an exaggeration of normal nutritive processes in certain cells. At present the production of antitoxins and other antibodies is best explained as the result of special adaptations of normal stereochem-

*Address in the Section of Pathology of the International Congress of Arts and Sciences, St. Louis, Sept. 22, 1904.

ical mechanisms whereby nutrition is carried on. A very noticeable difference between the physiologic and pathologic manifestations of these functions is seen in their imperfections and shortcomings under many of the abnormal conditions. Incomplete regeneration resulting in the formation of scars often has many disadvantages. Inflammations frequently establish conditions in themselves fraught with dangers. The reactions of immunity may not neutralize quickly enough the toxins nor destroy promptly enough the invading organisms. Hence there is abundant scope for the intervention of the physician armed with all the various appliances of his art, some of the most useful of which are the products of artificially produced biologic reactions.

But after all, these individual organisms must enjoy the best chances for survival and reproduction that suffer least harm because best able to adapt themselves and to protect the life and function of their cells under conditions of disease. Just as there are variations in the limits of physiologic regulatory mechanisms, so also there are individual differences of degree in the power of adaptive and protective reactions to establish themselves in disease and permit continuance of life. In progressive evolution it naturally must be in the descendants of individuals with the best adaptive and protective powers that an increasing completeness and perfection of such powers will be found.

Viewed in this light, many processes of disease assume a significance of positive character in biologic evolution, a point of view that would tend to increase the interest in pathology among the biologists in general, and thus further its development along broader lines and lead to co-ordination of knowledge and broad and still broader generalizations as to the causes, nature and processes of disease. At present we may be said to be gathering materials for this broader comparative pathologic biology of the future in the same way as older naturalists gathered materials for the biologists of the present day.

PATHOLOGY AND RESEARCH.

In certain fields, at least, the student of the pure science of disease is primarily interested in the knowledge of disease for its own sake without much thought or immediate care as to any prompt, practical use to which such additions as he may make to this knowledge may be put. It is true here, as it is in general, that most things are done only on account of the results expected from them in the future, but immediate technical utility is not always the sole guiding principle of the investigator in pathologic domains. The history of pathology shows him that in this science, as well as in its synthetic sciences, all actual increase in knowledge eventually helps to relieve suffering. Everywhere the most intimate relations may be seen between the progress of medical knowledge and the progress of medical art. Like other sciences, pathology furnishes many examples of the rather unexpected importance and the even profound influence of the new observation, the new methods of study, the new point of view that at first seemed to have but limited significance. Indeed, some of the fundamental ideas of scientific medicine have arisen in this way. It has been well said that no knowledge of substance or force of life is so remote or minute, but that to-morrow it may become an indispensable need (van Hise). We in America have, therefore, much reason to rejoice because of the strong movement that is starting in the interest of scholarship and of research

in pathology, a movement that, of course, does not limit its influence merely to the advancement of knowledge, but exercises as well a powerful influence on the diffusion of knowledge. The man who is so full of enthusiasm for pathology that he will "burn his lamp for its advancement," is likely to be an inspiring teacher illuminating the older knowledge with the discovery of to-day and placing the new facts in their proper relations to what is already known and to what will be known. Medicine in this country has been so preoccupied with building up medical education for the training of physicians that comparatively little energy has been available for the upbuilding of medical science itself. Thus pathology in the universities has not been taught until very recently in such a way that graduate students might take it up as a branch to be followed through long stretches of labor. This is regrettable, but in some of our universities pathology is now placed on equal footing with other natural sciences and fully recognized as a proper field for work leading to higher degrees, and this is a much-desired progress in a most important direction. The direct interest now taken by many persons in medical research, the institutes and funds their munificence has established, are also having a most profound influence on the development of pathology in this country. Another mighty current in favor of this development has set in from the scientific work carried on in our various governmental and state institutions.

PATHOLOGY AND SYNTHETIC SCIENCES.

Let us now attempt to trace briefly the present relations of pathology to cognate sciences with the object of learning, if possible, in which direction the hope lies for greatest progress and to mark out the paths along which our investigators must journey in order to gather the best materials for that wider and larger pathologic biology on which we are still to work. The clearest conception of the rôle that the more important synthetic factors have had and are having on the development of pathology will be obtained through the historic perspective. In this way, too, it may prove feasible to show how some of the special problems have been solved and to bring into relief the great co-ordination of useful knowledge exemplified by practical medicine and the influence on it that various sciences have had and are having through the medium of pathology.

THE ANATOMIC IDEA IN MEDICINE.

Anatomy was the earliest biologic science to receive cultivation. The first laboratory for the training of students was the anatomic. One cause, at least for this, if not the cause, was the downright necessity for physicians to become closely acquainted with the structure as well as the functions of the human body. It is consequently not strange that pathology in the modern sense should begin as pathologic anatomy, that is, with the study of the grosser, evident alterations in structure that result from disease and on which, in turn, rest many of the disturbances of function observed in disease. In its earlier stages pathologic anatomy busied itself with the accumulation of a store of facts and observations gained almost wholly by the examination of human bodies after death. Morgagni was the first to attempt any generalization from this store of facts, and by correlating the anatomic changes observed after death with the disturbances of functions observed as clinical symptoms during life, he was able to draw conclusions of fundamental importance in regard to the seats and causes, at least in

certain phases, of disease. This is the first instance of synthesis on a large scale of two biologic sciences in the study of pathology, namely, the physiologic or study of function, and the anatomic or study of structure. Morgagni's conception of disease as inseparably connected with structural changes in the organs was designated happily by Virchow as the anatomic idea in medicine, and this idea, the greatest gift of anatomy to medicine, proved of incalculable service in turning the minds of physicians away from speculation to careful, objective study of disease during life, as well as after death. We catch an interesting glimpse of Morgagni's own point of view in the following quotation from his writings:

The various steps in progress ought not to be disregarded, for, in difficult research, we derive encouragement from the recollection that, although the exertions of an individual may not advance philosophy in any perceptible degree, yet, owing to the power of experiment and the successive influence of opinion the most obscure and apparently unsuccessful inquirer may prove the first or the connecting link in a series of most valuable discoveries.

CELLULAR PATHOLOGY.

The next advance was the result of Biehat's introduction of minute anatomy and the demonstration that the organs consist of tissues to which the seat of disease now was referred. Before long came the epochal development in botany, under the influence of Schleiden of the cell doctrine, which was applied by Schwann to normal animal histology, and by Virchow in 1858 to pathology, the direct outgrowth being the justly celebrated cellular pathology, beginning an era during which medicine has made greater progress than in all preceding time.

Physiologic and pathologic processes were traced to the elementary morphologic constituents of living organisms—the cells. The famous phrase of 1855, "*omnis cellula e cellula*," completed the liberation of medicine from abstract speculation already begun by Morgagni and greatly furthered by John Hunter, Bright, Addison and others in England, and by Laennec, Louis and others in France. "The physician grew from a schoolman into a scientific observer, and the surgeon who appeared on the scene in livery and without learning grew from a handicraftsman to be a man of science." Pathology became a natural science. What rich new fields were not open for investigation! A vast amount of material was accumulated from careful clinical and morphologic study of individual cases, and the basis thus laid for the construction of general laws and fruitful theories of disease. During the earlier part of this period attention was confined largely to man, but it also was often turned in the direction of animals in the effort to penetrate deeper into morbid processes; the experimental method was used to interpret correctly observations made in the clinic and in the postmortem room.

Of fundamental importance for all branches of medicine was the resulting organization of the teaching and investigation of pathologic anatomy. Following the leadership of Virchow in Berlin pathologic-anatomic institutes or laboratories were rapidly established and soon recognized as indispensably necessary for teaching, for research, and for direct assistance to medical practice. In the further course of development these laboratories have undergone various modifications and enlargements of scope, principally as the result of the advent of medical microbiology.

With surgery and the rapidly developing surgical specialties, pathologic anatomy—gross and microscopic—

soon assumed permanent relations of fundamental character. The anatomic study of the diseases in question was followed by great progress in treatment, and the exponents of these branches of applied medicine did not remain merely receptive of the work of others, but have themselves prosecuted diligently pathologic investigations of great value. Indeed, in certain special branches, especially ophthalmology, otology and dermatology, the clinicians have long been practically the sole occupants of the fields of pathologic anatomy of their respective parts of the body.

The close study of pathologic anatomy, being largely the study of the results of disease, stimulated also to brilliantly accurate diagnosis of certain internal diseases, which, unfortunately, in some cases, was coupled with a disheartening therapeutic pessimism. Said the therapeutic nihilist Skoda: "We can diagnose disease, describe it and get a grasp of it, but we dare not by any means expect to cure it." That some of the followers of cellular pathology in the narrower, dogmatic sense, believed that the innermost secrets of disease could be reached by morphologic methods, and that functional disturbances always could be adequately explained by morphologic means, may now be regarded as an instance of the tendency man frequently shows to approach his problems from the least accessible points. These unfavorable tendencies in pathology led to the following protest by Clark in 1884:

We are so much concerned with anatomic changes; we have given so much time to their evolutions, differentiations and relations; we are so much dominated by the idea that in dealing with them we are dealing with disease itself that we have overlooked the fundamental truth that these anatomic changes are but secondary and sometimes the least important expressions or manifestations of states which underlie them. It is to these dynamic states that our thoughts and energies should be turned; they precede, underlie and originate structural changes; they determine their character, course and issues; in them is the secret of disease, and if our control of it is ever to become greater and better, it is on them that our experiments must be made.

Fortunately, Clark's warning had been anticipated by development. Virchow himself long before repeatedly emphasized that pathologic anatomy can not deal forever with the product without searching for the cause that led to its production. It seems to me that the following highly remarkable statement in the prospectus of the first volume of *Virchow's Archiv*, published in 1847, shows that the founder of cellular pathology had a wonderfully clear vision of the rôle pathologic anatomy was to play in the evolution of pathologic biology:

The standpoint we aim to occupy is simply that of natural science. Practical medicine the applied theoretical, the theoretical pathologic physiology is the ideal we shall strive to reach so far as our powers permit. While we recognize fully the title and the independence of pathologic anatomy and of the clinic, they serve us pre-eminently as sources of new questions, the answers to which fall to the lot of pathologic physiology. Inasmuch, however, as these questions, to a large extent, may be formulated only through painstaking and comprehensive detailed study of manifestations (of disease) in the living, and of the conditions in the dead, we regard the exact growth of anatomic and clinical experiences as the first and most important demand of the present time. From an empiricism of this kind will result gradually the true theory of medicine, pathologic physiology!

MICROBIOLOGY, ETIOLOGY, COMPARATIVE PATHOLOGY.

It was reserved for etiology, the offspring of microbiology, "to lift pathology permanently out of the level

of a purely descriptive science, for, with the entrance of a dynamic factor, a causal element, under the guise of micro-organisms, the experimental era began definitely."

The coming of microbiology, long foreshadowed by ingenious speculations concerning infectious diseases, at once made pathology broader and definitely comparative in its scope, thus widening its relations to general biology on the one hand, and to preventive and curative medicine on the other. It will be recalled that the founders of bacteriology—Pasteur, chemist and biologist, and Koch, physician—both made their appearance in medicine as investigators of animal infections. Infectious diseases constitute a predominant part in the field of pathology, and deeper insight into their nature required simple, easily controllable conditions accessible to experiment and analysis. This became possible by the discovery and study of micro-organisms which could be used to set in motion the complex phenomena of disease according to the pleasure of the investigator. In animals the course of a disease may be cut short at any time for the purpose of investigation and better insight obtained into the evolutions of morbid processes. The disease may be studied in all its phases. Hence comparative pathology rapidly became the refuge of the investigator finding his way blocked by the necessary restrictions governing the study of human disease. The great influence of the comparative method of study of infectious diseases is well shown in the relatively advanced state of our knowledge in regard to those human diseases of this class that are readily communicable to animals as compared with our ignorance in regard to the cause of certain other human diseases which, so far as we know, are not transferable to animals.

As the secrets of the vast domain of parasitism were revealed and the teachings of specific etiology and pathogenesis became appreciated, there sprang up in the place of the therapeutic hopelessness, inspired by the study of pathologic anatomy only, an increasing interest of enormous consequences in preventive measures. This was the natural outcome of the persistent efforts now made to follow the chain of causation so far as it was possible to go; for it early became established that the farther back of the immediate causes of diseases we can come, the more easily and economically are they controlled, and, reversely, the nearer we approach the period in the evolution of disease characterized by open manifestations the more difficult is disease to overcome. Hence the newer ideas of cleanliness and of surgical asepsis, sanitary science and preventive medicine—all are the offspring of the study of microbiology and etiology in a wide sense. Indeed, the great principle of prevention may be applied with perfect success, even when the actual cause of the disease remains unknown. The discovery by Walter Reed, for instance, that the cause of yellow fever is conveyed by a certain kind of mosquito, made it possible to prevent this destructive disease with absolute certainty, by destroying the mosquito.

INTERACTION OF PARASITE AND HOST. BIOCHEMISTRY AND IMMUNITY.

But the fundamental problems of etiology are not wholly solved by the discovery of the causative agent, however important this step may be: for it remains to explain how normal function and structure are upset by the entrance of this new factor.

Now the study of bacteriology and comparative pathology has permitted a deeper penetration into the nature and mechanism of certain infections. The discovery of bacterial and other toxins, complex soluble and diffusible chemical substances, and of their wonderful influence on the metabolism of cells, opened new and rich fields that under the hands of keen investigators have furnished precious materials for the advancement of medical science along new lines. Henle had anticipated many of our ideas of the interaction of parasite and host, but especially interesting are the teachings of Bretonneau in regard to the specificness of infectious processes, and the words of his pupil, the great Trousseau, have proved themselves of prophetic significance:

There are (in infectious diseases) two factors; one is the morbid germ coming from without, and the other is the economy about to receive it; there is required a special aptitude for the organism to respond to the action of the stimulus . . . when there is no such predisposition the morbid germ perishes.

It was necessary to erect the great structure of cellular pathology and to make brilliant and epochal discoveries in morbid etiology before the suggestions in Trousseau's statement as to the interaction of host and parasite could be expressed in such definite terms and given such enlargement in scope as in the genial and heuristic side-chain theory of Ehrlich. According to this theory, a toxin is poisonous only when it unites chemically with some constituent in the cell of corresponding stereochemical configuration; if the cell does not contain this particular constituent the toxin is harmless; and when these constituents course in the blood as the result of reproductive processes in the cells they are protective (antitoxic), because they unite with the toxin and thus prevent the disastrous union of toxin with cells. In other words, the substance in the body which, when situated in the cells, is a primary essential for the toxic process, becomes a curative agent when it enters the blood stream (Behring).

Fortunately for the therapy and prevention of diphtheria, tetanus and a few other essentially toxic infections, these antitoxins may be caused to accumulate in large quantities in the blood of certain animals when artificially immunized by the injection of increasing doses of the corresponding toxin. It was a happy inspiration, indeed, that led Behring, Kitasato and Roux to use the antitoxic serum of immunized animals for curative and prophylactic purposes, thus turning to the common good this innate faculty of the animal organism to develop in so marvellous a manner its own resources.

Supported by numerous experiments among the most imaginative and interesting of modern biologic investigation, Ehrlich's theory has proven a veritable master-key to some of the innermost secrets of toxic and antitoxic action and immunity in general. The theory has been found adaptable to other closely related problems in chemical biology, and its signal usefulness in promoting investigation in this complex field on broad comparative basis places it among the great theories of science.

Ehrlich's side-chain theory has been applied with great success to the explanation of the action and the formation by the cells of the various lytic or solvent substances for animal cells, particularly red corpuscles, as well as for bacteria. The active hemolysins, bacteriolytins and cytolytins are formed by the

union of two distinct bodies, amboceptor and complement, whose properties and affinities are being studied most actively. These substances occur to a considerable extent in the blood of normal animals, and may be induced to develop freely under the stimulation of the injection into animals of large quantities of the cells or bacteria to be acted on. The fact that hemolytic substances, though of a somewhat different and apparently less complex nature, are produced by certain pathogenic bacteria of common occurrence, especially streptococci, has given us a new point of departure for the study of the anemia that develops in streptococcal and other infections. By the aid of Ehrlich's theory it has also proved possible to explain the mode of action of the toxic substances in certain venoms, and in this particular field highly valuable facts have been established by the work of Flexner and Noguchi and of Kyes. In certain phases the subject has been beautifully simplified by the work of Kyes, who succeeded in showing that a definite chemical substance, namely, lecithin, may act as a complement to amboceptors in venoms, with which it unites as a crystallizable "lecithid."

The extraordinary complexity of the chemical substances produced by cellular activity is further illustrated by the group of substances known as agglutinins, which have the interesting property of drawing animal as well as bacterial cells together into clumps. Agglutinins may be produced by bacteria as well as by animals. It is more than likely that certain forms of thrombosis met with in infections are caused by agglutination of corpuscles, a form of thrombosis which has been designated as agglutinative. Experimentally, such thrombi are produced with ease by the injection of various agglutinating substances. In animals as well as in man certain infections, e. g., with typhoid bacillus, are associated with the development of agglutinins having a specific effect on the bacterium causing the infection. Such agglutinins are being used everywhere for two purposes: (a) To determine the nature of the infection for purposes of clinical diagnosis (as in the agglutination test for typhoid first introduced as a clinical measure by Grünbaum); and (b) to identify certain bacteria and establish their relations to the infection.

Furthermore, it has been found that the serum of an animal treated with a proteid form precipitates with that one proteid, a property that within certain limits appears to be specific. This has led to the use of specially prepared precipitating serums for the diagnosis of different proteids, e. g., the detection of human blood for medicolegal purposes, and for the study of the genetic relationships of certain animals—a study that in the hands of Nuttall has given results of general chemico-biologic interest from an evolutionary point of view.

Reviewing these remarkable developments, one is profoundly impressed with the fact that at the same time as they constitute a most important widening out of biochemical science they have added greatly indeed to the permanent resources of practical medicine, emphasizing again in the clearest way the everlasting identity of the scientific and practical. Let no one, at least in the medical profession, ever doubt the practical value of the knowledge that ripens on the tree of science! These developments also demonstrate that there are other modes of progress toward knowledge of cellular activity and biologic mechanisms under path-

ologic as well as normal conditions than the purely morphologic highway, which hitherto had been followed with great persistence in pathology.

Here we are dealing with chemical substances and chemical and physical processes which ultimately will be interpreted in terms of chemistry and physics. Already Arrhenius and Madsen have attempted to show that the laws of mass action and chemical equilibrium govern the reactions between toxin and antitoxin, an attempt that has precipitated a sharp controversy with the Ehrlich school, which can not but powerfully stimulate continued work in this field. Recently we have learned, too, that many salts in ionizable solutions and also more complex substances combine in such a way with the complements in normal and immune serums as to hinder the union of complement and amboceptor necessary for lytic action. Perchance it is in this direction that we may look for some insight into the changes in physiologic mechanisms that permit various organisms to enter and set up disease.

It seems that in the chemistry of immunity we soon may expect most interesting developments. The fact that lecithin may act as complement, that it forms a crystallizable "lecithid" by union with the amboceptor of snake-venom; and, further, the evidence now at hand that colloidal silicic acid may play the part of amboceptor, warrant the hope that before long complete analysis and perhaps synthesis of lysins may become possible.

THE SYNTHESIS OF DIFFERENT METHODS IN SCIENTIFIC AND PRACTICAL MEDICINE.

In the majority of cases we owe our first knowledge of the existence of distinct diseases to clinical observation. By keen study physicians were able to distinguish even between more or less similar pictures, but the clinical picture has not always proved adequate for the determination of disease-entities. The clinical manifestations of certain diseases are so much alike that differentiation finally was accomplished as the result largely of the study of the more or less characteristic structural changes in the tissues of the body. In some cases differentiation could be made only after the discovery of the specific causative organism. This was the case with diphtheria. The clinical manifestations and the local anatomic changes in the throat caused by the bacillus of diphtheria may be reproduced in streptococcal and other infections. Now it is self-evident that the real penetration into the nature of a disease demands its complete separation from other, in certain respects, perhaps, more or less similar diseases. In the case of diphtheria, for instance, complete etiologic differentiation was essential in order that the real value of diphtheria antitoxin might be learned. It may be mentioned, too, that it required the discovery by Koch of the same bacillus in practically all forms of human tuberculosis before the doctrine of the dual nature of this disease, at one time advocated by Virchow on anatomic grounds, received its final overthrow.

In various local inflammatory diseases, such as pleuritis, pericarditis, peritonitis, meningitis, and in many so-called septic conditions, i. e., local infections with general intoxication, but with or without bacteremia, the same clinical manifestations and anatomic changes may be produced by different organisms. The diseases being different etiologically are consequently also in all likelihood different chemically in spite of their clinical and anatomic similarities, and for these rea-

sons deeper penetration into their nature as well as progress in direct treatment will depend largely on study of the organisms concerned and the products of their activities. Clearly an essential step in this direction is the differentiation of the diseases on etiologic grounds. Other examples of analogous nature could easily be cited.

Now, practically every disease, the nature of which we in some degree understand, may be cited in illustration of the close synthesis of clinical observation (clinical pathologic physiology), pathologic morphology, etiology and microbiology, experimental and comparative methods, and especially more recently of chemistry, in the development of our knowledge of disease. To the fullest extent this is true of certain infectious diseases. Starting with normal physiology and anatomy these have become the principal methods by which material is accumulated for that pathologic physiology which Virchow put as the chief end of medical investigation. And it is along this road, too, that the medical student passes to reach membership in the medical profession; for here also "ontogeny repeats phylogeny." Finally, these are also the very methods of procedure employed by the real physician in solving the problems of diagnosis and so of treatment presented by the individual patient, no matter to what specialty the case may be referred in consequence of the great differentiation of medical art with which we are familiar.

Practical medicine is availing itself more and more of the methods of scientific medicine. The laboratory is entering into closer and closer relations with the clinic. For the purpose of facilitating investigations as well as treatment, it has been found advantageous to include various laboratories in the clinic, and the use of laboratory methods has extended to all departments of medical practice, where their field of usefulness is constantly enlarging. How these methods may be made most easily available for the practitioner has now become a problem of real urgency. Pathology is consequently a great force in the interests of integration as opposed to differentiation in medicine; for pathology gathers under her wings, like a scattered brood, all the specialties which, in their respective fields, are using the same methods of investigation.

Whatever the rôle of pure morphology in the investigations of fundamental biologic problems—and it does not seem likely that it will lose greatly in significance in this respect so long as biologists regard the peculiar complexus of physical conditions called structure as absolutely essential to life—it always will maintain relations of fundamental importance in medicine. Medical and surgical diagnosis rests to a large extent on the recognition of the nature and cause of gross changes in structure and their consequences on function. To the surgeon pathologic anatomy is a guide whose minutest direction he must obey. Exact clinical observation controlled so much as ever possible by anatomic examination will continue, as emphasized by Chr. Fenger, the mainstay of medical progress in every locality.

The value of microscopic anatomy in the study of diseases of the blood, in the differentiation of new growths and in inflammatory products needs only mention. Many of the methods of microbiology are essentially morphologic. The established classification of bacteria is based on morphology, and the studies of the relations of micro-organisms to the cells of the body—often a matter of great importance—requires morphologic methods.

I believe there is no room for the opinion one occasionally hears expressed to the effect that the value of the usual methods of morphology and microbiology in scientific pathologic investigation has been exhausted. Of course the field can not be said to be so large as at one time, but there are still problems enough demanding the use of these very methods, refinements and improvements in which are constantly increasing their usefulness. Unquestionably advances in our knowledge of functional localization and in the tracing of conduction paths in the central nervous system of man will continue to depend in the main on the careful study of anatomic lesions and the functional and structural consequences. Blastomycetic dermatitis and paratyphoid fever are brilliant examples of "new diseases" recently established as the result of purely morphologic and microbiologic methods of study in fields long diligently explored. In trypanosomiasis and piroplasmosis of man and of animals we have other examples of interesting diseases, for the recent knowledge of the existence of which, as etiologic entities, we are indebted chiefly to clinical observation and morphologic studies of the blood. These facts indicate that microbic etiology may yet be forced to yield up hitherto carefully guarded secrets to more or less familiar methods or new modifications thereof.

In pathology, purely morphologic methods have surely as great importance in establishing etiologic relationships and as a means of orientation in various forms of investigation as they have in unraveling the intricate connection between structure and function. Progress in the domains of microscopic pathological morphology and progress in normal morphology will always be mutually helpful because pathologic cellular changes—necrosis, necrobiosis, degenerations and proliferations—are probably largely identical with normal cytomorphosis, being abnormal only as to time and place. A recent morphologic observation of great interest is that by Bashford and Murray of a process of conjugation in cancer cells. These observers found in cancer cells nuclear changes similar to those by which sexual cells are prepared for fertilization, and also fusion of nuclei equivalent to the process of fertilization known as conjugation. This discovery (if confirmed) will help to turn the search for the causative factor in cancer directly to the very processes in the cells themselves, a direction indicated already by the facts that cancer always "breeds true," that it is transplantable only within the species in which it originates, and that it behaves as an independent organism.

Undoubtedly the newer methods of study of recent microchemic reactions in normal cytology will prove valuable also in pathologic cytology. Perchance this synthesis of morphologic and chemical methods in time may give us some insight into the normal relations and time sequence of chemical reactions in biologic processes, normal as well as abnormal.

It proved to be an auspicious day both for chemistry and medicine when Pasteur conceived his biologic theory of alcoholic fermentation. Ludwig's prophecy of forty years ago that chemic physiology would largely prove a study of catalytic reactions has come true, and the cell is now no longer considered as a simple structure, but rather as a most complicated machine, the working of which for the most part is dependent on enzymes. Into the finer details of the manner in which these mechanisms may be disturbed under abnormal conditions we as yet have hardly been permitted to

penetrate, but the extensive recent researches dealing with the nature and mode of action of ferments in divers physiologic activities have awakened a lively interest in fermentations in pathologic processes which augurs well for the future.

Among the many intracellular ferments those causing self-digestion or autolysis of cells are thought to play an active and essential rôle in the removal of dead material, such as dead cells, necrotic tissue in infarctions and inflammatory exudates. Some idea of the fermentative activities in autolysis may be obtained from its action in pneumonia. In a few days autolysis may so alter a mass of exudate weighing several hundred grams that it is readily removed from the lungs by absorption and expectoration.

The biochemic mechanisms of normal and pathologic pigment formation have now been shown to depend on the action of oxidative ferments.

Cohnheim's demonstration that two enzymes, one coming from the pancreas and the other from the muscles, are necessary for the oxidation of sugar, appears to be a long step toward putting the pathogenesis of diabetes in an entirely new light. While these and other oxidizing ferments are the products of cellular activity, it at once suggests itself that they need not be the products of the cells of the same body which is later to use them, and the idea has been expressed that they may be introduced as needed much as antitoxins now are introduced (Long).

The results of the work of Croft Hill and of Kastle and Loewenhardt on the reversibility of ferment action have been eagerly grasped by pathologists and made to throw new light on the problems of fat absorption and translocation. Indeed, the newer chemic methods of study are changing completely our older ideas about fatty changes in the cells, ideas that were based almost wholly on morphologic appearances. Great progress has been made also in other respects in recent years from the application of the methods of physiologic chemistry to pathologic problems, but I must refrain from going into further details. As a result, the field of pure chemistry as an aid to medical diagnosis is enlarging, not merely as regards various analytical procedures for the testing of fluids and other substances, but the newer methods of physical chemistry, such as testing the solution content by electrical conductivity and cryoscopy have also been found useful in order to obtain information of help in reaching a correct diagnosis or a better understanding of the nature of the functional disturbance.

As indicated in the foregoing we are now at the beginning of an era of the application of physico-chemic methods to many problems in medicine, problems that at one time were regarded as approachable only by so-called biologic methods, and the number of problems that lend themselves promisingly to this form of treatment seems to be constantly increasing. I have referred already to their use in the study of chemic problems in immunity. The many fundamental problems connected with the constancy of osmotic pressure in the fluids of the body; the great influence of osmotic disturbances in the production of edema; the part played by inorganic salts in various phenomena and the interesting relations of ions to proteins; the physico-chemic properties of ions of various salts in relation to pharmacologic action—these are some of the questions that are being actively studied with results, in many cases, of far-reaching importance.

In many of its phases this departure is the outcome of the application by Loeb and others of general chemistry to biologic study, the results of which have been followed with increasing wonder as they have shown us the extent to which life phenomena can be controlled unequivocally by chemical and physical means. Many of the manifestations of life are physical in character, but biologists are agreed that the source of energy in life phenomena is chemical, and that general chemistry therefore must form the foundation of biology. From this it follows directly that the deeper, fundamental explanation of the mechanisms of pathologic processes also requires chemical and physical methods. Henceforth chemistry will play an increasingly important rôle in the efforts to reduce the phenomena of pathologic biology to simpler laws. We thus find that sharp lines of demarcation can not be drawn between normal and pathologic biology; for progress in one naturally exercises determining influence on progress in the other, and in both development is in the direction of closer synthesis with physics and chemistry.

Medicine has been called the mother of sciences, and not without reason. She gave to physics Galileo, Mayer, Helmholtz; to geology, Steno; to botany, Linnaeus; to biology, Huxley; but as pointed out by Sir Michael Foster, her children are ever coming back to help her. In medicine as a science and as an art many sciences converge—physical, chemical and biologic methods join hands for the advancement of knowledge and the relief of suffering.¹

THE RELATION OF THE PHYSICIAN TO SANITATION.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON HYGIENE AND SANITARY SCIENCE, AT THE FIFTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT ATLANTIC CITY, JUNE 7-10, 1904.

GARDNER T. SWARTS, M.D.
PROVIDENCE, R. I.

On the question of hygiene and sanitation much, if not all, of the practice of medicine rests. The nearer that the individual personally and the nearer the public or masses of individuals collectively live and conduct themselves in accordance with the conditions provided by Nature, so much less will be the need of med-

1. Of the various articles from which I have drawn freely in preparing this address I would mention the following especially: Barker, L. F.: The Unveiling of the Cell, THE JOURNAL A. M. A., March 1, 1902.

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ical interference. What a sepsis is to the surgeon, perfect hygiene is to the medical practitioner. Unfortunately, however, under the stress of accomplishment of great results in every line of effort except that of health, Nature's pristine conditions are forgotten and abuse of all her natural laws follows.

In the effort of the ignorant mother to improve on the diet provided by Nature, she seeks to add to the infant's strength by feeding it with all sorts of indigestible foods. The woman of knowledge, striving for social eminence, forces on her infant a diet, scientific, perhaps, but precarious, and the child's start in life is made with the handicap of a weakened intestinal tract and softened bones, a system, which in the next few years, serves as a good nutrient pabulum for the growth of the numerous bacteria especially provided for the growing child.

As the child grows, lack of knowledge in quarantine precautions or false economy in municipal administration makes it possible for him to acquire the many communicable diseases.

Fortunately, the ancient superstition that it was desirable to have these diseases in childhood is passing, yet there are still medical men among the older members of the profession who, while they do not think it desirable to willfully expose a child to smallpox, believe that it is well to acquire measles, for the reason that a child is pretty sure to acquire it anyway, and if enjoyed in childhood the course of the disease will be milder than if undergone in adult life, forgetting that the sequelae from an attack of measles frequently incapacitates the child from full power of sight or hearing.

With the great advance made in the construction of school buildings and with the medical inspection of schools, one peril is minimized, but the stress and the demand made on the nervous system of an over-full curriculum has nearly reached the maximum of tension. To be sure, the development of the race in American precocity supplies the schools with nervous systems which are active and which possess a tensile strength which is increasing with every generation. Yet to this there must be a limit for practical utility.

Through the next stage of life the adolescent lacks a full understanding of hygiene, which should be taught more exactly, frankly and honestly at this period. He is exposed, if installed in college or separated from home surroundings in order to earn a livelihood, to the danger of alcoholic excess; less often to excessive use of tobacco, but always to the venereal peril which is treated with concealment by layman and professional.

Through adult life continuous demand is made on the system to do more than it is equal to. Overfeeding, on the one hand, and shortened periods for eating to gain time for work on the other, allows the normal functions little opportunity to produce a perfect constitution. If the digestive tract is not abused the nervous system is overtaxed.

The pitfalls are many, and the average man and woman succeeds in finding some one of them and Nature and her instructions are forgotten.

It is evident that the journey is perilous and a puzzle to one who stakes his intent on cause and effect, and he involuntarily quotes the statement that if he were God and if he had the making of man he would have made good health catching instead of disease.

But these dangers exist. Many, if not all of them, are avoidable, and the spread of many may be controlled. The health officer is the one appointed to see that the

means of prevention are applied. He does so in proportion as the knowledge of modern sanitation may be possessed by him, and to the extent that his superiors supply him with the power and the money to apply that knowledge.

For the purpose of obtaining the latest and most perfect knowledge of the laws of hygiene and sanitation, the American Public Health Association meets once a year. For a perfect understanding as to the best means of applying this knowledge in a practical way, the Conference of State and Provincial Boards of Health of North America meets once a year, and its membership is made up of the executive and active health officers of the states and provinces and the country of Mexico. By provision of Congress, an annual meeting is to be called by the surgeon general of the Public Health and Marine-Hospital Service with representatives of the health boards of the various states.

The power for good in this line of investigation and application of interstate sanitation and quarantine and in reference to health matters in the broadest sense is illimitable, and will probably serve the various states with much information and assistance, especially in the management of diseases transmissible from state to state, and which may be introduced into the United States from abroad.

The Bureau of the Public Health and Marine-Hospital Service has for its executive administration six divisions for working out different lines of work for national sanitation. These divisions are as follows:

- Division of Marine Hospitals and Relief.
- Division of Domestic Quarantine.
- Division of Foreign and Insular Quarantine and Immigration.
- Division of Sanitary Reports and Statistics.
- Division of Personal Accounts.
- Division of Scientific Research.
- Miscellaneous Division.

We also have for our instruction in sanitation this section, termed the Section of Hygiene and Sanitary Science of the American Medical Association.

With the existence of these three other organizations the question may be properly asked. What need is there of such a section? Whatever has been left undone by these three can be considered by this section.

It must be remembered that the American Medical Association is composed of practitioners, physicians and surgeons, who are interested in their work, to be sure, but, while they have a certain amount of knowledge of hygiene and sanitation, yet when questioned or when they meet with conditions calling for an opinion in reference to sanitation, whether it be a question of quarantine or plumbing, it will be found that their knowledge does not extend beyond the ordinary knowledge of the laity.

The instruction in hygiene given in the various medical schools, with few exceptions, is notoriously poor and inadequate. The students shirk attendance on a subject which does not appeal to them and is not popular, and for which they are not shown that there is any practical demand. This is frequently apparent in the examination papers presented and answered at the several state board examinations. On these subjects the markings are extremely low, and the applicants confess that the course given at college was not very interesting.

Of the graduates appearing for state examination at the present time are many able practitioners who still entertain the belief that sewer gas is capable of producing the specific diseases of typhoid fever, scarlet fever and diphtheria, and that malaria is produced by

the miasm or a condensed humidity arising from marshes.

To be well posted on sanitary beliefs and facts, necessitates that the practitioner be alive to the published matter on these subjects in the voluminous medical journals of the day. Radium and its uses may be interesting and require much attention to meet the queries of a curious public, but if the physician neglects the various articles on the mosquito theory of the transmission of disease, the rôle which the common house fly may play in the spread of various communicable diseases, or the bacterial possibilities in a vast number of diseases, he will be tripped by the heels with short explanation by his patients who, at the present day, are kept well posted by the lay press; and, as stated in the beginning of this article, he will find that medicine rests one of its numerous feet on sanitation, for cause, effect and treatment, for treatment in many cases consists of prevention. One may ward off a chill in malaria with quinin, but can not prevent the return of the disease nor the spread to others unless the mosquito is excluded.

From the small attendance at the last meeting of this Section it would appear as if there was little need of its continuance. This has long been my opinion. The failure of the Section to attract can not be ascribed to the failure to present good subjects and able papers from prominent men, but the subject here, as in the medical schools, is considered too remote from the researches of the physician on his daily routine work.

Other sections present more topics of general interest, and the members can not be in two places at once, although at the sessions of the American Medical Association this desire is strong. The organization is so broad that it is hard to live up to it all. It is worse than the three-ring circus with its continual whirl of changes.

The interest in the subjects presented at this Section is to the general practitioner no stronger than the interest of the laity for the same subjects. The average business man will give more attention to an address on the practical subject of purification of a water supply by filtration than will the practitioner, yet he, the shepherd and guide of his patients, should be thoroughly posted in such practical matters which influence the health, not of his patients alone, but of every citizen in the city using the water supply.

The advance in our knowledge of the bacteria has permitted of a more perfect understanding of the means of transmission of communicable diseases. Unless the general practitioner follows the reports of the medical journals giving the results of experimental investigation on these lines, he will find his system of quarantine somewhat antiquated with the visit of the live health officer of the present day. The old practitioner, believing in contamination of atmosphere either in gaseous combination or a chemical one or in some injurious combination, fears all air which may be in and even about a house where diphtheria or scarlet fever exists.

When acting as medical inspector for communicable diseases, I have met with the following conditions: In the back entrance of a house I have found chlorid of lime exposed in a plate or saucer; hanging in the doorway of the room occupied by the patient, sheets saturated with carbolic acid; reaching the bedside, a quantity of raw onions in a receptacle under the bed; hanging on a cord around the neck of the patient, a bag of camphor. An undoubted wealth of foul odors gener-

ated, evidently, for the purpose of stifling the miasm and catching the vicious microbe in his winged flight, even to the lower stairway and out the back door.

If these attempts were for the purpose of deodorizing one might have respect for the effort, and yet this method of purification, unless its purpose and the limit of its effect is understood, is liable to lead the attendant into a false sense of security.

The results of the investigations of our expert bacteriologists have shown that the presence of the moribific material or specific organism in diphtheria does not reach much beyond three feet from the mouth of the patient. The center of infection is in the throat, and may be communicated only from that point, hence the mouth, and utensils and hands coming in contact with the mouth, is the limit of the infectious material. Of course, these utensils may be transported to other rooms, and if used without washing, may be a distinct point of infection.

Unless there is coughing or expulsive respiration, or in cases where the attendant is a careless person, the secretion of the throat be smeared on the clothing, the possibility of carrying the disease is remote.

If the practitioner would concentrate his quarantine on the center of infection instead of laying so much stress on the observation of unnecessary rules and the use of disinfectants in places where they can not possibly find any contagion to disinfect, his results would be more satisfactory.

Among the communicable diseases which have prevailed from time prehistoric, the physician is brought into contact with the venereal group. While gonorrhœa and syphilis have been declining in severity for several generations, yet some of our colleagues can tell us of the ravages which these two diseases produce in the full light of civilization.

These diseases are preventable, yet they continue to thrive. It is the duty of health officers to check preventable diseases, but if they are not informed of the location of the disease it is impossible for them to check it.

The physician is continually cognizant of the location of these diseases and of the source from which they come. Some caution their patients as to the danger after the patient has already paid for his experience and knowledge. Why was he not warned before in some practical way?

The Conference of State and Provincial Boards of Health, at its meeting in Washington, adopted a form of letter, copies of which shall be furnished by boards of health to physicians.

It is hoped that the physician may be able to assist the health officers and the public by placing these few trite statements in the hands of their afflicted patients, and at least warn them against communicating their disease to others.

The physician will claim that he invariably cautions his patients concerning the means of transmitting these diseases, but in the embarrassment and excitement of the consultation it is doubtful if many patients remember much of what has been said to them. In the immediate danger which is presented to their own person they are apt to disregard the far-reaching possibilities of the spread of the disease from themselves, or if they do know, on partial recovery, will lapse from their previous good intentions and become careless.

If a circular can be presented to them which they may preserve and read in the seclusion and quiet of

their own rooms, the impression of what and how will be more firmly fixed in their minds. The health officers are prepared to furnish the means, and it is now incumbent on the physician to do his share of the duty in giving warning.

There is one other matter wherein the physician often fails in his duty as a sanitarian. On physical examination of a patient it is determined without doubt that the person is suffering from pulmonary tuberculosis and is informed that "he has some trouble with his lungs," but the physician has not the moral courage to tell him that he has consumption. He may be sufficiently sordid to fear that the patient will consult some one else, and the second consultant will deny the presence of lung trouble for his own gain. Others may prefer to put off declaring the presence of any tuberculous affection, hoping, perhaps, for favorable results under treatment.

The patient, having no knowledge of the pressing need of care and attention to his ailment, does not again consult a physician until forced to do so by the advancement of the disease, and perhaps after a sufficient period to have become a menace to the public.

Herein lies one benefit to be derived from the examination of sputum by health boards. The physician, having explained the necessity of making an examination of the sputum to determine the presence or absence of tubercle bacilli, is placed under obligation to report the result to the patient, for he will make inquiry as to the result. In many cases it may be the only object of the patient in returning to the physician. Feeling comparatively well they do not feel that they need treatment, but curiosity stimulates them to ascertain the result of the examination.

Having determined positively the presence of tuberculosis, the intelligent physician at once emphasizes the necessity of care on the part of the patient not to allow any secretions from the mouth or lips to be transferred to other mouths or throats either by kissing, testing the baby's milk for warmth by drawing on the bottle nipple, allowing others to drink from the same glass, the use of towels in common with others, and the danger of promiscuous expectoration.

Boards of health making examinations of sputum for physicians present to the physician, with each positive report of the presence of the bacillus of tuberculosis, a circular setting forth in simple language the method of communication of the disease and the care required to prevent it. The departments, in a note to the physician, express the hope that it will be possible to place the circular in the hands of his patient, or at least with some member of the immediate family. How far this request is complied with can not be known to the department at the present time, inasmuch as the inspectors may not as yet interfere with the case by calling on the patient for any general information, and fearing that the increasing willingness of physicians to report their cases to the department may receive a check. Any visitation at this time without the consent of the attending physician causes him to conceal his cases, and thus much headway is lost in the difficult effort of health boards to obtain limited restriction of the spread of the disease.

The time will come, however, when the physician will see the desirability of co-operating with the health department in the control of this disease. The strong opposition to this is shown in the refusal of physicians to report their cases of consumption. It is claimed by some that there is nothing to be gained by it. Let

the cases be reported and let the health department determine what value there may be in such a procedure. As a rule, health boards are not arbitrary in their administration. When they are seemingly so, the public and the majority of the profession agree with them. It is usually an individual who is offended. He does not believe in compulsory vaccination for school attendance. He does not see the need of quarantining a child recovering from diphtheria, prohibiting attendance from school, when, in his opinion, the child is physically well. He may believe in the Klebs-Loeffler bacillus as a causative factor in this disease, but he fails to see the possible connection between a patient who is able to be about and any other susceptible throat which may come in contact with the first case.

The physician can not understand why a patient shall object to use quinin for malaria when a majority of physicians have determined its value; yet he in turn fails to see that the health departments have had a long and varied experience with the methods of control of disease, have met more than his one individual case, and should have a better average knowledge of what to do.

If physicians would willingly report their cases of tuberculosis and designate in what particular cases the health boards could be of service in assuming the responsibility of instructing the ignorant classes, much could be done by judicious inspection, repeated from time to time, and by giving special directions how nutritious food may be prepared and the maximum of ventilation obtained under the most adverse circumstances.

The experiences of New York City, the pioneer in this movement, have shown what may be done as a beginning. Much has been accomplished, even in the face of fierce and continued opposition coming from medical societies.

It was not so many years ago that the profession opposed the compulsory reporting of scarlet fever, diphtheria and typhoid fever, yet the boards have shown, by persistent effort, the need of such reports, and also that they are disposed to act only in accordance with generally accepted views and knowledge of the methods of transmission.

Learning by constant experience, the various boards reduce the border of their cordon to within practical limits, placing as little unnecessary restraint on the quarantine as is found from experience to be safe. This varies with the period of experience in the observation of certain states and towns. The character of the population, the reliability of the medical profession and the character and severity of diseases vary with each locality.

Where it might be necessary and desirable to place a cordon of police about a limited district in the presence of smallpox, yet by experience it has been shown that in different localities, even in the same state, a perfunctory quarantine is all that is required, and that in some instances mild measures of restraint, even with the ignorant class, may serve the end better than by creating unnecessary opposition, which it may be absolutely impracticable to compete with.

In some cities, in exercising quarantine in the presence of diphtheria, the bacteriologic and laboratory findings control the time limit of restraint or isolation. Other municipalities, which have adopted the requirements of a negative culture from the throat or from the throat and nose before raising quarantine, have discov-

ered the impracticability of enforcing this rule in the majority of cases.

Boards are exercising their best judgment and experience both in requiring a prolonged quarantine on the one hand, and a limited one on the other. The first may later find that a short period will fill all practical requirements.

The city of Providence, R. I., was, I believe, the first city after New York to introduce the culture method in the exercise of quarantine. The pendulum swung to the extreme of requirements, and after averaging the period of detention in all cases of diphtheria, a minimum period of ten days after disappearance of the membrane was all that was called for, a negative culture for release not being required after that time. While this seems to the rigid adherents of culture requirements as extremely lax, yet the results have not been so alarming as would naturally be predicted. The only objection to this rule that has appeared is that the physician and patient make just as much fuss over a detention of ten days as they do over one of fourteen or twenty, and perhaps the health officer might as well impose the longer period.

I cite these varied methods merely to impress on the practitioner that the health officers of the present day are working on reasonable grounds and as the result of experience, and that they are not endeavoring to demonstrate an autocratic control. They surely have enough other troubles in their routine work not to stimulate unnecessary opposition from their ally, the medical profession.

There is one other relation which the medical profession holds to good sanitation and in which they might be of invaluable assistance to the health authorities, but in which their neutrality remains a stumbling block. I refer to the attitude taken by the profession in regard to the general milk supply.

A physician imagines that he is very particular about his food supply, especially the water and milk. His worshipping clientele and the public also support his imagination in this regard. If Dr. Puritan is taking his supply from Farmer Littleclean, the inference is direct that the supply must be beyond reproach, and the various patrons of Farmer Littleclean are buoyed up by the repeated assertion that Dr. Puritan has taken milk of him for many years. No matter if the milk sours, on ice, within a few hours of delivery to the consumer, yet it must be the best to be obtained, for the physician, the adviser in sanitary matters, has the same supply.

Fortunately in this matter, some of the laity are thinking for themselves; the beshrined tin god who has been for generations worshiped on a pedestal is now admired on a level ground with his patient. The respect due to his necessarily assumed but undelivered knowledge in the past is now supplemented by a request for assistance on the grounds of common sense and reason. The people are instructed by the sanitarian and the public press, and the journals of health departments present facts and figures showing the quality or lack of quality of the foods ingested by the public and showing the death rates which accrue from the ingestion of these foods, especially that most common one, the lacteal fluid of the common cow.

Perhaps one of the most surprising conditions of indifference to sanitary affairs is shown in the attitude or lack of attention to the filthy condition of the public milk supply. A food which is utilized for all conditions

of depressed states of the system, the only food of the infant, the selected nutrient in typhoid and other wasting fevers, this necessary adjunct to our life is accepted without question from whatever source the supply chances to come.

While in recent years specialists in children's diseases and certain men of adventure and independence have sought to encourage the production of milk, under sanitary conditions, yet the mass of physicians manifest no active interest in the encouragement of such a venture. In order to ascertain whether this statement had foundation, a few years ago I made inquiry of all physicians in good standing in my state concerning their knowledge of the general supply and their willingness to assist in a campaign for clean milk. Among the large number of answers received it was found that a small number were acquainted with the name of a dealer from whom they received their supply, and only a few knew the conditions under which the milk was collected and had visited the barns where the cattle were housed. Many knew that they were supplied with a good quality of milk because, forsooth, the farmer who supplied it was an honest person and had had a good reputation; he had been in business for a number of years, and while they were sure he would not water his milk, yet they were not quite sure that the jars in which the milk was delivered were free from sediment. In many cases it was admitted that the milk soured if kept over twenty-four hours, and sometimes it was found to be sour when delivered.

When asked if they would be willing to pay an advance of from one to two cents above the present price of milk, four or five were willing to do so, two or three of whom would discontinue this unnecessary expenditure as soon as the baby was old enough to take other food.

While the average physician is fully aware that the introduction of fermentative material strongly infected with bacteria of decomposition is hardly a proper food for an invalid, and that the feeding of cow-barn refuse, even to the healthy man, is hardly a sanitary measure, still they are not at all willing to assist the health officers in any genuine, active crusade to this end. Many states have required that the milk should have a certain standard of quality as regards fats and solids. Certain cities have made regulations requiring a license which shall be issued only to dealers who produce and collect their milk under prescribed sanitary conditions. Among these may be mentioned the city of Buffalo, and during the last month, in the city of Boston, regulations for the sale and care of milk require that the cows from which it is derived have, within one year, been examined by competent authorities and shown to be free from diseases dangerous to the public health. Milk shall not be stored in any building used for the stabling of animals, or for the storing of manure, or in any room used for domestic or sleeping purposes. All milk shall be strained, cooled or stored as soon as it is drawn from the cow. Milk kept for sale in any store shall be kept at a temperature not higher than 50 F., and shall be stored in a refrigerator which shall be kept tightly closed except when necessary to introduce or remove milk or ice. All utensils shall be cleansed or sterilized before being used again for the same purpose, nor shall any utensils be used to contain any other substance than milk. Every person engaged in handling the milk shall notify the board of health of the presence of any communicable disease with which he may be brought in

contact, and shall discontinue the sale of milk until authorized to resume the same by the board of health.

No milk or cream shall be sold which contains more than 500,000 bacteria to the cubic centimeter, and must be delivered at a temperature of not more than 50 F.

To the older practitioner and to the farmer these requirements seem to smack of cranky, scientific notions. To them it seems impracticable to accomplish these ends, and while they fully believe in their own minds that the dirty milk which they have supplied for years is good enough for any one, yet many of these men under this test will be found wanting.

The results of numerous tests have shown that the average bacterial efficiency may be quoted as follows: A certified milk produced and delivered under perfect sanitary conditions, working for asepsis under perfect cleanliness, should not contain over 10,000 bacteria to the cubic centimeter; many supplies contain less. The milk supplied from farms where the cattle are well fed and the stables kept fairly clean should not contain over 200,000, while the cheap milk found in stores will be found to contain 3,000,000 bacteria to the cubic centimeter. This variation is strong evidence that the hoped-for condition of a clean milk supply is within the bounds of possibility.

The farmers will make no effort to obtain this perfection so long as the respected medical profession is perfectly willing to purchase their goods. Health authorities will have difficult work in obtaining legislation to this end so long as the indifference of the profession continues. Medical societies may resolve and present their resolutions to the legislators, but so long as the physicians individually are willing to pay money for filth the farmer will continue in authority.

What can a health board do in the face of such parsimonious disinterestedness for the public weal? How can health boards appear before their legislators and ask for laws governing the production and distribution of milk, when the farmers in their filth are supported by the neutrality of the physician? If the physician is satisfied with a standard quota of cow dung with each delivery at his door, how much to his credit may be put on the balance of responsibility for the infant mortality rate?

Possibly the demand of sanitarians for clean milk, as well as for a standard of fats and solids, is too strenuous; perhaps their ideas are beyond the present age; perhaps they are not acting on experience. Surely those cities which have ordinances controlling the quality of milk delivered within their borders, have had experience, if their statistics of infantile mortality are reliable.

The physicians of the state of New Jersey are prepared to tell us whether a clean milk supply is a possibility, and whether it has any effect on the health of the people. There are physicians of the New Jersey type in some other states, but they are not sufficiently numerous to produce results and are handicapped by the mass of neutrals.

From vital statistics much data is obtained which assists the sanitarian in his work. If it may be ascertained which of the numerous diseases are the most common, his effort is at once to ascertain if this prevalence is dependent on any common condition, and if that condition is one amenable to change. This study finds its practical application in the suppression of communicable diseases. Many other diseases which are the cause of a large mortality may be found to be associated with

conditions in common, some of which would hardly be suspected of being causative factors. Such conditions of climate, water and food supplies, subsoil saturation and the presence of insects and their breeding-places may also be found as associate conditions. Increased infantile mortality may find its association with a poor milk supply, a continued rise of atmospheric temperature or possibly an overabundance and interference of so-called midwives.

That these statistics, compiled from both mortality and birth returns, are one of the greatest value, is admitted by several states, but one is surprised to find so few registration states in a country which is supposed to represent scientific advancement. Many large and prosperous states are entirely without any system of registration of births, marriages and deaths. Think of what a mass of useful material might be made available to the health officers of the state of Pennsylvania, and yet, except for registration in a few of the larger cities, no figures are available in that state.

Although sanitary authorities in non-registration states endeavor to obtain legislation to inaugurate a system of registration, yet there is little or no support from the medical profession. It is to be hoped that the Committee on Legislation of the American Medical Association will find it a part of their already active and earnest department to formulate a crusade to assist and stimulate the delinquent states in obtaining a thorough system of registration of births, marriages and deaths. This it can accomplish through the particular members of the medical profession whom they have learned from experience are the more active promulgators of new and advanced ideas in their respective districts.

In those states which have a working system of vital statistics, much improvement in methods and in accuracy of returns has been accomplished, but only by persistent work on the part of the state registrars.

It is admitted that imperfect statistics have little, if any, value, and may lead to unfortunate deductions. If the total number of either the deaths or the births is not obtained, the comparison of the two is useless. If only half of the persons dying are recorded as having died from certain diseases, the conclusions arrived at are deceiving. Vital and mortality statistics should rest on data known to be reliable and not computed on a rule of probability.

In states having perfected laws, provision is made that a return shall be made for each and every death, giving the cause of the death, yet it requires much diligence and harassing of undertakers and physicians to obtain complete and correct returns. In two states the law provides that the body of a deceased person may be disinterred on the order of the health department if the undertaker has failed to make a correct return of the cause of death before burial. Naturally but few disinterments have been required, inasmuch as one such case serves as a salutary restraint on a repetition of the offense.

A large number of causes submitted to the registrar as sufficient to produce death are of a character to make a thinking medical man smile, especially when it is the other fellow who signed the return. In some of his own returns he fails to find any humor whatever, and is perfectly willing to be placed on record as having tended a patient who came to his death by "cramps" or "spasms." If the return had been signed death by "colic," we might perhaps have circumscribed our area of possibilities and have eliminated epilepsy, puerperal

convulsions and the many acute diseases affecting the motor system. But with "colic" we have a fair chance to guess whether the case was one of appendicitis, peritonitis from septic infection or from violence, volvulus, impaction of feces, the passage of concretions from kidney or gall bladder, with possible rupture.

Of course, it is perfectly plain to him that the patient was jaundiced or that there was uric-acid calculi in the urine, but the last and most violent symptom was colic. In the case of an infant he ignores the gastroenteritis which caused the colic, or he has, perhaps, in this case signed the death return with convulsions as a cause. He will also forget that the intestinal indigestion causing the convulsions was the result of improper feeding. Hemorrhage alone is often given as a cause. The attending physician fails to give the source of the hemorrhage and the locality from which the blood came. The registrar is allowed to guess, or do as is done in all well-conducted offices of registration, politely addresses a note to a physician who is bankrupt as to diagnosis, and an inquiry is made as to whether the hemorrhage followed a coughing spell, or had he been treating a case of typhoid fever for a week or two, or if the hemorrhage had followed a confinement and if so what abnormal conditions were present; was the person a "bleeder" or was there a pistol in the case, and, if the latter case, was the wound self-inflicted, and if so, whether accidentally or with intent. We might go on citing these absurdities: "Heart failure," which even the laity smile at by this time; "natural causes" (i. e., one of the hundreds possible); "inanition" in a person over 5 years of age and under 50, etc.

It is believed that all physicians are ready and willing to assist in making the returns perfect. Those conditions arise from the result of habit and inattention, and forgetting that the registrar was not a consultant in the case.

If physicians would indicate in plain words on the return that the cause of death was unknown, or could not be determined, it is at once known that an effort was made to obtain some information as to the symptoms preceding death, but to say that the person died of "natural causes" indicates that he has not made any endeavor to determine a cause. If the best possible diagnosis available is given and one of the symptoms present, they would receive praise and gratitude and some slight salvation here on earth, for the registrar will rise up and call him blessed.

The majority of physicians believe in sanitation, and are willing to uphold the sanitary authorities. The young men who are taking up the profession of medicine come to the health department like a refreshing breeze on a hot summer day. The contention and opposition to reform which has come from the older members of the profession is mostly because the latter have not lived up to the advance of the times and must needs cover their ignorance as of yore with evasions and with mystification all that is new, even if based on logical experience. Here and there among the profession are men familiar to us all who are in medicine for what they can make out of it, by hook or crook. It is the natural disposition of this class to take a stand against any constituted authority, partly because it is contrary to their precepts to act on anything which is based on honesty and partly because by setting up opposition they hope to pose before their clientele as men of stamina and authority. Fortunately, it frequently happens that these obstructionists receive their just reward by

making and falling into pitfalls, but while they exist they prove a source of great annoyance to the officers who are endeavoring to do what is right by all.

This class is readily recognized by its attempts to conceal the presence of communicable diseases, either by suppressing comment or by submitting intentionally a false diagnosis for the purpose of favoring their patients. Unfortunately for them, in order to obtain the small advantage of seeming to comply with the desire of the patient to conceal the disease he must admit to the family that scarlet fever or diphtheria is actually present, and thus as the result of human nature, which can not possess an advantage over fellow-man without gloating over it, the secret is at once disclosed to the neighbors as a success, and the physician's integrity is at once at stake beyond the pale of that household, and for slight gain and with much loss to himself he has placed obstruction in the way of the health officer and endangered the public, not alone by possible carelessness in his self-imposed quarantine, but by setting an example to the large and ignorant immigrant class to go and do likewise. He is the one who will sign a death return as grip when tuberculosis was the cause, in order to conceal the fact from an insurance company.

It is this same man who, from arrogance alone, diagnoses smallpox as Cuban itch, chicken-pox or as a simple skin disease, until he becomes alarmed at the spread of the disease and his methods are discovered. He may never have seen a case of smallpox, yet trustingly declares his knowledge to be superior to the authorities. His disposition for opposition, his desire to appear different, independent and superior to any and all other practitioners, permits him to flaunt himself before the public and spread havoc with the gullible class. In his experiments for advancement when dealing with smallpox, his downfall is usually sufficiently severe to satisfy the spirit of justice in the mind of the health officer.

How far does the regular practitioner take part in the fight against such irregularities, how far does he help the health authorities in giving these men their rightful position before the public?

The natural result of years of training in ethical conduct toward our honest and respected brother practitioners, our meek and modest desire to hurt no one's feelings, leads us to extend the same considerate kindness to those who should receive no recognition in medicine. Here and there may be a man who has the courage of his convictions and jumps to the assistance of the health officer by placing these men in a proper light, but he is at once set down as a fighter, and obtains for his reward only notoriety or neglect from his brother practitioners, whom he is endeavoring to defend at his own expense.

This conservatism and desire to stand behind the screen and let matters work out their own salvation, or to avoid being found on one side or the other leads the majority of practitioners to avoid assertion of their individual rights as citizens and their advanced privilege as men of a profession, when any movement for the betterment of hygienic conditions appears before legislative councils. The sanitarians and the health authorities ask for forms of government which shall control the ignorant public in doing things which is for the betterment of their health. It may be a question of pollution of water supplies, the adulteration of foods, the controlling of trades from a sanitary viewpoint, but not a word is heard from the mass of the profession

Original Articles.

A SUMMER'S EXPERIENCE WITH INFANTILE DYSENTERY.

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(Concluded from Page 1854.)

TREATMENT.

The treatment of these cases at the sanitarium followed in the main the usually accepted lines and will not be here detailed.

In all acute cases milk was stopped for varying periods, and boiled water, with or without egg albumin, dextrinized cereal waters or broths, and later whey, were substituted. Gastric lavage was resorted to occasionally, but in nearly all instances the colon was repeatedly irrigated. On admission the intestinal tract was usually emptied by calomel or castor oil. Of the several intestinal astringents which were tried none proved more satisfactory than bismuth subnitrate in large doses. As stimulants, whisky or brandy, strychnia, digitalin and atropin were found useful in the order named. Opium was sparingly employed.

who have at least the political influence of their individual vote in the election of a state or municipal representative. The average politician, with all his assumption and dignity of representation, has his weak point in the fear of a non-election, and he has, as a rule, some slight respect for the opinions of a profession which, maintaining its dignity, asks for something which is practical and honest. He may not be able in many cases where "graft" is involved to see the scientific advantages of legislative sanitation, yet he is not always able to resist a concerted movement of a profession which carries the dignity and integrity of the medical profession.

Most of the advance in medical and sanitary legislation has been the result of the persistent efforts of individuals, who for their pains have lost time, frequently reputation, with their fellow-practitioners, and are cited as cranks and individuals who are working for notoriety.

If members of the profession would assert their rights as citizens and demand scientific medical and sanitary legislation, they would come nearer to their duty. To be sure, they are willing to commend any effort to advance hygienic improvements, but they do not step out and give their support to the health officer seeking for the betterment of the public. They consider that he is employed for that purpose, and must accomplish everything by himself without the support of the profession. If he asks for assistance he may obtain it in the form of a petition signed by innumerable M.D.'s, but as all legislators know that a petition is always signed for convenience to get rid of the messenger carrying the petition, and that the petitioner is often willing to sign petitions for both sides of the question, a petition, no matter how large, is considered of little value. It is the personal presentation of views to the representative which is of value only, and it is the duty of every physician who is conscientiously interested in the advance of sanitation to personally assist any measure to that end.

In the organization of the American Medical Association this idea is coming strongly to the front, as may be seen in the vigorous manner in which the legislative committee of the organization has pressed the needs of legislation in certain lines.

As is to be expected, since much of medicine rests on hygiene and sanitation, this committee finds its work to be in the line of the improvement of laws governing the adulteration of foods, and the desirability of sanitary authorities having undisputed authority in the prosecution of the work of the Panama Canal. The numerical strength of this body should serve as a factor in influ-omendations made for the benefit of their constituents.

Much more evidence could be shown wherein the physician is closely in relation to the health officer and his daily works. It is evident that the more perfect the contact of the two and the greater the harmony that exists, the greater is the perfection in sanitary administration, and that all results in hygiene must rest on the perfection of the work by the man engaged in the practice of medicine.

Unprofitable Discussions.—Let every physician refuse to accept samples of secret medicines, refuse to waste time talking therapeutics with smooth-tongued salesmen. . . . The stereotyped reply, to all agents of secret nostrums, that I do not prescribe medicines of whose composition I am kept in ignorance, has saved me many hours for more advantageous professional work than conversation with men whom I despise.—Roberts, in *N. Y. Med. Jour.*

Serum Treatment.—Through the kindness of Dr. Flexner and the generosity of the Rockefeller Institute for Medical Research, the sanitarium was supplied with antidyenteric serum obtained from horses immunized against the organism, at Mulford's vaccine farm. The serum produced with both the "Harris" and "Shiga" types of the organism, i. e., those which form acid in mannite and those which do not, respectively, was sent separately. It had been found by Dr. Gay⁸ to possess exceedingly high protective power for susceptible animals.

Unfortunately, because of the distance of the sanitarium from Baltimore, but few early cases came under observation and so little selection of infants thought to be favorable for the serum treatment could be made. Eliminating a number of instances in which the serum was given when the patient was *in extremis* or when a serious complication obscured its action, 20 cases remain to be recorded, all of them suffering from infection with the dysentery bacillus, in which were injected varying amounts of antidyenteric serum.

It may be mentioned here that the serum in all cases was given under the skin, using simple antiseptic precautions. In no instance whatever did any local infection, or other untoward accident, follow the injection. The welt produced by the serum usually disappeared in a few minutes. Comparatively little pain was given by the injection after the initial puncture by the needle.

The more salient facts concerning the treatment of these 20 cases are given in the table opposite.

The cases are arranged in three groups, according to the action of the serum: thus, A, those in which the serum seemed helpful; B, those in which the effect of the serum was doubtful; and C, those in which the serum was of no benefit. The clinical numbers of the cases in the second column correspond to those in the report of Dr. Winne. The variety of the serum used is designated by "S" or "H." that is, the serum was produced from an organism of the Shiga (so-called *alkaline*) or Harris (so-called *acid in mannite*) type, respectively. The table shows that of the 20 cases in but 5, or 25 per cent., was the serum of apparent

benefit (Group A). To these 5 cases could be added 4 other infants who presented similar symptoms and whose blood agglutinated the specific organism. As, however, the dysentery bacillus, which was probably present in small numbers, was not isolated from the stools, these additional instances of the "favorable" effect of the serum are not included in the series. In 5 other cases, 25 per cent., the effect of the serum was uncertain (Group B). The improvement which followed could not be definitely attributed to its use. In the 10 remaining cases, 50 per cent., no permanent benefit was derived from the serum treatment (Group C).

It was difficult often to determine the part played by the serum, when during the period of its injection the diet was altered and other therapeutic measures employed, and it was only after weighing all these other factors that the distribution in the above groups is

GROUP A. CASES IN WHICH THE SERUM WAS HELPFUL.

CASE 1.—L. W., girl, aged 6 months. Admitted to the sanitarium June 2 because of malnutrition. Breast fed for one week only, afterward given cow's milk diluted with equal parts of water, whenever it cried. Had never thrived; no gain in weight for several weeks. There was a possible syphilitic taint. The patient improved slowly at the sanitarium, with several intermissions, taking milk formula. The stools were large, light in color, usually pasty in consistency, occasionally contained curds. Weight, 7½ to 8 pounds.

Serum Treatment.—The notes pertinent to the serum are, in brief, as follows:

July 18—Patient doing well.

July 19—Patient became fretful; refused nourishment, and mucus appeared in the stools.

July 20, a. m.—Twelve hours after last note the stools were increased in number and contained more mucus and some blood. Pulse weak. Patient drowsy and almost in collapse.

SERUM THERAPY.

	Name.	Clinical number.	Age in months.	Duration of illness before injection, in days.	Number of injections.	Total amount of serum, in c.c.	Duration of serum treatment, in days.	Variety of Serum.	General condition of patient at first injection.	Result of serum treatment.	Condition on discharge.
GROUP A Treatment Beneficial 5 Cases.	L. W.	123	6	1	7	120	20	S	Acute attack at sanitarium in marantic infant.	Favorable, fewer stools, brighter.	Unimproved.
	E. B.	171	14	9	7	110	14	S	Comatose, irregular pulse, mucus and blood in stools.	Slightly favorable, slow recovery.	Well.
	W. C.	195	4	4	5	50	7	H	Poorly nourished, collapsed, extremities cold.	Favorable.	Well.
	M. S.	222	2½	6	1	10	1	H	Poorly nourished, listless.	Favorable, brighter, recovery prompt.	Well.
	G. M.	300	5	10	5	60	8	H	Poorly nourished, collapsed.	Favorable, lower temperature.	Well.
GROUP B. Treatment doubtful. 5 Cases.	L. F.	160	17	25	3	30	4	H	Fair condition, numerous stools containing mucus and blood.	No immediate improvement.	Improved.
	H. G.	242	6	10	2	40	2	S	Fair condition.	Serum of doubtful effect.	Improved.
	R. C.	274	7	14	6	110	7	H	Collapsed, semi-comatose.	Action of serum, if any, slow, temp. reduced.	Improved.
	V. Z.	308	8	50	4	40	3	H	Poorly nourished, mucopurulent stools with blood.	Slow, doubtful.	Improved.
	I. R.	338	3	16	2	20	2	H	Poorly nourished, feeble.	Inert or slightly helpful.	Improved.
GROUP C. Serum treatment inert. 10 Cases.	S. O.	210	5	7	3	30	3	S	Emaciated, drowsy.	Serum seemed at first helpful, later inert.	Died.
	J. B.	221	2½	22	6	100	21	S & H	Poorly nourished, extremities cold.	Serum inert.	Died.
	M. S.	223	6	30	8	170	18	S	Collapsed, semi-comatose; poorly nourished.	At first helpful, then inert.	Died.
	D. J.	273	7	14	14	230	16	S & H	Furunculosis.	Inert.	Unimproved
	R. M.	278	3½	15	3	60	3	S & H	Emaciated, collapsed.	Inert.	Died.
	M. S.	287	4	30	13	200	20	H	Collapsed, drowsy.	Inert.	Died.
	W. W.	301	6	30	5	70	10	H	Emaciated, marked rickets, drowsy.	Improvement (?) first, inert later.	Died.
M. K.	309	12	22	7	90	11	S & H	Poorly nourished.	Inert.	Died.	
A. S.	330	9	17	3	40	3	S	Poorly nourished.	Inert. (Bronchopneumonia.)	Died.	
F. O.	333	12	30	4	60	4	S	Collapsed, sunken fontanelle, many stools.	Inert.	Died.	

suggested. Although the action of the serum in some cases of the Groups B and C seemed to be occasionally favorable, in none did it produce immediate and complete recovery, but it must again be recalled that almost without exception the babies brought to the sanitarium were of weak constitutions, ill adapted to resist disease or to respond to any serum therapy. In two-well-to-do children in Baltimore, injected promptly after the onset of illness during the summer, the serum was said to have a marked and early remedial effect.

A recital of the clinical histories of each of this series of serum cases would contain but little information not to be found in the table. In order to indicate more fully the effect, if any, of the serum treatment, two cases fairly illustrative of each group will be presented in some detail, after which attention will be briefly called to some suggestive features.

One hundred c.c. salt solution and 30 c.c. antidyenteric serum (Shiga) were injected hypodermically at 1 p. m. Milk stopped; no laxative or irrigation given.

Result.—In six hours patient's condition improved; took liquid well; stools contained no blood.

July 21—Baby had a good night. Seems much brighter and stronger; takes nourishment well. Stools fewer in number, containing less mucus and no blood; 20 c.c. antidyenteric serum (Shiga) injected at 2 p. m. Patient gained in strength slowly. Ten c.c. more of serum were given on July 26. Improvement continued for ten days, although the stools were mucoid.

On August 8 the child was again worse and blood reappeared in the stools. Twenty c.c. antidyenteric serum (Harris) were injected. In twelve hours the infant was much improved, the stools again fewer in number and free from blood.

There was little elevation of temperature during the illness. The child was taken home against advice on the following day.

This case is of interest because it was the only one of the series observed from the onset of illness. The infection was contracted at the sanitarium, house flies being the probable conveyors of the bacilli. Here there was an apparent prompt response to the serum given early in the attack, on the part of a markedly marantic infant.

CASE 2.—M. S. (No. 222), girl, aged 2½ months. Admitted July 7, suffering from diarrhea. Since first week of life had been fed on Eskay's food and condensed milk; rice water since present illness, which began six days before with vomiting and diarrhea. Stools, ten to twelve in twenty-four hours; fluid, with mucus and lumps; no blood.

Examination.—The infant was fairly nourished, but rachitic. The thoracic organs were normal. On admission the patient was listless, with signs of toxic infection.

Treatment.—July 8, noon. Ten c.c. of antidyenteric serum was injected. Shortly afterward an extensive erythematous rash developed, which spread rapidly from point of inoculation, involving nearly half the child's body. After several hours the erythema quite disappeared.

Result.—In twenty-eight hours, without other treatment, the child's condition began to improve. The stools became fewer and more fecal in character. There followed an uninterrupted recovery, which seemed definitely to begin with the injection of the serum.

The two following cases are fair instances of a second group in which the improvement can hardly be directly attributed to the use of the serum:

CASE 3.—E. F. (No. 160), girl, aged 17 months. Admitted June 23 because of "diarrhea and weakness."

History.—The clinical history was, in brief, as follows: At five months of age had summer complaint, followed by measles and bronchitis in the fall. Not so strong afterward. Breast fed until thirteen months; since, milk, with table diet. The present illness began three weeks previously with diarrhea. Stools at home were green, offensive, and contained mucus; no blood.

Examination.—On admission the child was fairly well nourished, anemic, with a daily range of temperature from 100 to 103.

Examination of the chest and abdomen negative. The stools were fourteen to twenty in twenty-four hours, and contained mucus, pus and blood.

Treatment.—Treatment consisted in a change of diet to a cereal water: whey was added later. Bismuth subnitrate was given by mouth, and occasionally whisky as a stimulant. Frequent colon irrigations, usually with tannin and soda solutions, were employed.

The child's general condition remained good, but there was no abatement of diarrhea or fever.

On June 27 antidyenteric serum (Harris), 10 c.c., was injected. This was repeated June 30 and July 1, 30 c.c. being given in all.

There was no immediate change in the patient's condition. The number of stools was not decreased and the temperature remained elevated for several days. On July 3 the symptoms began to abate. In forty-eight hours the temperature became normal, blood and pus disappeared from the stools, and they were reduced to four in twenty-four hours. The child made a slow but complete recovery.

In this case the action of the serum, if helpful, was not prompt. It seems possible that the recovery might have similarly followed without serum treatment.

CASE 4.—R. C. (No. 274), boy, aged 7½ months. Admitted July 13 because of "summer complaint."

No history of previous illness. After five weeks baby was fed on cow's milk diluted with boiled water. Present illness began two weeks before with vomiting and diarrhea. Stools, ten to twenty a day, consisting largely of greenish mucus. There was fever throughout the attack.

Examination.—The child was admitted in a markedly toxic condition, eye dull and sunken, fontanelle depressed, skin bluish and dry, abdomen scaphoid and doughy, heart and

lungs negative, temperature 101.5, pulse 150, of small volume and low tension.

Treatment.—Shortly after admission 20 c.c. of serum (Shiga) was injected. This was repeated daily, July 19 to July 29, using the Harris serum on and after July 20. A final injection of 10 c.c. was given on July 23—a total of 110 c.c. in seven days.

The morning after the first injection the child was less listless, but the temperature remained elevated, 101 to 102, and the character of the discharges was not altered. Calomel, change of diet and colon irrigations were also employed in treatment. On July 20 an infusion of 100 c.c. salt solution was given hypodermically.

Result.—The fever began to abate July 21, after which date it did not rise above 100. Some elevation of temperature persisted, however, for a week longer. The toxic condition cleared up slowly, but the mucus persisted in the stools and the appetite remained impaired.

The child was discharged August 2, against advice, as he was not considered "well." He died several weeks after his return home, apparently from a "relapse." Here the effect of the serum was probably beneficial.

The last two cases to be recorded represent a large group in the series, where the serum seemed to be quite inert.

GROUP C. CASES IN WHICH THE SERUM TREATMENT WAS OF NO BENEFIT.

CASE 5.—M. S. (Nos. 219 and 287), boy, aged 4 months. Admitted first on July 7 because of diarrhea.

Never ill before; artificially fed from birth with diluted cow's milk.

History.—Two weeks before admission the infant's stools became green and watery. A trace of blood was noted twice. No vomiting; no fever.

The symptoms yielded to a change of diet, and the patient was discharged apparently well in nine days. After five days at home the stools again became frequent and the child was readmitted July 22 in a much weaker condition. At this time there was no fever, and the stools contained mucus but no blood or pus, and the symptoms were those of intestinal indigestion.

Treatment.—On August 3 the patient grew suddenly worse. It became drowsy, the features were "pinched," the eyes sunken, and pulse weak and rapid. Stimulants were given and the serum treatment begun—10 c.c. (Harris). On August 5 two similar injections of 20 c.c. each, with 100 c.c. salt solution, were given.

The child's condition continued alarming until August 6, when for a few days the appetite improved and the infant seemed brighter. Further serum had been injected on August 6, 7, 8 and 10—50 c.c. in all.

Between August 12 and 16 the temperature, which had rarely reached 100, rose daily to 102, and the child became more listless. Serum was given August 13 and August 15, and following its use there seemed again some betterment. The temperature fell to 100, and nourishment was now readily taken.

On August 20 the infant again became worse, the temperature rose to 103. The stools were more frequent and contained considerable pus and blood. The patient from this time grew progressively weaker. The temperature remained elevated, with marked daily remissions, until the end, which occurred August 25. The blood and pus in the stools increased during the last days. The serum given at this time (60 c.c., August 20 to 24) seemed to have no effect on the general condition of the patient, the height of the temperature or the character of the stools.

Result.—In this case the effect of the serum was difficult to determine. Some improvement apparently followed its use August 6 to 12 and again August 16 to 20, but the betterment was of a transient nature, the serum being powerless to check the symptoms of toxemia or to cure the lesions in the intestines, as evidenced by the increasing amount of pus and blood in the stools. Two hundred c.c. of serum was given in twelve injections during 21 days.

CASE 6.—F. O. (No. 333), boy, aged 12 months. Admitted August 6, because of profuse diarrhea.

History.—The child had always been well except for an attack of pneumonia six months before, from which he had completely recovered. He had nursed for two months, and afterward had been fed with condensed milk, augmented later by some food from the table.

The present illness began four weeks previously with an unusually severe attack of vomiting and diarrhea, called cholera infantum by the attending physician. The symptoms abated and the child was thought to be "well," when a relapse suddenly set in two weeks before admission. The stools again became numerous, and now contained mucus, pus and blood.

Examination.—On entrance the child's condition did not suggest a very serious illness. He was fairly well nourished, with moderate rickety changes; eyes were bright; heart and lungs normal; abdomen markedly distended. There was a slight edema under the eyes, and on the dorsum of the hands and feet. Temperature, 99.8.

Treatment.—The intestinal tract was swept with calomel, followed by oil. The stools afterward continued frequent and mucopurulent in character, deeply tinged with blood.

Antidysenteric serum (Shiga), 20 c.c. was injected on the day of admission and repeated the following day, while on each of the two succeeding days 10 c.c. was given—a total of 60 c.c.

Result.—The condition of the child remained apparently little altered, though the temperature gradually rose to 103. The stools were not reduced in number by various astringents, and the child died suddenly in convulsion on the sixth day after admission.

In this case, in which the infection had occurred a month before, the serum seemed of no help whatever.

Several features suggested by the table and the illustrative cases cited deserve some additional emphasis.

DURATION OF DISEASE BEFORE SERUM TREATMENT.

A striking fact brought out in the series is the relationship between the beneficial effects of the serum and the promptness with which it is administered. Thus, the average duration of the illnesses in the three groups, A, B and C, in which the effect of the serum seemed beneficial, doubtful and inert, was 7.4, 15.8 and 21.7 days, respectively. The most definite and rapid response to the serum treatment was noticed in Case 1, which was injected on the first day of the intestinal disorder. In this instance in six hours, although the infant was in an advanced stage of malnutrition, there was a definite improvement in its general condition, the character of the pulse and the number and appearance of the stools. It is recognized, of course, that these diarrheal cases are more amenable to all methods of treatment early in their illness than later, and that in none was the serum alone employed. Giving due regard to the value of these older procedures, experiments on animals,⁸ as well as clinical observation,⁹ seems to indicate that any healing effect of the serum is exerted in proportion to the promptness with which it is given.

In this regard results with antidysenteric serum accord with clinical experience in the treatment of diphtheria or tetanus, where the brilliant cures which follow the administration of the proper serum in the early stages of the disease are not effected if the use of serum therapy is long delayed. It is quite possible that antidysenteric serum will not prove to have as high curative value as have the antitoxins against diphtheria and tetanus. The cellular toxins, to which that produced by the dysentery bacillus and the typhoid bacillus belong, have not lent themselves as readily as have the

soluble toxins to the formation of strong healing anti-toxins.

Conclusive evidence on this point will be obtained only by the careful observation of a large series of cases. The children presented in the present series can not be considered ideally suitable for this test, both on account of the weakened constitutions of many of them and because also of the long duration of the illnesses before the serum could be given.

THE TYPE OF ILLNESS.

A consideration of the serum cases with reference to the clinical types of the disease may indicate in what instances help may be expected from serum therapy. The results can be briefly tabulated as follows:

ACTION OF SERUM.

Toxic—	Helpful.	Doubtful.	Inert.
Mild	0	0	0
Moderate	0	0	0
Severe	4	3	1
Inflammatory—			
Mild	0	0	0
Moderate	5	0	2
Severe	11	2	3
	20	5	5
			10

Serum was not given to the small number of mild and moderate toxic cases in our series for several reasons. Three were admitted to the sanitarium before the arrival of the serum; others were convalescent from their acute symptoms; and in others the parents' permission which was always obtained before injection, could not be secured.

This arrangement of cases would suggest that the serum is helpful in toxic cases even though they be of the severe grade. In the inflammatory form of the disease, on the other hand, it is of little service if its administration is delayed. Thus, out of 16 cases belonging in this group, only 2 seemed aided by serum injection, in one of which it was given on the first, and in the other on the ninth day, while in the ten in which it seemed quite inert, usually more than a fortnight of illness had elapsed before it could be employed.

The inference from this standpoint is, that although more can be hoped from the antidysenteric serum in the treatment of the acute toxic cases than of those included in the so-called inflammatory types, that the promptness of injection is a more important factor than the clinical variety of the illness.

DOSAGE.

The serum was usually given in 10 and 20 c.c. injections at intervals of 12 to 48 hours, sometimes after a lapse of several days. Occasionally 30 or 40 c.c. was injected at one time. This amount was many times the preventative dose per body weight of animals, as determined by Gay.⁸ In no case was improvement seen from 40 c.c. when a smaller quantity had failed to produce any effect. It did not seem possible to establish any relationship between the dosage and the result. It is questionable whether much larger amounts, i. e., 200 c.c. injected at one time, would have been more helpful. Apparently most of the cases benefited by the serum were those in which comparatively small amounts were given early in the disease.

THE NUMBER OF INOCULATIONS.

The number of inoculations varied from 1 to 18, extending over periods as long as 28 days. As has already been indicated, a series of cases of long-standing ulcerative ileocolitis were repeatedly subjected to serum therapy, with quite negative results; and it is felt that any beneficial effect of the serum, if present, can be de-

⁸ Shiga: Deutsche med. Woch., 1901, No. 43, p. 45; also Krusa: Deutsche med. Woch., 1903, No. 1, p. 1.

terminated after the first or second injection. If there is then no betterment a continuation of the treatment is practically useless.

DURATION OF THE EFFECT OF SERUM.

It is well known that a single attack of summer diarrhea confers no lasting immunity on the infant, but rather seems to render it more susceptible to subsequent intestinal disorder.

The number of relapses already referred to in this series supports this view. In the light of these observations it is not surprising to find that the effect of the serum is a comparatively transient one. Rarely a single injection, as in Case 2, appeared to start the infant on a permanent convalescence; more frequently a slight betterment which followed a single injection proved to be but a trifling interruption to the progress of the disease.

If, then in a given case improvement follows the injection of the serum, this should be repeated until untoward symptoms are past. In several instances which had to be included among those in which the serum was doubtful or inert, the baby's condition brightened after the injection, and the treatment was not afterward given till the child again became alarmingly ill, when the serum, even in larger quantity, was of no benefit.

TEMPERATURE.

Of the effect of the serum on the temperature of the patient, no certain deductions can be made from our cases. Occasionally a drop in the temperature occurred shortly after the injection and apparently because of it. Examination, however, of a large number of cases discloses similar variations in the fever quite independent of serum therapy. Again, a gradual reduction in fever in a few instances appeared to follow the massed action of repeated injections of serum. In fact, the temperature, within moderate limits, in these disorders is no index of the condition of the patient, as many of the severest cases ran a comparatively afebrile course, and a further reduction in bodily heat may accompany a complete collapse.

NO COMPLICATION DUE TO SERUM.

Our experience would indicate that the injection of antidysenteric serum is a harmless procedure performed under antiseptic precautions. Once an erythematous blush, lasting a few hours, appeared on the body of an infant shortly after injection, and in one other case a moderate urticaria was noticed on the twelfth day following the serum therapy.

PATHOLOGY.

Of the fatal cases in our series, permission for autopsies was obtained in five instances. Two of the infants belonged clinically to the toxic, the remaining three to the ulcerative group. At the time of death two of the babies were fairly well nourished, two sparsely nourished, and one markedly emaciated.

Most interest attaches to the condition of the alimentary tract. Nothing of interest was noticed in the mouth, except the occasional presence of the thrush fungus. The conditions found in other parts were as follows:

Esophagus and Stomach.—In all cases the mucosa of the esophagus was smooth and pale. The stomach was occasionally found moderately distended with gas. It usually contained some residue of food or medicine mingled with a slight amount of mucus. Once it was found filled with watery fluid, and in one instance it contained bile. In one case several linear

areas of congestion 3 by $\frac{1}{2}$ cm. were noticed at the crests of the folds of the mucosa. No definite hemorrhage and no loss of substance was present.

Duodenum and Jejunum.—These portions of the small intestine showed little change. The mucosa in all instances was smooth and covered with a moderate amount of bile-stained mucus. There was no marked distension present and no infiltration of the intestinal walls. The jejunum was once found slightly injected.

Ileum.—Changes in the ileum were absent in but one case, where the mucosa was smooth and pale and there was no gross swelling of Peyer's patches. In the other four cases there were definite pathologic alterations in the ileum, particularly in its lower third near the ileocecal valve. In this portion of the ileum were found scattered through the mucosa irregular areas of congestion often in association with multiple minute hemorrhages. The mucous membrane was usually thickened. The most conspicuous lesions were in association with Peyer's patches and the solitary follicles. These were enlarged and congested and often covered with a yellowish-gray necrotic material. In three of the cases there was ulceration in the ileum. The loss of substance was usually, but not always, in the lymphoid structures. Some of the ulcers were quite shallow and difficult to distinguish; others were deep and punched-out in appearance. Often a single patch was the site of multiple ulcers which united into a larger one, with irregular but not overhanging edges. None of the ulcers extended deeper than the mucosa.

Large Intestine.—The lesions in the large intestine were, as a rule, more pronounced. They were found throughout its extent, but were usually more marked in the sigmoid flexure, rectum and cecum. The mucosa was usually found thickened and congested. Hemorrhagic areas, minute or more extensive, were scattered here and there throughout the colon, occasionally in connection with the solitary follicles. These lymphatic structures were usually swollen and stood out as raised translucent dots against the mucosa. Often they were surmounted by a cap of yellowish-white material.

Ulceration was present in several of our cases. The ulcers varied from minute losses of substance not infrequently situated at the summit of the solitary follicles and others deeper, with punched-out borders, to extensive irregular areas denuded of mucosa produced by the confluence and extension of numerous single ulcers. This process in one case was so extensive as to leave in places only scattered strips of mucosa intact. Even in these instances the ulceration did not extend deeper than the mucous membrane, nor were the edges undermined. In no case was there noted any definite pseudomembrane more than the necrotic tissue seen here and there over a swollen Peyer's patch or solitary follicle or areas of ulceration. Mucus or mucopurulent material, frequently containing blood, was always present in the colon.

It is of interest to mention that in this short series of autopsies in one case there were found in the whole gastrointestinal tract no gross lesions; in another only three or four tiny shallow ulcers, and that in still a third case, although there were several good-sized ulcers in the lower part of the ileum, the large intestine was apparently normal.

Microscopic Examination.—A microscopic examination of sections from various portions of the intestines adds comparatively little. In some instances the wall of both large and small intestine showed no pathologic alterations; in others there was a moderate congestion of the vessels, particularly those of the mucosa and submucosa, with occasional hemorrhage and some serous exudation into the tissues. In the lymph radicles, Peyer's patches and the solitary follicles, there was a moderate proliferation of the small round (lymphoid) cells. The most prominent feature, however, was the serous infiltration of the gland tissue separating these cells from each other, exposing the fine fibrous filaments of the structure and explaining its increase in size. There was little polymorphonuclear invasion.

The ulceration observed began usually in the lymphoid nodules in the intestinal wall. The loss of tissue was found

to be limited usually to the mucosa; less frequently was the submucosa in part included. The muscle layers in our cases were invariably intact. The appearance of the ulcers was as though the lymph nodules had simply frayed out at the surface. The material lining the ulcer was composed of necrotic tissue without any evidence of organization. No fibrin was present.

The condition of the other organs may be referred to:

Heart.—No changes of importance were noticed in the heart; the valves were delicate, the musculature occasionally somewhat pale. There were no antemortem clots.

Lungs.—There was bronchitis with small patches of bronchopneumonia in three instances, in which the diarrhea had been of long duration. In one case this pulmonary complication was the direct cause of death. When the illness was comparatively acute the lungs generally escaped any alteration other than a slight congestion.

Liver.—This organ in the cases examined was little if any enlarged and usually reduced in consistency. The surface was smooth and edges rounded. On section, in some instances the lobules were hardly to be distinguished, the whole surface presenting a homogeneous appearance; in others the cut surface was made up of minute purplish areas surrounded by a network of yellowish-gray lines.

Under the microscope marked cloudy swelling was present in all cases, with more or less congestion. In three instances the most noticeable change was a fatty degeneration of the liver cells. This in one instance was of very pronounced degree, nearly all the cell protoplasm being replaced by large and small fat droplets. In association there was considerable enlargement of the hepatic capillaries.

It is interesting to note that the clinical history and general condition of the infant in which the greatest degree of fatty degeneration was present were not unlike those of the one showing the least liver alteration. This rather common form of hepatic degeneration seems to be dependent on factors at present little understood.

Kidneys.—There were no gross renal lesions made out other than an occasional cloudiness of the cortex partly obscuring the glomeruli and more or less dilatation of the vessels. The minute changes, together with moderate acute congestion, consisted in a parenchymatous degeneration, particularly of the cells of the convoluted tubules, and were of marked grade in but two instances.

Spleen.—This organ in our series presented few alterations. Its consistency was somewhat increased and the pulp was slightly darkened. In most cases the glomeruli were easily visible. Under the microscope, except for some congestion, little of pathologic nature was detected.

Examination of the thyroid, thymus, pancreas and adrenal bodies failed to disclose any abnormality.

Lymphatic Glands.—The most conspicuous and constant feature in the autopsies was the enlargement of the lymphatic glands of the mesentery. Frequently glands connected with all parts of both small and large intestine were uniformly swollen; in others the enlargement was most noticed in the glands of the mesoecum and colon, and more particularly in those draining the severely inflamed or ulcerated portions.

The glands varied in size from 2 to 3 mm. to 1.5 cm. They were fairly firm, whitish pink in color, often with dots of hemorrhage on their surfaces. Under the microscope a moderate proliferation of lymphoid cells with dilatation of the blood vessels was found. The increased size of these structures, as in the lymphatics of the intestinal wall, was due to the distension of the lymph channels and the separation of the cellular elements from each other by a serous exudate. The reticular framework of the glands could in many instances be readily made out. Scattered throughout the pulp were many large epithelioid cells apparently coming from the walls of the lymph vessels. There was little increase in the number of polymorphonuclear cells.

The pathologic alterations here referred to agree in the main with those found by Howland in a larger series of cases and reported to the New York Pathological Society.¹⁰

It is evident that the dysentery bacillus does not always produce in the infant a uniform pathologic picture, but is capable of setting up alterations differing widely, both in severity and extent, from cases where the intestinal wall is practically unchanged to those in which large areas of the mucosa, particularly of the large intestine, is lost. The typhoid and diphtheria bacilli, the pneumococcus, the gonococcus, and many other organisms are now known to have a varied pathology, and the dysentery bacillus in its manifold manifestations is in agreement with facts recently learned concerning the activities of these other well-known pathologic bacteria.

It is well, when possible, to classify diseases according to their etiology. Hence the name *Dysentery infantum*, or infantile dysentery, has been suggested for diarrheal disorders in infants due to the dysentery bacillus. This term at once separates these cases from those of adult dysentery which present certain pathologic differences, and from the diarrheas in infancy due to other causes, either nutritive or bacterial.

SUMMARY.

The results of this study may be summarized as follows: During the summers of 1902 and 1903 epidemics of diarrheal disorders among infants and young children appeared in Baltimore. A large proportion of these cases properly investigated were found to be produced by the proliferation in the intestinal tract of the *Bacillus dysenteriae* (Shiga), the variety of the organism being the so-called acid strain; that is, the type of the bacillus which ferments mannite with acid production. In the histories of the patients, in the clinical manifestations of the disease, and in the pathologic lesions, the cases appear identical with those of epidemic diarrhea which have recurred for many years among infants in Baltimore and other American cities, and there is good reason for the confidence that the dysentery bacillus is an important factor of this great scourge among children.

The disease begins in June, reaches its height in July, and gradually declines in August, although sporadic cases occur throughout the year. The number of cases appears to be directly increased by excessively hot weather. Children under one year are most susceptible; those over three years are rarely attacked.

Babies exclusively breast fed are less often affected; most of the cases occur among infants artificially fed. The simultaneous outbreak of so many widely separated cases suggests that the causal organism does not reach the baby primarily through the milk, but rather through a carrier common to all, such as water, and an investigation of the water supplied the ill babies makes this hypothesis possible, though other sources of infection are recognized.

Ill-nourished children, particularly those fed on condensed milk, are less able to withstand infection by the dysentery bacillus, and form a large proportion of the fatal cases.

The cases can be roughly divided into two groups—those in which the symptoms of toxemia are most prominent and those in which there is evidence of a destructive lesion of the bowel.

Mucus was noticed in the stools in all cases. Blood was present in the discharges in moderate amount in but 42 per cent., and pus in but 53 per cent. of the cases. Many of the deaths occurred late in the summer in long-standing cases of ileocolitis with ulcerated intestines.

The keynote in the treatment is promptness. If the food can be stopped and the alimentary tract emptied within a few hours after the onset of symptoms, most infections can be aborted.

The results of antidyenteric serum treatment were disappointing. It, too, was apparently helpful in proportion to the shortness of the time which elapsed between the beginning of the illness and the injection of the serum. Its use is perfectly harmless under antiseptic precautions.

The prophylactic injection of the serum into susceptible babies may prove to be an advisable procedure.

The alterations in the body produced by the action of the dysentery bacillus may be those of an acute toxemia only, or in addition there may be set up more or less destructive lesions of the lower bowel. In this latter process streptococci and other organisms may play a part. The constant change noticed in all cases was the enlargement (serous infiltration) of the mesenteric lymph glands.

THE BACILLUS DYSENTERIAE (SHIGA) IN ITS RELATION TO THE DIARRHEAL DISEASES OF INFANTS.

A CLINICAL STUDY OF TWO HUNDRED AND THIRTY-SEVEN CASES.*

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The early history of the work done on the dysentery bacillus has been so often published that it need not be repeated here. It is to Duval and Bassett that the credit is due of first pointing out the fact that this organism played an important part in the diarrheal diseases of infancy. Working under the direction of Dr. Flexner at the Thomas Wilson Sanitarium, Baltimore, in the summer of 1902, Duval and Bassett studied 53 cases of diarrheal disease in infants and young children, in 42 of which they demonstrated the presence of the dysentery bacillus. After a considerable number of positive cases had been found, 25 cases were taken successively and from 19 of these the dysentery organism was isolated. They established the connection between the organism and the disease by obtaining positive agglutination reactions in a very considerable number of their patients.

In the autumn of 1902, at my suggestion, Dr. Martha Wollstein, at the Babies' Hospital, began a systematic study of the cases of acute disturbance of the intestine, and continued the investigations until the following May, in order to discover whether this organism would be found in winter cases as well. She studied, in all, the discharges from 114 patients, representing almost every phase of acute intestinal disorder; in 39 of the 114 cases the dysentery bacillus was found. It was never absent where the clinical picture was a definite one of acute disturbance characterized by the presence of blood and mucus in the stools.

In 1903, under the general direction of Dr. Flexner, the Rockefeller Institute undertook to continue this investigation by making simultaneous observations at different centers, with a view of throwing further light on the relationship existing between the dysentery bacillus

and diarrheal diseases in summer. Work was carried on in New York at the Babies' Hospital, Nursery and Child's Hospital, Vanderbilt Clinic, Pounding Hospital, Infirmary for Women and Children, Bellevue Hospital; in Baltimore, in the out-patient department of Johns Hopkins Hospital and the Thomas Wilson Sanitarium; in Boston, at the Floating Hospital, and at the Children's Hospital in Philadelphia.

The bacteriologic reports of this investigation have been edited by Dr. Flexner and have recently been issued. The present paper is a summary of the clinical reports of 237 cases in which the dysentery organism was present. These cases were observed by the following persons:

Drs. John Howland and L. E. La F6tra, Vanderbilt Clinic	62 cases.
Dr. Louise Cordes, Infirmary for Women and Children	26 cases.
Dr. Samuel Amberg, Baltimore	19 cases.
Dr. Louis M. Wariela, Bellevue Hospital	7 cases.
Dr. J. H. M. Knox, Jr., Thomas Wilson Sanitarium	43 cases.
Dr. Robert Hastings, Boston Floating Hospital	28 cases.
Dr. R. G. Freeman, New York Pounding Hospital	7 cases.
Dr. Dorothy Reed, Babies' Hospital	45 cases.

Several of these persons have already published their individual reports. It is the purpose of the present paper to combine the results of the investigations of the summer of 1903 to see what light they have thrown on our conception of summer diarrheas of infants, and especially what results have been obtained, and in the future what may be expected from the serum treatment.

Considerable new light has been thrown on the subject of diarrheal diseases in infants and young children by this investigation, although much still remains to be done. The summer was not a particularly fortunate one for such an investigation, as it proved to be an unusually cool season, and the diarrheal diseases were neither so frequent nor so severe as in average years.

Several points were prominently brought out by the different clinical observations:

1. The infection with the *B. dysenteria* occurs under quite a wide variety of conditions. It is seen in breast-fed infants as well as in those artificially fed.
2. It occurs (a) as an acute primary infection in children previously well; (b) as a subacute infection without previous acute symptoms; (c) coincident with or following other acute diseases, such as measles, pneumonia, etc.; (d) it is often seen as a terminal infection in children suffering from extreme malnutrition or marasmus.
3. It occurs as a mild intestinal disorder with few symptoms, and these hardly more marked than those belonging to intestinal indigestion; also with local symptoms of considerable severity, yet with very little fever or constitutional depression; and finally, in its most severe form, with both local and constitutional symptoms of great severity.
4. It is not a disease of any one locality, having been seen with great and about equal frequency in all the large cities—New York, Boston, Philadelphia and Baltimore—where investigations were carried on; the only variation in type being that in the warmer cities the proportion of severe acute cases was rather larger. Nor is the disease one of tenements and hospitals, a number of the cases observed being in children living under the best surroundings, even in the country. In its prevalence, it appears to be as widespread as are summer diarrheal diseases.

PREVIOUS DIET.

The clinical reports include observations on 237 cases. The previous diet was studied in most of these in the

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClannahan and John C. Cook.

hope of gaining some information as to the mode of entrance of the organism into the body. Of the cases observed, 26 were previously breast-fed. While in most of these the infection was a mild type, some were severe and even fatal. That these attacks were, as a rule, milder than most of those seen, may be in part at least explained by the better physical condition, and consequently the greater resistance of the breast-fed infants. That so many attacks were seen in nursing infants shows that we must seek for some other mode of entrance of the specific organisms than with the milk. Possibly it may be the water, although in this the dysentery bacillus has not yet been found. The practice of boiling water for the use of infants is seldom followed in the tenements, and water in some form was given to almost all the children. No special relation of the infection to any other food or any special kind of feeding could be discovered.

RELATIVE FREQUENCY OF INFECTION.

The relative frequency of infection with the dysentery bacillus as compared with other diarrheal diseases of infancy can not be definitely stated from these reports. In only two groups of cases were systematic examinations made of consecutive cases. In the others, the cases for examination were more or less selected, and hence it is impossible to draw conclusions from them as to relative frequency. The two groups of consecutive cases were those from the Vanderbilt Clinic, a summer series reported by Howland and La F etra, and those from the Babies' Hospital, a year-round series, reported by Reed. In the first group of cases the dysentery bacillus was found in 62 of 64 cases examined. They included every sort of intestinal disturbance attended by diarrhea. These figures, however, do not prove that in every instance this organism was the cause of the disturbance. In some of the cases the number of dysentery bacilli was apparently very small; sometimes only one or two colonies were discovered after a prolonged and careful search. But their presence even in such small numbers is interesting as showing possibly how mild attacks might develop into severe ones.

In this connection I should like to refer to some studies just completed at the Babies' Hospital by Dr. Wollstein on the stools of normal children. During the past winter and spring, observations have been made on 56 children with a view of determining (1) whether dysentery bacilli were present in the stools of normal infants; (2) whether they could be obtained postmortem from scrapings of the mucosa of children dying from other diseases.

Stools of 32 children, all under 18 months of age, were studied with great care by the following method: Patients who had been in the hospital several days and had been observed to have normal discharges were selected. The colon was washed out with one or two quarts of a saline solution, after which a cathartic, castor oil or citrate of magnesia, was administered. All stools passed in the next ten hours were studied. In no instance were dysentery bacilli discovered.

In a series of 24 cases studies were made of scrapings from the intestinal mucosa in children dying from diseases other than intestinal. In 21 no dysentery bacilli were found. They were present in 3 cases, but 2 of these presented rather marked evidences of inflammation of the intestinal mucous membrane, not suspected during life; while in the third a history was obtained of a previous attack of diarrhea, and this case showed swelling of Peyer's patches and some congestion of the mucous membrane of the colon.

In one entire year's service at the Babies' Hospital about one-half of all the cases exhibiting clinical evidence of acute disorders of the intestinal tract showed dysentery bacilli.

These observations indicate that dysentery bacilli are an important etiologic factor in the intestinal diseases of young children, both in winter and in summer; but that they are present in a much larger proportion of cases in summer than in winter.

CLINICAL TYPES.

Of the cases studied, 91 were classed as examples of severe infection. These were characterized by much mucus and generally blood in the stools, usually fever, but not always high, and by marked general prostration. There were 81 examples of moderately severe infection, in which there was much mucus and often blood in the stools, some fever but not much constitutional depression. There were 63 examples of mild infection, in which the constitutional symptoms were very few; blood was seldom present; there was little or no fever; but the stools almost always contained mucus. These figures indicate only that mild infections are very common; their relative frequency, however, is probably much greater than is stated here, since by several observers only severe cases were taken for examination.

The types of disease were essentially the same at all places where the observations were made. Infection with the dysentery bacillus was associated with almost every sort of intestinal disturbance accompanied by diarrhea, with, however, one notable exception, viz., the severe acute intestinal intoxication called "cholera infantum," with its sudden violent onset, protracted vomiting, high temperature, frequent serous discharges, great prostration, early collapse and often early death. There was only one case which at all approached this type, and this lacked some of the essential features. The infection with the *B. dysenteriae* is associated rather with the inflammatory forms of diarrhea, and of all degrees of severity, the mildest and the most severe, the acute, the protracted and subacute; occurring both as a primary disease and a secondary disease, often occurring in institutions during the summer as a terminal infection in infants suffering from marasmus, exactly as does bronchopneumonia under similar circumstances in winter.

Up to the present time the organism has not been found in cases of chronic intestinal indigestion in infants and older children, even though mucus was present in the stools in considerable amount. In this series of cases there were observed no chronic cases such as have been described in adults where bacilli were found after many months. The cases of long duration which were studied in infants were usually free from bacilli at the end, death being due to progressive marasmus.

The most characteristic clinical type and the one with which the organism was almost invariably found associated, was the acute febrile form with stools containing much mucus and usually streaked with blood. For these cases the term "infantile dysentery" would seem the only proper appellation. This type seems so distinctive that we may safely regard it as a separate and distinct disease.

TYPES OF ORGANISM.

Of the 237 cases studied clinically, the "Flexner-Harris" or "acid" type of organism was present in 207, the true Shiga in 23, and both organisms were present in 7. No difference could be observed in the clinical manifestations in the different forms of infection. Further-

more, the relative frequency of the different types was nearly the same in all places where the observations were made.

Whatever may be said of the dysentery of adults, it would appear from these data that in infants and young children, in our large eastern cities, it is the acid type of organism rather than the true Shiga with which we are chiefly concerned.

MORTALITY.

Of the 237 cases reported, 73 were fatal. This gives little idea of the gravity of the dysentery infection, since it is well known that the result in all forms of intestinal disease in infants depends on nothing so much as on the age and previous condition of the patients. Considerably more than half the total number, 139, were observed in hospitals. It was among these patients also that nearly all the deaths occurred, as might have been expected. The poor general condition of these patients and the late date of beginning treatment had most to do with determining the results. Again, in several it was noted that the patients recovered from the acute diarrhea but died subsequently from marasmus. Cases of this kind were seen in almost all the groups.

In all acute disorders of the intestinal tract complex conditions are present. No infection or intoxication can occur without producing marked functional derangement of digestion. In some cases the infection is slight, while the digestive disturbance is severe. The two bear a general but by no means a constant relation to each other. The child's symptoms may be due almost entirely to the indigestion and very little to the infection. These conditions stand in the way of success by serum treatment. While we may be able to combat the infection by the serum, it may be without any power to improve the digestive disturbance. It also has a bearing on the question of diet during the attacks.

DIET DURING THE ATTACK.

The necessity of stopping milk during severe acute infections is universally agreed on. There is, however, some difference of opinion in regard to the desirability of withholding milk from cases of moderate severity, without temper ture, where the disease seems to be limited to the large intestine. In these cases the symptoms from which the child suffer are chiefly those of wasting from chronic indigestion. There seems to be little doubt from the experience at the Babies' Hospital and Vanderbilt Clinic, that many of these cases do much better on a properly modified milk than on other substitutes employed, such as broth, barley water, albumin water, etc., with which the loss of weight is very rapid. In such cases the infection seems to play a minor part and the indigestion a major part, and, therefore, one should not have his attention too much on the presence of a specific infection, but should manage the child's diet according to general principles, as in other forms of acute or subacute intestinal indigestion. The mere presence of dysentery bacilli in the stools is, therefore, in itself no reason for withholding milk, and its intelligent use seems to give much better results than the substitutes usually employed.

PREVENTION.

The fact that the dysentery infection is contagious seems to be established, but how and to what degree is not yet proven. In four instances, small ward epidemics were noted. From present experience a high degree of contagion does not seem probable. The spreading takes place most likely through the discharges. This calls at-

tention to the necessity for disinfection and the closest attention to prevent contamination of food or water by persons handling the child's napkins. The rule followed in the Babies' Hospital is a good one for all institutions, viz., that the nurse in charge of the children's napkins shall not at the same time have anything to do with the food or the feeding.

SERUM TREATMENT.

In all there were 83 cases in which the anti-dysenteric serum was employed; 38 of these were fatal. On the whole, the results were disappointing. No unfavorable symptoms followed its use in any case. In a few instances eruptions, usually urticaria, followed, as occasionally after diphtheria antitoxin. In only 12 cases did a noteworthy improvement appear to follow its administration. A careful study of the cases in which the serum was used does not make the results quite so bad as at first appears. Too much evidently was expected. The physicians had in mind the striking effects seen after diphtheria antitoxin. These were observed in no instance, and it is doubtful if they ever will be. The conditions in the intestines are very complex and in no way comparable to those which are present in diphtheria. Great disturbances of digestion are in most cases present, and the consequences of this remain long after a specific infection may have disappeared. Difficulties were found in the use of the serum. The quantity in the strength in which it was used was large. The mothers of dispensary patients would not allow its use except in severe cases, and often would not return for a second dose. A brief summary of the cases seems desirable.

Freeman's Report.—Seven cases treated; all hospital patients; in 2 the attack followed measles; one child had diphtheria and pneumonia. In 4 cases no improvement. In 3 improvement apparently occurred, but 2 died later from marasmus long after the intestinal symptoms had disappeared. The only case which recovered was that of a nursing child. Full doses were given, all but one receiving from 5 to 10 doses of 10 c.c. each.

Howland's and La Vitra's Report.—Ten cases treated; all dispensary patients. Serum used only in the severe cases. Two children received but a single dose; result unknown, as they did not return; 2 died, one moribund when treatment was begun, the other recovered from diarrhea, but died long after from marasmus; 2 showed decided improvement after the serum. In the other 4, no apparent effects. Rarely more than 2 doses of 10 c.c. given.

Amberg's Report.—Ten cases treated; 2 hospital patients, 5 private practice, 3 not stated. Of the 5 severe cases, 3 ended fatally, 1 improved and 1 recovered; of the 6 moderately severe cases, 5 recovered, 1 improved. Only one case received an injection on the first day and one on the second day; 3 had been sick four to six days and 6 more than one week. Six cases received two doses and 4 five doses of 10 c.c. each.

Warfield's Report.—Seven cases treated; 2 observed in tenements, 5 hospital cases; 4 died. Two were moribund when the serum was given and one other had pneumonia; 3 apparently benefited by the serum. Two patients received but two doses; all the others received much larger quantities, one patient being given 150 c.c.

Hastings' Report.—Fourteen cases treated; all hospital patients. Serum was used only in the severe cases. Seven of these were fatal. Details of the fatal cases only are given; one of these was moribund at the time of the administration, one died in the seventh week of the disease; 5 were in poor condition at the time of the attack. No striking improvement seen in any case.

Know's Report.—Twenty cases treated; of these 9 were fatal. Three cases apparently improved from the serum; in 17 apparently no improvement.

Cordes' Report.—One severe case seen late, no apparent effect.

Reed's Report.—Fourteen cases; all hospital patients; nearly all severe infections. Temporary improvement seen in several, permanent improvement in none. In 9 cases only one 10 c.c. dose was given.

Such, in brief are the facts regarding the use of the serum in the 83 cases in which it was employed. That decided improvement appeared to follow its use in only 12 of the patients is not very encouraging. Several factors worked against success. In a large proportion of the cases it was used late in the disease. Again, it was as a rule used only in the most severe cases; and, finally, at the beginning of the season no rules had been formulated as to the size and frequency of doses, hence it is evident that many of the doses were too small. Four patients were moribund at the time the serum was given. Of the 83 cases, 67 were hospital patients, and all familiar with hospitals for infants know the class of patients referred to.

The conditions of success, however, are, first, that it must be used early, before serious lesions have developed or before the patient's general nutrition has been too profoundly impaired. The latter refers particularly to cases in young infants. The second point is that experience shows that the serum must be used in repeated doses, one or two doses given each day and continued for several days if the attack is severe. I can not myself feel from a study of these reports and from personal observation of some of these patients, that an adequate trial of the antidyenteric serum has yet been made. The favorable cases for its use are surely not the subacute infections, where the symptoms relate much more to the functional disturbance of digestion and the resulting impairment of the child's nutrition, than to the specific toxemia of the dysentery bacillus; nor again can anything be expected from it in attacks which develop late in a condition of marasmus in hospital patients. The promising cases are rather the sharp acute attacks with symptoms of severe infection occurring in infants or older children with some powers of resistance. In other words, in patients where the real problem is to combat the infection, and not to maintain the nutrition of patients, which even before the infection was a matter of the greatest difficulty.

Inasmuch as at present nearly two days are required for a bacteriologic diagnosis, and as the agglutination reaction is seldom present until the end of the first week of the disease, if used at all, the serum must be injected on a clinical diagnosis. Its use would then be indicated in children taken with acute intestinal symptoms with blood and mucus in the stools, or with very much mucus in the stools with fever and symptoms of general infection. The serum surely must be used early, and it must be given repeatedly, since what is desired is to stop a process and not to neutralize a toxin.

All rules as to dosage and frequency must at present be tentative. From the experience of the past summer it would appear that a dose of at least 10 c.c. should be used daily in a moderate case, this being repeated two or three times daily in a severe case.

Since we have no means at present of differentiating clinically the cases in which the infection is with the acid or Flexner-Harris and with the true Shiga type, it would seem best to use a serum from animals immunized against both types of the organism, or that from animals immunized against the acid type, since by far the largest number of cases in young children are of this variety. Although the serum obtained from ani-

mals immunized with true Shiga is not without some effect in infections with the acid type, and vice versa, this is much less than when the animals are injected with the special type of organism concerned.

A beginning only has been made with the use of the antidyenteric serum. A much more extended trial and on more carefully selected cases is necessary before definite statements can be made as to its value.

14 West Fifty-fifth Street.

SOME FINDINGS IN SUMMER DIARRHEAS OF CHILDREN.*

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These cases came under observation during July and August, 1903, and are reported to show the relative frequency of some bacteria not ordinarily given prominence in this relation. The study was begun with the hope of making some clinical deductions from the microscopic findings and to trace, if possible, any bacterial relations between the buccal cavity and intestinal disorders.

Twenty-nine cases in all were observed and cultures were simultaneously made from mouth and fecal discharges, and observed as nearly together as possible, but much of the work was not completed owing to the sanitarium closing before all the cultures were worked out.

No note will be made of the ordinary inhabitants of the canal, such as colon groups, staphylococci, etc., but only such as may have some pathologic bearing on the clinical findings.

Cases 1, 2 and 3.—Nothing of value was found, notwithstanding that there were some clinical features present, such as vomiting and loose bowels, which were found in other cases bacteriologically more interesting.

No. 4.—Breast-fed; aged four months; diagnosis of enteritis. Gave history of from five to six loose, offensive movements daily for four or five days; temperature from 96 to 100; vomited frequently. Cultures were taken from oral cavity and bowel movements, but nothing was found but pink yeast bacilli and staphylococci from the mouth.

No. 5.—Aged six months. Came to sanitarium July 27, with normal temperature and history of from three to five loose brownish bowel movements a day. On the fourth day after admission a curdy exudate appeared in the roof of the mouth and on the inside of the cheeks, and some on the outside of the gums, resembling thrush a little. With this came a slight rise of temperature and loose greenish movements, six to eight a day. This condition was not influenced by treatment for more than a day at a time, when it would lapse back to the same state, and the child died on August 18. Cultures from mouth and movements both showed *Bacillus pyocyaneus*. A postmortem was not permitted.

No. 6.—Entered the sanitarium July 6, with temperature 103; three or four loose green bowel movements in twenty-four hours; vomited once or twice. Child was 18 months old and fairly well nourished; had been nursed for first two months of life, when the supply failed; since had been fed on diluted cow's milk. Cultures from oral cavity showed nothing out of the ordinary. *Bacillus pyocyaneus* was found in the culture from bowel movements. Child left the sanitarium on August 4, not in good condition.

No. 7.—Aged nine weeks; normal temperature; partially breast-fed and partially on store milk diluted; frequent green bowel movements; vomited occasionally. *Bacillus pyocyaneus* in bowel movements only. Did not return.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

No. 8.—Aged eleven months; rachitic; came from day nursery. Had from three to four yellow sour movements in twenty-four hours; only vomited once in two or three days; had been fed on some proprietary foods; child was under observation for nearly a month and during that time had three to four movements a day, sometimes green, but mostly yellow or brown in color. *Bacillus pyocyaneus* was found in the dejecta only. Child was fed on milk, proteins 1, fats 3, hydrocarbonates 7. Gained rapidly and was discharged cured on August 29.

No. 9.—Aged ten months; ran a normal temperature after first twenty-four hours; two to four yellow bowel movements a day, only occasionally showing any green; did not vomit.

Nos. 11 and 12 were of no interest bacteriologically. No. 12 was colored and markedly rachitic.

No. 13.—Aged five months, was presented for treatment August 6, at 4 p. m. Temperature 99, and history of having been sick three days. Vomiting and frequent green offensive bowel movements. Child was given a bath and colonic flushing, and two ounces of barley water to drink. At 12 midnight, temperature was 104.6, pulse 150, respiration 72; child died at 1:45 a. m. A culture from the month grown on bouillon, developed the *Bacillus mycoides*. On interrogating the mother, she said the baby had been fed on one cow's milk, the animal being owned by one of the neighbors. The same day she brought some of the milk from which the baby had been fed the day before, also a specimen of milk scoured from the owner of the cow that day. Both contained *Bacillus mycoides*. Not being familiar with the bacilli, we believed we were dealing with an anthrax, so visited the cow and found her healthy and giving a good quantity of milk. The owner said the cow had always been well, but some of the neighboring children said it had been sick about a week before, so it would not eat for two or three days.

No. 14.—Aged four months. Came under observation August 7, with normal temperature and history of vomiting and loose bowels for past week. It had been fed on malted milk, barley water, oatmeal water and condensed milk. Temperature was normal for next four days, with one exception; on the third day it went to 101 and back to normal; three to four green, offensive movements a day, and vomited about once a day until fifth day, when it was sent home convalescent. *Bacillus pyocyaneus* was found in the fecal discharges.

No. 15.—Aged four months; temperature 100.2 Child had been sick one week; six to ten green, watery bowel movements in twenty-four hours, sometimes very offensive; vomited once or twice a day; catarrhal stomatitis and bronchitis; very emaciated, showing marked degree of starvation rigidity; improved during its stay at the sanitarium—three or four days. *Bacillus mycoides* and *Bacillus pyocyaneus* from mouth culture; nothing worthy of note developed from fecal culture.

No. 16.—Aged three years; well nourished; temperature 101. Child had a round white patch on inside of left cheek, size of a half dollar, resembling noma, which spread to roof of mouth on same side, causing necrosis of the soft parts, irregular in shape. This yielded in four or five days to local treatment—peroxid of hydrogen and saturated solution of chlorate of potash. Klebs-Loeffler bacilli were found from culture of mouth, no fecal culture being made. No paralysis resulted, and, notwithstanding that the child mingled freely with other children, there was no spread of the disease.

No. 17.—Aged six months; had pain in the bowels, green discharges containing undigested food; vomited some mucus. Temperature 99, increased steadily, reaching 104.2 on the fourth day, when it began to subside. *Bacillus pyocyaneus* was found in mouth and fecal discharges.

No. 18.—Aged eight months. Was one of a pair of twins, the other one having died two weeks before. Temperature from 97.6 to 99.2; had one or two daily, and about the same number of night, movements containing undigested food, yellow, turning green on exposure; vomited occasionally. *Bacillus pyocyaneus* was found from stool culture, also from oral cavity.

No. 19.—Entered the sanitarium August 14; aged ten months; temperature 102.4, which rose to 105 within the next

twenty-four hours. Child was having from eight to twelve green movements a day, containing mucus and undigested food; temperature ran from 102 to 105, with about the same number of movements a day for the next seven days, when temperature gradually subsided, but the number of movements kept up, with very slight disturbance to the stomach. Child retained food well unless given too much. Temperature did not go above 99.6, but there was little change in the number or character of the bowel movements until the 16th day, when she died. *Bacillus pyocyaneus* was found in the feces only.

No. 20.—Aged 14 months, entered the sanitarium August 10. Temperature 99.8, and varied from 98 to 100 until the ninth day after admission, when the temperature went to 103.6 about two hours before death. Child had from three to five movements daily, dark brown to green; vomited very little. *Bacillus pyocyaneus* was found in the bowel discharge but not from mouth culture.

No. 21.—Five months old, normal temperature; had frequent light green bowel movements; did not vomit; condition improved daily for three or four days, when she was sent home.

No. 22.—Six months old; was brought to the sanitarium for three or four days; temperature normal; had frequent dark brown movements; did not vomit. No bacteria found from either mouth or movements.

No. 23.—Only present once for treatment. Child was twelve days old; breast-fed; had from eight to ten loose yellow movements a day. No bacterial findings.

No. 24.—Seven months old. Child was brought for treatment July 22, with the following history. Had been fed on raw milk and Mellin's food; began vomiting this morning; later the bowels became loose, with offensive light-colored movements containing quantities of undigested food. If food was not immediately vomited, it passed through the bowels in from 20 to 60 minutes; temperature ranged from 98.6 to 100. The first day of illness she weighed 12½ pounds. Three days later her weight was 7 pounds. After forty-eight hours vomiting ceased and food was retained in the bowels long enough to nourish. In the course of a month the child weighed 12¼ pounds. *Bacillus mycoides* was found in the stools.

Nos. 25, 26 and 27 gave negative results, both from mouth and fecal cultures.

No. 28.—Eight months old. Child had been well until the last days of August, then began having loose green bowel movements, containing quantities of mucus and streaked with blood; vomited three or four times in first twenty-four hours; had been fed on dextrinized gruel with top milk; temperature went to 102; great prostration but rapid recovery. *Bacillus pyocyaneus* was found in the stool culture.

No. 29.—I saw child for the first time when it was three days old. It had vomited that morning and the mother said it acted sick; temperature 100; had been nursed since birth; mother's milk was still full of colostrum; towards night of the third day the child vomited several times and the bowels became very loose. I advised the breast-feeding stopped and the breast pumped out, and gave albumin water. The vomiting ceased as soon as nursing was discontinued, and by the fourth day the bowels did not move oftener than every three to five hours. Albumin water was continued until the morning of the fifth day, when the child was put on the breast, which it took willingly. After the third nursing it vomited, and by the middle of the afternoon the bowels had begun to run off and she vomited again. Nursing was again discontinued. A few small yellow blisters appeared on the head and face that afternoon. I advised the nurse to open them but by the next morning the upper third of the child, including the head and face, was covered with the same sort of a papular eruption and the bowels were very loose—three or four offensive watery movements every hour. The baby was kept nourished on barley and albumin water. A culture was taken from the mouth, also a specimen of milk was drawn aseptically and a culture made from it. *Bacillus mycoides* was found in both. The baby had a little temperature for a week, the pustules gradually drying up; the condition of the bowels had improved so much that we once more tried the

breast, with the same result as before. The child was then put on dextrinized oatmeal gruel with top milk, and it is now a well, strong child, having fulfilled the ordinary requirements of weight and measurements. This was the third baby in the family—a girl—the two older children being boys and both had been strong and nursed for a short time. No miscarriages or other evidence or history of syphilis. The mother had a small abscess in one breast before the milk was dried up.

THE RÔLE PLAYED BY THE BACILLUS PYOCYANEUS.

Holt speaks of pyocyanous infection in ulceration of the intestinal canal.

According to Sternberg, the *Bacillus pyocyanus* was obtained by Gessard (1882) from pus having a green or blue color, and since carefully studied by Gessard, Charin and others. This bacillus appears to be a widely distributed saprophyte, which is found occasionally in the purulent discharges from open wounds, and sometimes in perspiration and serous wound secretions (Gessard).

Morphology.—A slender bacillus with rounded ends, somewhat thicker than the *Bacillus murisepticus* and of about the same length (Flügge); frequently united in pairs or chains.

Biologic Characters.—An aerobic, liquefying, motile bacillus. Grows readily in various culture media at the room temperature—more rapidly in the incubating oven.

Temperature Above 100	Pyocyanous in Stools	Pyocyanous in Mouth	Mycoides in Stools	Mycoides in Mouth	Klebs-Loeffler in Mouth	Vomited	Green Movements	
No. 4 No. 6	No. 5	No. 5 No. 6				No. 4 No. 6 No. 7 No. 8	No. 5 No. 6 No. 7 No. 8 No. 13	
No. 13 No. 14 No. 15 No. 16 No. 17	No. 14	No. 15 No. 17 No. 18		No. 13 No. 15	No. 16	No. 13 No. 14 No. 15	No. 17 No. 18 No. 19 No. 20	
No. 19 No. 20	No. 17 No. 18 No. 20	No. 17 No. 18				No. 17 No. 18 No. 19 No. 20	No. 17 No. 18 No. 19 No. 20	
No. 24 No. 28 No. 29	No. 28		No. 24			No. 20 No. 21 No. 24 No. 28 No. 29	No. 28 No. 29	Blood
12	8	5	1	2	1	14	12	

Of the 12 cases with temperature above 100, 6 had *Bacillus pyocyanus* in stools; 5 had *Bacillus pyocyanus* in mouth; 10 vomited; 7 had green movements.

Of the 8 cases with *Bacillus pyocyanus* in the stools, 7 had green movements.

Of the 5 cases with *Bacillus pyocyanus* in mouth, 1 had *Bacillus Mycoides* in mouth.

Of the 14 cases that vomited, 6 had *Bacillus pyocyanus* in stools; 4 had *Bacillus pyocyanus* in mouth.

Of the 12 cases with green movements, 7 had *Bacillus pyocyanus* in stools; 4 had *Bacillus pyocyanus* in mouth.

Does not form spores. The thermal death point, as determined by Sternberg, is 56 C., the time of exposure being ten minutes. In gelatin plate cultures colonies are quickly developed, which give to the medium a fluorescent green color; at the end of two or three days liquefaction commences around each colony, and usually the gelatin is completely liquefied by the fifth day.

Pathogenesis.—The experiments of Sternberg, Lederhose, Bouchard and others show that this bacillus is pathogenic for guinea-pigs and rabbits. Subcutaneous or intraperitoneal injections of recent cultures—one cubic centimeter or more of a culture in bouillon—usually cause the death of the animal in from twelve to thirty-six hours.

More recently Donald R. MacIntyre¹ of Ann Arbor has shown that the *Bacillus pyocyanus* contains an in-

tracellular toxin, and his excellent article has shown that the toxicity of the powdered germ substance of *Bacillus pyocyanus*, when injected intraperitoneally into guinea-pigs in the proportion of 1 part to 50,000 parts of body weight, is surely fatal. When injected subcutaneously in guinea-pigs, even in as large a quantity as 1 part of the toxin to 10,000 of body weight, the only inconvenience that resulted was a slight swelling at the point of inoculation, followed by temporary loss of weight. Subcutaneous injections did not give immunity to subsequent intraperitoneal treatments.

THE BACILLUS MYCOIDES.

The *Bacillus mycoides* has been isolated from cow's and mother's milk and also found in the oral cavity and fecal discharges of children. When grown on agar-agar bouillon, it grows very much like the anthrax bacillus. However, after a few days' growth the bacterial cell seems to grow as a shorter rod and with a rounder end than that of the bacillus anthrax. When grown in beef bouillon, it grows as a flocculent mass on top of the liquid.

When from 1 to 3 c.c. of beef bouillon culture is injected into guinea-pigs there is a decided cellulitis in the tissues around the point of injection. Forty-eight hours later the animal showed a decided toxic condition, with languor, and did not take food, and in about two to seven days the entire body seemed to be in a bloated condition. When the bouillon cultures were filtered out and the solution injected free from bacteria, very much the same symptoms were present, with the exception of the cellulitis that was manifest in the injection of the solution containing the bacteria themselves.

None of the animals died that were inoculated with the growths in the bouillon. Injections beneath the skin from very recent cultures on milk produced no effect, but an injection of 1 c.c. of milk culture, twenty-four hours' growth, produced very much the same symptoms as those injected with the bouillon; and forty-eight hours' growth in milk showed signs of a more toxic condition. There was considerable swelling around the point of injection. Twelve hours after the injection was made the animal began to show symptoms of inactivity. In twenty-four hours it refused food and began to bloat. This increased to the fifth day, when it died in convulsions. The organism could not be found in the blood of the animal nor in any of the body tissue except the spleen, where it was found in considerable quantity.

These inoculations were made in six guinea-pigs. Three of them died within six days, one on the tenth day, and the other two recovered after a long time.

This organism has not been classed as pathogenic so far as I have been able to ascertain—that is, it does not produce any specific disease, still it appears to possess the power of producing a toxic substance in milk, resembling that of ptomaines.

The first twenty-four hours' growth in bouillon, gelatin or agar-agar has to such an extent the general characteristics of anthrax that I found it impossible to distinguish one from the other under the microscope. However, after forty-eight hours in agar the chain-like appearance which is seen in anthrax slides began to be broken up, and the ends of the rods of the *Bacillus mycoides* became more rounded in appearance and they soon lost a great deal of their resemblance to anthrax. In the cultures of the twenty-four to forty-eight hours' growth there is to be distinguished large refractive bodies in the cells of the bacteria which, from general appearance, might be taken for spores, but with the method of

staining for spores we were unable to decide whether or not these refractive bodies were spores. However, in old, dried-up cultures there is to be found nothing but the round or oval forms of the micro-organism, which has a great resisting power to heat and many of the antiseptic solutions.

THE MANAGEMENT OF SUMMER DIARRHEA.*

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Trite as may seem the subject, the first hot days of the summer call up a picture of the blanched and sunken faces of the sad little army which besiege the doors of our offices, hospitals and dispensaries in the lifeless days of summer. It is a smaller army than of yore, thanks to the agitation for pure milk and the ever-widening knowledge of the proper methods of prophylaxis and treatment, but the work of such discussions as will follow this group of papers has not yet been done nor will be done until human ignorance or human life disappears from the earth.

ETIOLOGY.

Believe as we may concerning the preponderance of etiologic factors—bacterial, dietetic or meteorologic—the fact remains that diarrhea among infants and young children leaps to the front with the inception of the warm season, and claims our attention as the most common disorder until the cooler weather of the early fall forces it again into the background. It shall be the purpose of this paper to inquire into the advances made during recent years in the prevention and treatment of this scourge and to set them forth as clearly as may be.

In the search for etiologic factors, much that is of scientific interest has been compiled concerning the influence of sustained high temperature of the atmosphere in producing this affection. This influence is variously explained, either as favoring the development and multiplication of hurtful bacteria which may gain access to the digestive tract, or else so lowering, by its prostrating effects, the resistance of the individual host as to render him less able to cope with the invasion. Both factors doubtless play their parts, and since we can not influence the weather bureau, we must needs profit by the suggestions which they furnish for intelligent prophylaxis.

PROPHYLAXIS.

Prophylaxis, which, after all, is the supreme ideal of medical science, may well begin long before the summer opens, and many a life sacrificed might be saved by proper preparation for the ordeal which is to come; diet should be regulated and simplified, over-feeding in frequency and amount corrected, digestive difficulties of all grades, however slight, overcome, anemia and the protean gradations of malnutrition and rachitis actively combated.

Whenever it is possible children of susceptible age should be sent early into the country where the days and more especially the nights are relatively cooler than in the city. If such removal is not feasible as in

the vast majority of families, the coolest and best ventilated rooms should be chosen for their occupancy, clothing should be as light as is compatible with proper protection from sudden changes, they should spend as much time out of doors as possible in the daytime properly protected from the sun's rays, on the shaded side of the street, in public parks and open spaces, beneath trees or along water fronts, if these be accessible, and at night they should sleep in well-aired rooms. The functions and cleanliness of the skin should be promoted by the morning bath and evening sponging with cool or tepid water.

It may be stated as axiomatic that the healthy child is less susceptible to diarrhea, or if attacked, far more amenable to prompt and intelligent treatment. While all breast-fed children do not escape, the number affected of those who are exclusively nursed is relatively very small, and the numbers increase in proportion to the administration of other articles of food, whence the time-honored dread of the dangers not of the first, but of "the second summer."

METHOD OF INVASION.

Squalor, carelessness, improper and injudicious feeding and contaminated milk are probably accountable for most of the trouble. Squalid environment, which usually involves the other causes, furnishes many of our cases, but it should not be forgotten that bacteria may gain entrance to the digestive tract, even among the well-to-do in other ways than through bad milk and uncleanly nursing bottles, and that thumb-sucking and the use of rubber-sucking nipples or "baby pacifiers" should be discountenanced as serious elements of danger.

The investigation carried on among the poor of New York under the auspices of the Rockefeller research fund and published by Park and Holt show that the purer and cleaner the milk the safer it is in the summer months, but since this safety is one of degree only, and since milk produced under ideal conditions is obtainable in but few localities and often at a cost too great for general use, it is a safe and conservative position to assume at the present day that, unless we are assured of the absolute freshness as well as the cleanliness of the milk supply, and furthermore, unless there be some valid reason for the choice of raw milk, the milk for infant feeding during the summer months should be subjected early to pasteurization or sterilization, according to the particular prejudices of the physician, in order to guarantee reasonable hope of protection to the infant.

The term summer diarrhea has been employed purposely in the title of this paper, because while looseness of the bowels may arise at this season from many different causes, and at their inception with varying severity of symptoms, the great majority of them hold possibilities of later serious developments and call for radical and earnest treatment at the outset, at which time remedial measures are almost sure to be effective. There is the greater need of emphasizing this point, because those cases which at once show serious symptoms are naturally more alarming, and in consequence receive attention, while those of the slighter and milder degree are more often neglected until secondary infections have become engrafted, which are of vastly more serious import.

Thus much of the bowel disturbance of summer is purely dietetic and digestive, due either to some special indiscretion, or, as so frequently, to the inability

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of the child to digest, in hot weather, food with which on cooler days there was no apparent difficulty. Allow this, however, to advance a day or two without suitable treatment or change in diet, and the disturbed mucosa, secretions and contents of the digestive tract become a suitable field for the development of forms of bacteria which the system would readily cope with in health.

WITHDRAWAL OF MILK FROM THE DIET.

While uncleanly and infected milk is responsible for many cases, it is doubtless an error to ascribe all summer diarrheas to this cause, nevertheless it should be remembered that since milk is capable of superimposing additional disturbances in a considerable number of cases, it should be stricken from the diet for absolute safety. Although there are unquestionably exceptions to this rule, it may be asserted and reiterated with the utmost positiveness that no one of twenty remedial measures has such life-saving effects in summer diarrhea as the prompt and absolute withholding of milk and the removal of all milk residue from the digestive tract on the appearance of frequent disturbed stools. Could this one measure be made absolute in every household and institution of the country, the mortality from diarrheal diseases would become insignificant.

There are no reliable means of distinguishing the cases in which milk will or will not do harm. To give milk to the wrong child is to supply him with the materials for the elaboration of dangerous toxins and for the growth of countless myriads of destructive bacterial organisms. Were it proper to end this paper at this point, it would be with the firm conviction that the most important word had been spoken. It is not our good fortune, however, to see every case in the early stages, and there are other measures which must be carried out with intelligent understanding and common sense before the patient is restored to health.

Let us first have a clear appreciation of the conditions existing in the tract which we are to treat. If the diarrhea be of digestive origin we have a mucous membrane congested and irritated and a nervous and muscular mechanism endeavoring by increased and disordered action to throw off their contents, the by-products of those faulty chemical processes are causing the disturbance by contact or absorption. If the difficulty be from contaminated milk, the process is only dissimilar in that the special bacteria which have been introduced multiply rapidly in the favorable medium and add their toxic products to the disturbance of the tissues and by absorption to the general system.

Continue but for a time these derangements of function, during which much of the natural protective power of the bowels is in abeyance and the bars are down for invasion of the intestinal wall itself by pathogenic organisms feebly or actively opposed by the rallying leucocytes, and mucous and submucous tissues suffer severely in their integrity, as so often happens to the hard-fought battlefield of contending forces.

There would be less hesitation in instituting rigid initial measures could every man study, microscopically and macroscopically, the intestines of some of these old neglected cases, swollen, congested, ulcerated, and see through the microscope the epithelium swept away, the mucosa and its glands eroded, and the blood vessels and lymph spaces choked with what were the bodies of the living, the dying and the dead combatants.

TOXIC SYMPTOMS.

We have thus far spoken chiefly of the intestinal symptoms, but what of the effects of the toxemia on the

rest of the body—the high temperature, the vomiting, restlessness, thirst, emaciation and prostration, the results of toxic absorption and of continued futile efforts to eliminate poisons which may be constantly recruited if milk be continued in the diet, and which directly or indirectly causes the death of the patient.

RATIONALE OF TREATMENT.

The picture given above is a common one enough, but before outlining a plan of treatment which is both simple and, if instituted early, usually effective, it will be well as a preliminary to set forth in plain terms what it is proposed to do and the reasons for so doing. The diarrhea, or diarrhea and vomiting, are no less than efforts of the digestive tract to rid itself as quickly as possible of something which it reflexly discovers to be hurtful. So long as that something remains in the body, the diarrhea is conservative, and any attempt to check it completely defeats Nature's purpose and is injurious. We should rather aid Nature in expelling it, and then, if necessary, assist in closing the flood gates which have been so rudely opened that the closing mechanism is out of order. Moreover, if the offenders be the teeming bacteria of spoiled or infected milk, not only must these poison-producing hordes be driven out, but no additional quantity of milk, however small or however disguised, should be allowed to reach the bowels until the whole brood has been exterminated, other forms of nourishment being supplied in which they do not multiply. Diarrhea with or without vomiting has not, however, arisen without considerable irritation of the organs concerned, which renders them incapable of immediately resuming their usual functions, and that which we supply in the way of nourishment must be of the simplest and blandest nature, until the whole system has recovered from what is really a serious shock, and the tone of the digestive apparatus shows that it is again restored by the subsidence of previous symptoms and the return of normal appetite. It must be evident, from what has just been said, that the earlier such rational treatment is begun the less injury will have been inflicted, and other things being equal, the earlier and more certain the recovery.

TREATMENT.

We have thus seen that the immediate indications for treatment in a case of summer diarrhea are of a triple nature, and every mother, nurse and physician should know them by heart. They are to stop milk and substitute a bland diet, to thoroughly clean out the digestive tract, and then, and not till then, employ means to check excessive peristalsis and secretion of the intestines.

Removal of Cause.—Castor oil and calomel are both efficient in sweeping out the bowel contents, and each has its special indications and advantages. Where improper and undigested food is known to be the cause or there be blood or much mucus in the movements, castor oil one to two drams acts promptly and relieves irritation. Where there is vomiting, intestinal decomposition or considerable temperature from absorption, and especially when the trouble has existed some time, calomel may be preferable in doses of 1, 10 grain every half hour up to 1 grain. It is a gastric sedative and intestinal disinfectant, while it favors more normal hepatic action.

Lavage.—Where vomiting plays an important part gastric lavage with lukewarm water or solution of bicarbonate of soda (1 dram to 2 pints) may be most useful in cleansing the viscous.

Intestinal Irrigation.—I have found intestinal irrigation to be necessary less frequently than formerly, doubtless owing to rigid adherence to the rule of stopping milk at once, but it is of the utmost importance where the temperature is ominously high, the toxic symptoms pronounced, and in neglected cases. In conjunction with the administration of laxatives by the mouth, which should never be omitted, nothing compares with it when properly administered in promptness and efficiency in cleansing the colon and reducing high temperature. Plain water should not be used, but a normal salt solution (1 dram to 1 pint), employing a fountain syringe and a moderately firm catheter, number 14E or small rectal tube, introduced in the lithotomy position with hips elevated while the water is flowing, some nine or ten inches into the sigmoid flexure or beyond.

The irrigation should be thorough, at least two quarts being used, as it escapes at intervals beside the tube, and if the body temperature be high it may be cool, but if low and there be much weakness it should be warm. With much congestion evidenced by blood in the stools tannic acid (one teaspoonful to the quart) may be added with advantage. Irrigation gently and skillfully performed with an elevation of the reservoir of not over three feet does not increase prostration, but like other judicious hydrotherapeutic measures stimulates and soothes and is often followed by restful sleep. Retained fluid is, in part, absorbed greedily by the depleted tissues of the body and thirst is thus relieved.

Intestinal Sedatives and Disinfectants.—Medication of the disturbed digestive tract next demands our attention with the four-fold purpose of relieving irritation, restoring normal secretion, favoring disinfection and checking peristalsis, if excessive. The drug, which of all others has stood the test of time and experience in meeting the first three at least of these indications and often the fourth, is the subnitrate of bismuth, which is sedative, mildly astringent and disinfectant. It has the further advantage of being non-poisonous in the relatively large doses which are necessary. It is often given too timidly, and so ineffectually. Ten grains should be given every hour at first to children under one year of age until improvement occurs with the characteristic discoloration of the stools, then every two hours may be sufficient. It has been a matter of observation that where this discoloration which is probably caused by the action on the bismuth of hydrogen sulphid in the bowel, does not appear in the stools, it is ineffective.

This may be remedied when required, as suggested by Kerley, by giving lac sulphur in grain doses. The frequency of the movements often subsides under bismuth treatment alone, but where the number of the stools exceeds six or eight in twenty-four hours, and particularly if they be fluid and large, special medication may be necessary. Opium fulfills this indication, and should be given separately, so that its dosage and frequency may be regulated independently of other remedies. Dover's powders $\frac{1}{4}$ to $\frac{1}{2}$ grain every two to four hours stand first, and paregoric, minims 5 to 15, second for this purpose. We repeat that high temperature and foul stools indicating retained toxic products forbid locking up the bowels.

DIET.

The dietetic treatment of these cases is of an importance second to none. Looseness of the bowels without temperature or vomiting in an exclusively breast-fed

infant may allow of a continuance of carefully regulated nursing, but in all other cases milk, even breast milk, should be withheld until the disturbance has subsided or its simple character becomes evident. It would hardly seem necessary to specifically include whey, cream mixtures, sterilized milk, condensed milk and cereal foods containing dried milk in this ban were they not so frequently employed in such emergencies under various misapprehensions. Barley water plain or much better dextrinized, has stood the test well as a bland nourishment which taxes but little the enfeebled digestive powers. Its nutritive value is not high, but it serves the purpose.

Children seem to bear this diet with less loss of weight and prostration, if there be added to each feeding one-half to one teaspoonful of some preparation of the liquid peptonoid type. A good substitute, if dextrinized barley water is refused, is rice water. If these are both refused, I do not hesitate to use egg albumin water (white of one egg to one pint of boiled water, strained and salted), with the addition of a little brandy or the peptonoid preparations. I am aware that albumin water is not approved by some authorities, but beyond the fact that if made too concentrated it produces more odor, doubtless of proteid decomposition in the stools, I have not recognized other drawbacks. Beef juice, which as an animal proteid, should be open to similar objection, is often useful, although occasionally too laxative, which is likewise true of broths which we often have to employ, especially with older children. In addition to the fluid diet given at prescribed intervals plain water boiled and cooled should be given freely, since thirst is a common symptom, and because the maintenance of free renal secretions renders the patient less liable to kidney complications resulting from the elimination of the toxins.

To recur now to the more definite treatment of a given case, we will assume that the child receives dextrinized barley water, or a substitute, every two or three hours, according to its age. This diet should be maintained two or three or four days, or even longer, until the acute symptoms, such as fever, vomiting, frequent loose stools, etc., have subsided, and the visible improvement in the patient and a return of appetite give definite indication for a cautious return to a milk diet.

It is during this period that the anxiety and impertunity of the parents are most liable to overbear our judgment. In no class of cases is judicious starvation more important, or too early relaxation of our rules more disastrous. Breast milk may usually be resumed earlier than cows' milk, as easier of digestion, often on the second or third day, a few scattered nursings for short periods being first tried and these rapidly increased if there be no untoward symptoms. Cow's milk must be relatively longer withheld, and at the outset added to the other nourishment in small quantities, often only a teaspoonful to the usual bottle, never more than an eighth or a sixth of the whole, and the effect on the symptoms and stools carefully observed.

Experience teaches us to differentiate the gelatinous stool of barley water from one containing much mucus. It is a golden rule that appetite should always precede and exceed the amounts added. Several days should elapse of gradual increase in the strength of the food before it approximates that which the child took before the illness. It is often many days before the child can return to his old formula, and even then fat percentages frequently must be kept low lest they produce laxative effects. Some children must be kept on weak for-

mulæ until the end of the summer. In rare cases the addition of even small quantities of milk is not well borne until the cooler weather, and other forms of nourishment have to be continued in its place.

Severe and neglected cases may require stimulation in the acute period, with brandy or alcoholic solutions of peptones. Persistence of rather frequent loose or semi-solid stools, with fairly digested residue and with or without some mucus, but otherwise general improvement, if not readily overcome by the administration of opium, will often yield to 5 grains of tannalbin every four hours, or to three or four minims of dilute hydrochloric acid, combined with some digestive preparation. The routine use of some one of these digestive preparations may avoid disaster among the classes where we have reason to believe that the diet of the child will not be carefully guarded or our instructions for gradual resumption observed.

HYGIENE.

The hygienic rules which were laid down in the discussion of the topic of prophylaxis are of doubled importance in the treatment of the sick child. The patient should be bathed as often as required, not only for cleanliness, but for the reduction of fever, and for its well-recognized effects of quieting restlessness and improving cardiovascular tone. Fresh air and good ventilation should be insisted on in the sick room. In severe or desperate cases, if this is not possible indoors, the child should be kept out of doors, even at night. Trips on the water are well-recognized factors in saving life. A change from the city to country, seaside or mountain air is most salutary, provided it can be accomplished with a minimum fatigue, and for the latter reason long journeys are inadvisable.

Acute symptoms with temperature lasting over a week arouse grave suspicions of invasion and inflammation of the intestinal walls with their unfortunate sequences. Such cases pass into the class of ileo-colitis, demand special treatment by daily intestinal irrigation, and if recovery ensue, are slow in convalescing, since not the functions alone, but also the integrity of the bowel must be restored.

CHOLERA INFANTUM.

A few words should be added here concerning that really rare condition known as cholera infantum. The term has been grossly abused by application to all grades of summer diarrhea, thereby furnishing an excuse for cases lost, and enhancing the prestige of cases cured. The best clinicians of wide experience admit that they see typical cases but seldom, and it may be shrewdly suspected that modern treatment has decreased the number which present this picture.

The name should be reserved for those cases which, either at the outset or suddenly in the course of a milder attack, are seized with almost uncontrollable vomiting, hyperpyrexia, with very numerous large, almost clear watery movements, and consequent marked prostration and rapid emaciation as the fluids are drained from the tissues. It very possibly differs only in being a more intense intoxication. The most hopeful treatment is that by hypodermic injection of morphin sulphate 1/100 of a grain and atropin sulphate 1/900 grain, repeated at intervals until the profuse outpouring of serum from the intestine is checked.

CONCLUSION.

It will have been noticed that the subject has been treated in this paper without reference to special types

of bacteria causing the disturbance. Thrown into confusion by conflicting reports concerning the common occurrence of the various types of so-called Shiga bacilli, our knowledge is too chaotic to serve as a basis for classification. During the same summer of 1903, when Howland and Lafetra found Shiga types in 62 out of 64 cases of all grades of summer diarrhea from all parts of New York City, similar cases of all grades and from all parts of the city were being treated in my service at the out-patient department of the Babies' Hospital, according to the principles above outlined, with gratifying success. Although bacterial studies were not made of our cases, it is inconceivable that drawn from similar sources, they should not have shown, if examined, like findings.

Under this rational and scientific treatment, if directions are carried out, I expect recovery in all save a very few neglected or extremely marantic cases.

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DISCUSSION

ON PAPERS BY DES. KNOX, HOLT, COOK AND SOUTHWORTH.

DR. J. P. CROZER GRIFFITH, Philadelphia, believes that he has not yet proved the etiologic relationship of the Shiga bacillus to the various forms of diarrhea. This in no way detracts from the importance of the investigations. They have not yet been completed nor been carried far enough to make them conclusive. Further study is to be looked for. Dr. Griffith believes, in the early withdrawal of milk in these cases, whatever the cause of the diarrhea. Some French authorities treat their cases by the administration of water only during several days, and he has no doubt that this is preferable to the use of barley, rice or egg water, but he should hesitate to resort to it, because he does not think the average parent would be willing to carry out such instructions. We must not resort to the use of opium early nor, on the other hand, should we withhold it too long. It requires careful consideration in every case to know when to begin its use, but it is a most important and valuable drug in diarrhea.

DR. JOHN LOVETT MORSE, Boston, believes in giving an initial purgative, followed by withholding food but giving water. He has used the French water treatment for several years, and finds that the babies do better and have fewer complications if they are given as much water as they would have taken with their ordinary diet. Albumin water, barley water, etc., are but poor substitutes for milk, as regards their nutritive value. The white of one egg, for example, contains only two-thirds as many calories as one ounce of milk. The nutritive value of an ounce of albumin water, made as it usually is by mixing the white of one egg with 8 ounces of water, is, therefore, not one-tenth that of an ounce of milk. He believes that if milk is diluted to the same degree, it will usually agree with the infant as well as does albumin water. He favors the early use of milk in diarrhea, but he does not believe in withholding it so long as is often done.

DR. DAVID E. ENGLISH, Millburn, N. J., believes very strongly in the starvation treatment of diarrhea. He instructs the mothers to put an ounce of whole barley into a pint of water; this is boiled for fifteen minutes, strained through a sterile cloth and a pinch of salt added. This pleases the mother and does not harm the baby. He does not think babies are given a sufficient amount of salt.

DR. THERON W. KILMER, New York City, said that although care is usually taken as to the character of the milk or water fed to babies, it is often put into dirty and unsterilized nursing bottles. Every nursing bottle should be boiled daily for at least half an hour, and there should be as many bottles as there are feedings.

DR. R. B. GILBERT, Louisville, Ky., believes that the smallest perceptible amount of opium given in the diarrhea of infants is dangerous and injurious. If an anodyne is needed he prefers chloral hydrate. If the colon is flushed with a strong saline

solution the pain will be relieved without the use of an anodyne. He believes in the starvation, or rather the water treatment of infantile diarrhea; the use of the various diluted broths, such as barley water, amounts to little else. The water is improved, in his opinion, by aërating it.

DR. ROSA ENGELMANN, Chicago, said that physicians who work in the dispensaries and slums see other insects, such as fleas, bedbugs and cockroaches, that are not above suspicion as disseminators of disease. A possible instance of this came under observation not long ago in Chicago. In a large apartment house containing about twenty families five cases of typhoid fever were reported. The first case developed on the lower floor, and the second case on the same floor, in the apartment on the opposite side. The two families on the floor above moved away, leaving that floor vacant. In the course of a month the third case developed on the third floor, and subsequently two more cases developed on the fourth floor. The source of the infection could not be traced to the water supply (artesian), to the milk nor to the ice. It was learned, however, that this apartment house was absolutely overrun with cockroaches, contaminating the food supply. In the apartment house opposite, where there were no cockroaches, with the same water supply, no cases of typhoid fever were reported. It was unfortunate that none of the cockroaches was caught and allowed to run over a culture medium, and thus proved to be the source of the infection; since they, of all insects, are water inhabitants and consequently probable disease carriers. Investigation should be done along these lines, as has been done with fleas and bedbugs in respect to plague.

DR. WM. T. WATSON, Baltimore, said that the mothers in his practice are, most of them, very busy women, who can not afford to employ nurses. He likes to make things as easy for them as possible. He thinks that Dr. Kilmer's advice to boil nursing bottles for an hour is carrying precaution to an unnecessary extreme. Surgeons do not boil their instruments for an hour. According to Rotch, all bacteria are killed at a temperature of 154 F., and Abbott says that all pathogenic bacteria and their spores are killed by five minutes' boiling. Boiling for five minutes ought to be enough for the disinfection of bottles, which is merely surface disinfection. During the past few years Dr. Watson has been feeding an increasing number of babies on raw milk. The milk comes from the Walker-Gordon farm and is modified at home. Where the mothers are intelligent he finds no trouble to arise from feeding this milk raw. He asked Dr. Southworth if he considers this a rash practice.

DR. WILLIAM N. STOWELL, New York City, said that raw milk for infant feeding has been used at the Children's Hospital a portion of the time for the past six years. At present they are using the gravity cream from their own dairy. The milk was given raw, except in extremely hot weather, and he was surprised to see how weak children thrived on it.

DR. W. H. F. PARK, New York City, said that it has been proved that the *Bacillus dysenteriae* is the cause of infantile dysentery. He said he believed that the Shiga bacillus gives rise to typical symptoms. There are many different kinds of bacteria in the intestinal tract, and in every case of infantile diarrhea the special organism found should be clearly identified and labeled.

DR. J. H. KNOX, JR., does not think it is claimed by anyone that the *Bacillus dysenteriae* (Shiga) is the cause of every case of infantile diarrhea. The differences culturally between the so-called "acid" and "non-acid" type (to mannite) are not striking, no more so than differences known to exist between the various colon and typhoid bacilli. He said that it must be conceded that in their series the dysentery bacillus was found in the several varieties of intestinal diseases both mild and severe, called, clinically "summer diarrhea," and it is felt that it is responsible for a large number of these cases. The importance, however, of other bacteria should not be minimized. In many cases streptococci and other pathogenic organisms were present in the intestines. It may be that when there is evidence of ulceration we may often be dealing with a secondary infection

with streptococci superimposed on that by the dysentery bacillus.

DR. THOMAS S. SOUTHWORTH, replying to Dr. English, said he does not know how long a baby can live without milk or cream, but he does know that babies, depending on their age, have lived for weeks and months on food other than milk. In reply to Dr. Gilbert, he said that he has recommended the use of opium only for the control of excessive peristalsis in cases where the movements are more frequent than is necessary for a proper drainage of the bowel.

TREATMENT OF APHASIA BY TRAINING.*

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PHILADELPHIA.

As long ago as 1880 I published an account of a case of aphasia greatly benefited by training which was largely of the patient's own initiation and conducted by himself.

The patient fell in an apoplectic attack, and was taken to one of the London hospitals, where he was seen by Dr. Sieveking and Dr. Broadbent. He was a right hemiplegic and was also totally aphasic and agraphic, but appeared not to have been word deaf, as he understood what was said to him. He had lost all ideas of numbers, but was evidently not word blind, as he understood from the first what he saw in print or in script. When he read aloud he had a marked form of paraphasia, his speech being of the jargon or gibberish type. Like many such patients, he read off this jargon as if to himself he were reading correctly. He could copy, although unable to write spontaneously. After a time he improved under rest and internal remedies. He then began, partly under direction, to try to improve his powers of speech and of writing. He was a man of considerable intelligence, of fair education and of great determination.

This man came under my observation about two years after the attack which caused his aphasia and accompanying condition, having returned to this country, and he remained under my care for several years, during which time he slowly but continuously improved until he became able to communicate both in speech and in writing without difficulty. When I examined him he could understand all that was said to him. He could answer almost any ordinary question, although he occasionally mispronounced and was at a loss for a word. It was particularly difficult for him to remember the names of individuals, although he could give a connected account of his former life. Specimens of his writing, of different dates, showed progressive improvement in writing, spelling and in the formation of sentences. He could count, repeat the multiplication table and add and subtract simple sums. He could name objects pointed out to him much better than when studied by Dr. Broadbent.¹ Instead of reading gibberish he pronounced almost every word correctly, stumbling only occasionally over a large word; each word was distinctly separated from the others, but he did not hesitate.²

In connection with this early recorded case I shall refer to a case treated by me during the past year, that of a well known physician, forty-five years old, residing in one of the Western States.

In July, 1902, he had an attack of right hemiplegia with complete aphasia, first consulting me eighteen months later. The paralysis, although still marked, was much improved. No loss of sensation and no affection of the bladder or bowels were present. The face was the seat of a moderate right-sided paresis, the tongue not deviating to either side. The deep and

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Nervous and Mental Diseases, and approved for publication by the Executive Committee: Drs. Richard Dewey, F. W. Langdon and H. T. Pershing.

1. Brain, vol. 1, January, 1879.

2. Mills, C. K., Med. Bulletin, Philadelphia, May, 1880.

superficial reflexes were of the usual type found in cerebral hemiplegia, exaggerated knee jerk with front tap and ankle clonus and the Babinski response being present on the right side.

When tested with Wyllie's physiologic alphabet it was found that he could repeat the vowels *i, e, a, o,* and *u* well, having been previously trained in their pronunciation, but he could not remember them from day to day. In like manner he could repeat the consonants of the alphabet, but could not recall them spontaneously. He was partially word deaf, having regained word hearing to some extent by time and training. He could understand most familiar expressions, but if a strange or unusual word were used he did not understand it. He was also partially word blind, having re-learned to read considerably before he was seen by me. With his left hand he was able to write the words that he could read. He could not understand the meaning of such prepositions as *of, to, and for,* if pronounced or read. He could not spontaneously write these words when asked, but could copy them graphically.

In connection with a study of his reacquisitions of language, particular attention was paid to the degree in which he regained different parts of speech. It was noticeable that in his efforts to talk he chiefly used his nouns and verbs, occasionally employing a pronoun. The words which expressed the qualities of things, which join and relate things to each other and to actions, in other words, adjectives, adverbs, conjunctions and prepositions, were still almost entirely eliminated from his vocabulary. Auxiliary verbs, like *to have, and to be,* in all their modes and tenses, were apparently without any meaning to him. The word *is* or *was* occurring in the sentence seemed to worry him. In brief, this patient was a hemiplegic aphasic, the aphasia having at first been both sensory and motor and nearly complete, an appreciable degree of recovery from his word deafness, word blindness and even motor aphasia having occurred under the method of training by repetition and by efforts at spelling, reading and writing.

With the assistance of Dr. T. H. Weisenburg and of the patient's secretary, a systematic and progressive course of training was at once instituted, this being continued under my direction for several weeks, and since up to the present time on similar lines at his own home. Letters, words and the names of objects were repeated by him after others or as the result of reading, in so far as he could do this, this being simply a continuation of the methods previously employed. In the next place the physiologic alphabet of Wyllie was employed.

Since becoming acquainted with this alphabet, in every case in which I have attempted to train or to have trained an aphasic I have made use of it, varying, of course, the sentences employed in illustration. A special effort was made to test it in the present case, as the patient saw at once its value and the method of adapting it to his own case. He was able to improve his manner of using the vocabulary which he had regained by the methods of repetition, to articulate and denunciate with more clearness, that is, with greater ease to make use of the words, sentences and phrases which he had from time to time reacquired. The physiologic alphabet, however, like the method of training by mere repetition from dictation, reading or otherwise, had its limitations with him. The patient could be carried only a certain distance by these methods, which it was necessary to supplement by others. The letters, words and physiologic sounds, or many of them, often could not be recalled even after they had apparently been thoroughly acquired, one of the chief reasons for this probably being that they were remembered only as separate entities and were not recalled in their relations to other words in description, that is, in phrases and sentences. After a time a phonetic reader was used to some extent.

In this book the sounds of letters and of their combinations are taught by special associations with objects, and in sentences which advance from simple to more complex forms similar sounds are repeated in various combinations. The sound

element rather than the meaning of the sentences is made the first object in the method of instruction, although the words, phrases and sentences employed have definite meanings and are spelled in the usual manner.

Much use was made of the dictionary, chiefly by the patient's own initiative. He made considerable advance by looking up the definitions of words and when he found words and expressions in the definition which he could not comprehend, these in their turn were looked up at the appropriate place. A language primer and a grammar were next employed, the patient being instructed much as a child would be in the nature and use of the parts of speech, in the methods of conjugating verbs and of giving the cases of nouns, attention being particularly paid to the repetition of illustrations of the manner of using what was being acquired. The patient, in other words, was retaught, insofar as possible, the grammar which he had learned in childhood and which had slipped away from him as the result of the cerebral lesion.⁴

After the patient's return to his home I received from time to time communications regarding him. He steadily improved though at first his progress was comparatively slow. Three months after his return his secretary wrote as follows: "Dr. X. continues to improve right along, and as he puts it, 'slowly, slowly up hill.' He impressed on me to tell you that if he were told anything of length or importance, he missed some of it at times, but if it were written and he could see it, he understood it all. He reads his papers and magazines alone now all of the time and understands fully."

Three months later she again wrote as follows: "At the present time there is a noticeable improvement since his stay with you. I am sorry to say that for more than a month his studies were very much neglected and interrupted, but he has now settled down to work again and we can see the improvement almost daily. The woman who is teaching him is under the supervision of one of the principals in the city schools who is a relative of Dr. X. They are working along original lines, taking up what seems to be of benefit. He is using more voluntary expressions every week, and a noticeable feature just now is that when we tell him to say a certain thing, instead of repeating it verbatim, he will express the idea in his own words. He reads a great deal and plays whist and other games aside from his studies. He has just finished transacting some business for the institution, the first which he has done of any importance since his illness."

I received a letter dated May 25, 1904, from a physician associated with this patient, which is so interesting in relation to this case as well as to the general subject of the treatment of aphasics by training, that I shall reproduce it in large part. After speaking of the doctor's steady improvement under the methods suggested and also of his own devising, the letter continues:

"Following out the suggestions you gave him, as well as an unusual originality in method which he has devised for himself, I believe the improvement will continue until the doctor will not be troubled to any appreciable extent at all. In order to give you a minute understanding of his present condition, I would like to call your attention to a few things, the import of which you will understand as soon as they are mentioned. In the first place, there has never been any particular affection of the memory. He recalls readily names, places, incidents of his past experience, and at times seems unusually capable in this respect, recalling and reminding others of the family of incidents which they themselves may have forgotten entirely. The word-blindness is improved considerably and is hard to detect unless special effort is made in this direction. The word-deafness, of course, is more pronounced than the word-blindness, as was the case when you examined him. His use of words to express an idea is much more general than has been the case heretofore. He now expresses in his own words answers to questions, in the form of a sentence rather than a single word; and it is noticeable that he is able to use a dif-

4. The reader is referred for further notes on the training of this case to Dr. Weisenburg's remarks in the discussion.

ferent word to express the same idea. For instance, if we ask him, 'Do you feel cold?' he answers, 'Yes, I feel chilly.' Or, if we mention the sun's 'setting,' in answer he would say that the 'sun goes down about 7 o'clock,' or something to this effect. Formerly he used single verbs and nouns to express his ideas without putting them into the form of sentences, often leaving out the smaller words, such as the articles, 'a,' 'the' and 'and'; but he now uses these words without omission, and at times makes a sentence of considerable length. These sentences are formed of his own volition and are not simply a repetition from having some one else urge him to talk. There has been no particular difficulty in having him repeat sentences at dictation; but this feature of his case in which he originates his sentences is one of the points which shows a marked improvement, and this rapidly increasing vocabulary which he is now using is due, as I have intimated, to a natural tendency toward recovery, and the painstaking and conscientious use of a small dictionary, together with a thorough systematic schooling in the use of words by means of a blackboard, writing, speaking, etc., which we have endeavored to carry out to the fullest possible extent. It is remarkable to see the interest and enthusiasm with which the doctor himself appreciates the improvement in his condition, as well as the possibilities of the future. In carrying out the idea here referred to we have him do considerable reading aloud, afterwards repeating the sentences he has read without being allowed to see the book or the blackboard. In regard to number work and mathematics in general, it is much more difficult for the physician to make himself understood than is the case in the use of words. I would say at this point that I believe he had more of a natural talent for language than mathematics as a student, which somewhat accounts for the seeming difference between language and mathematics in his present work. It seems to be harder for him to express the numerals used in mathematics than to express the words used in speech. We also have him do a great deal of writing, urging him to write his own ideas rather than simply copy something which has been written by others. On account of the slowness with which he has to write it is hard for him to keep pace with what he is thinking about at the same time, so that here again we notice a disposition to leave out some of the words in forming his sentences. On the other hand, when he cannot immediately speak the word he has in mind, he is able to write it at once. Oftentimes when hesitating for a word, before he is willing to wait until he can express it in speech, he will spell the word on a book, or table, or any place convenient where he can make the word so that it can be read. He is being taught along the line of what is known in the schools as the 'word method,' instead of using each letter as in the older method of spelling. It is exceedingly interesting to observe the quick perception with which he grasps a new word that he has not thought of or come across before, when using this little dictionary. After this word has been brought to his attention, and especially pronounced by him and used in a sentence, that particular word is added to his vocabulary for good and he can use it in the future without any trouble. There is no doubt but that the zone affected is becoming smaller and smaller, or else that the right side of his brain is being educated to take the place to some extent of that part affected on the left. As, of course, you will readily appreciate, it is extremely difficult for me to know whether it is really a smaller portion of the zone affected which enables him to show these signs of improvement or whether it is the education of the opposite hemisphere which is taking up the function of that part of the brain affected."

In the first of these two interesting cases the methods pursued were in part the same, and in both they were much assisted by the native intelligence and the determination of the patients. In the case recorded in 1880, the patient largely followed his own methods; procedures such as naturally suggested themselves to one who has lost language and wishes to recover it. He began by the repetition of letters and words, and then by combinations of the latter. He read aloud, correcting

himself and having others correct him. He copied words, phrases and sentences, keeping samples of his writing from time to time and sometimes securing the assistance and direction of others in correcting and in proving what he had done or tried to do. The inability to name objects by sight, the so-called optic aphasia, was, as in so many cases of aphasia, one of his chief difficulties, and this he slowly corrected by repeating after others the names of objects held before him, and later by calling up the names of objects before him unassisted. This at first required much effort. Summarized then, his methods were chiefly as follows: 1. The repetition of letters, words, phrases and sentences, recognized by him in reading or repeated by him after others; 2. The repetition of the names of objects seen by him, or the naming spontaneously of such objects either seen or made known to him through his other senses, as for instance, by touching or handling; 3. Writing, either copy, from dictation or spontaneously, slowly and patiently improving himself in this respect.

The various pedagogic methods of treating aphasics can be summarized as follows:

1. The method of repetition after others which later becomes that of spontaneous recall as the patient improves; and allied or assisting methods like reading aloud, copying and writing from dictation.

2. Phonetic methods such as the method of the physiologic alphabet suggested by Wyllie and the use of phonetic readers.

3. The employment of vision to assist in the training as when the aphasic imitates the movements of articulation, enunciation and vocalization as made by others or by himself, in the latter case observing these in a mirror.

4. The re-training of the patients in the grammar of language when the aphasic is educated and when not, reorganizing so far as possible such language as he originally had.

5. Various special methods suggested by different authorities, as, for instance, that of Goldscheider of training the patient to repeat meaningless syllables.

With regard to the method of training by repetition many directions and many illustrations might be given. Those furnished by Dr. C. L. Dana⁵ in a recent publication will answer as a basis for work of this kind, and I shall therefore, as they are brief, take the liberty of citing them fully. Such methods can be varied almost indefinitely.

1. Repeat five exclamatory words, such as: Ah, Oh, or another exclamation expressing joy, anger or other emotion.

Repeat after the teacher ten single monosyllabic nouns and pronouns.

Repeat ten polysyllabic nouns.

Repeat ten verbs.

In these latter exercises, each time a noun is named, let the patient see the object, feel it, and see the written or printed name of it on a piece of paper before him, thus stimulating his visual, auditory and tactile memories at the same time, as for example: Watch; pencil; pen; cane; box; book; and so on.

2. Repeat the letters of the alphabet, these letters being held in front of him.

Repeat the letters of the alphabet after writing and looking at each one.

Repeat the figures up to ten.

Repeat while looking at the written figures in front of him. Write and repeat these figures.

3. Repeat ten simple, qualifying adjectives, such as: White;

⁵ Studies from the Department of Neurology, Publications of Cornell University Medical College, N. Y., 1904, vol. i.

black; red; smooth; soft; rough. At the same time let him see the object and color, or feel the same.

4. Later let him try to repeat sentences of three words in which the noun is joined to the adjective, using the familiar nouns and the familiar adjectives already experimented with, thus: Pencil or pen is black; box is white; book is red; and so on.

5. If the patient ever had any musical capacity, have him sit at the piano and hum the notes of the piano, going through an octave, and then let him try to hum a tune, striking a note at the same time. Finally teach him to sing the tune through and then introduce the possible words. Some patients can sing before they can talk.

6. Copy sentences made up of the words he is being taught. Let him have an ordinary copy book and have the copy at the top of the page. Let him fill a page every day, trying at the same time to pronounce the words as he writes them. Have him copy first the familiar nouns, and then the simpler verbs, then the simple adjectives; finally let him copy sentences.

Take a small vocabulary and repeat from this, not trying to enlarge too soon.

A PHYSIOLOGICAL ALPHABET

I.—VOWELS.

y—i e a o u—w

These should be pronounced in the Latin manner, as *ea, eh, oh, oo, oo;* *y* and *w* are consonants, not vowels, but, as explained in the text, they have very close relationships to the vowels, initial *y* being very closely related to *i*, and initial *w* to *u*.

II.—CONSONANTS.

Voiceless Oral Consonants. Voiced Oral Consonants. Voiced Nasal Resonants.

	P	B	M
Labials. (1st Stop Position.)	(W)	W	
Labio-Dentals.	F	V	
Linguo-Dentals.	Th ¹ S	Th ² Z	
Anterior	Sh	Zh	
Linguo-Palatals.	T (L)	D L	N
(2 Stop Position.)		R	
Posterior	K	G	Ng
Linguo-Palatals. (3rd Stop Position.)	H or Ch	Y (R)	

The voiceless *W* and the voiceless *L* have been given above within brackets, the former being now almost confined to Scotland, and the latter being peculiar to Wales. The burring or uvular *R* is also given within brackets.

7. Write the letters of the alphabet, and as he writes them, try to repeat them. Do this without a copy, if possible. Then let him write words to dictation, using the same vocabulary above referred to. Finally let him try to write short sentences to dictation, then try to read them after he has written them, with assistance at first, then without.

8. Write numbers up to twenty and say them out loud when written.

9. It would do no harm and might be of some benefit to try the effect of hypnotic suggestion in helping him to get along in these exercises.

10. The patient should allow himself to be read to for a short time twice a day, and he should also try himself to read a quarter of a page every day.

Much attention has been given by a few of the writers on the subject of aphasia and its treatment to the methods of re-education in language by phonetic meth-

ods such as the proper use of the vowel and consonant sounds and their combinations in particular ways. Undoubtedly a knowledge of the best method of producing and using special sounds and phonetic associations, will be of value in the restoration of speech lost by an adult, or even by a child, as it is in the primary education of a child. Wyllie gives a physiologic alphabet with a series of simple sentences illustrating its use, which I have reproduced.

In this physiologic alphabet the exact methods of forming and using both vowels and consonants need to be understood. A little practice, however, and the knowledge of the principles of the formation of these sounds, as described by Wyllie, will enable this to be done. He discusses at length the manner in which the consonant sounds are formed by the movements and positions of the lips, teeth and tongue. He especially considers the so-called stop positions resulting from placing the tip of the tongue at various points, as

ILLUSTRATIVE SENTENCES

I.—VOWELS.

Even ancient elves are awed over oozing.

This sentence represents only long vowels. Their short equivalents can be represented, as shown by Mr. Pitman, by attaching the letter *t* to each vowel, thus:—

ēet, it, et, at, ut, ot, oot.

II.—CONSONANTS.

Peter Brown made white wax.

Fine villages.

Thinkest thou so, zealot?

She leisurely took down nine large roses.

Can Gilbert bring Loch Hourne youths?

on the teeth, and anterior, middle and posterior locations as regards the roof of the mouth. In each of these positions certain sounds, labial, labio-dental, linguo-dental, anterior-linguo-palatal, and posterior linguo-palatal, are formed by the action of air passing through the oral cavity and outlets. Practice with the table and the illustrative sentences given in it, or with others which can easily be formed on the evident principles involved will soon familiarize one with the methods of its use even without an understanding of all the technicalities in the production of voice.

With regard to motor aphasia and the method of training by repetition and by the phonetic method, Wyllie says that it is often advantageous to have the patient repeat spoken words, and he holds that it is largely in this way that he reacquires his speech. He

believes, however, that the process can be much expedited by having the patient in the first instance master the simple letter sounds such as are explained in connection with the discussion of his physiologic alphabet.

He gives an interesting and detailed account of the treatment of a case of motor aphasia, the patient not being agraphic, in which complete recovery was obtained by the method of repetition and of training in the use of letter sounds.

A young man of twenty-five with mitral cardiac disease, had had an apoplectic attack which left him a hemiplegic and motor aphasic. He recovered the power of saying yes and no about four weeks after the attack. Two weeks later he had for the first time replied in writing to a question, using his left hand for the purpose. He continued to answer questions in writing, at first with some difficulty and awkwardly because he was not naturally left-handed. He could however, always recall the words he wished to use in writing. His hemiplegia in large part disappeared first from the leg and later from the arm.

He came under the observation of Dr. Wyllie four months after the attack causing the aphasia; at this time having a slight right-sided facial paresis and a marked paralysis in the distal portion of the right upper extremity, these being the remains of his former almost complete hemiplegia. His aphasia was still marked, almost his only utterances being yes and no. He improved, however, somewhat rapidly in acquiring single words which he often mispronounced, but what he did say whether the pronunciation was correct or not, was distinctly articulated. Tested with the physiologic alphabet he could not repeat many of the consonant sounds. He could produce the middle vowel sounds ah and oh, but had difficulty with the sounds at the ends of the list, often converting *ee* into *ch* and *oo* into *oh*. A full account is given of the consonant letter sound which he pronounced both correctly and incorrectly, showing considerable deficiency, this often being of a peculiar character. The tests were made with simple syllables containing the letter sounds. He expressed himself very much better in writing, but even in this respect showed considerable deterioration as was proved by comparing his writing before his aphasia with recent samples. He could read silently, but was easily fatigued in so doing.

This patient made an unusually rapid recovery attributed in large part by Dr. Wyllie to the use of the physiologic alphabet. As the main object of this paper is to call attention to practical methods of treating aphasics, I shall cite here from Wyllie what is said of the exact method in which he employed this alphabet:

"We did not trouble the patient with the names of the letters, but taught him from the beginning the letter sounds of the physiologic alphabet. In doing so, we adopted what may be called the 'Mother's Method.' Beginning with the labials, we taught him to say *papa, apap, appa*, thus giving him the consonant P as an initial, a terminal and a mid-letter. Then we taught him to say *baba, abab, abba*; then *mama, amam, amma*; then *wee wee*; and so on throughout the alphabet. He was shown by 'lip-reading' how to place the lips, tongue, etc., for the pronunciation of each letter-sound."

He was then supplied with primers in which to study short sentences, gradually increasing their length, and in various ways he also practised speaking. Eight months after his apoplectic seizure he was able to articulate almost anything he wished to say, but it was necessary to do this slowly and carefully. His powers of writing which were always relatively good, were restored.

At my request Dr. T. H. Weisenburg has examined the recent German literature of the subject of the training of aphasics and as a part of the discussion of this paper we shall give especially the methods of Goldscheider⁶ and of Gutzmann.

Summarized, the methods of these German neurologists are much the same as have been indicated in discussing those pursued by Wyllie and by me. They have, however, some points of special value and a few of some originality. The methods used are those of the repetition, not only of letters, words and phrases, but somewhat after the manner embodied in the physiologic alphabet of Wyllie, the repetition of sounds in particular letter or syllable associations, combining vowels, for instance, with the labials, dentals and other consonants. Tongue exercises are practiced; tones are taught; the patient is made to imitate movements of articulation and enunciation by watching the facial movements of others, and to improve himself in the same respects by observing in a looking glass his own movements and expression in articulating; the association of vocalization with reading and writing as well as with speech is practiced, in other words, the patient learns to read aloud and also to repeat what he writes; geometric forms are taught; and the aphasic writes from dictation, from copy or spontaneously; words are associated, not only with their meanings, but a suggestion is made to repeat meaningless syllables in various combinations. The association of names with concrete objects is brought about by one of the well known methods of repeating the names of objects seen, handled or recognized through any of the senses.

Gutzmann teaches that sensory aphasia is more difficult to treat than motor aphasia, a statement with which I do not entirely agree. He recommends that the speech movements should be observed and fully remembered. It is well known that the words of a singer can be told by watching his expression and the movements of his mouth. Feeling the different vocal organs as the larynx, the lips and the cheeks, while one is speaking is of value. The education of the sensory aphasic is that of a child. An object is held in front of him, the name is told, a picture is shown, and the word is pronounced, spelled and written. Sometimes when a patient is able to read the meaning of the words from a speaker's lips, he is unable to derive their meaning from the written words. In such a case a better way is to write the words while observing the lips. Gutzmann has what he calls a "phonetic picture script (alphabet)" where the letters are indicated by the pictures of the lips, cheeks and the expression of the face.

With regard to the treatment of auditory aphasia, Wyllie cites approvingly the plan used by Schmidt in an interesting case of pure auditory aphasia recorded by the latter. In this case words were deliberately spoken to the patient and she was asked also to read aloud printed words, she not being word blind. At first she repeated with difficulty. Wyllie suggests that "probably the practice was imprinting the word-images efficiently in the uneducated auditory center, and at the same time establishing connections of the requisite intimacy, between these images and those of other speech centers."

It became a matter of interest to me in observing aphasics who were striving to recover their lost powers, to note the particular parts of speech which were most obscured and most difficult to regain, and also the particular difficulties which attended their reacquirement or prevented this. A patient who has so nearly lost language that he has only one or two recurring utterances, regains by repetition, and recall, word after word, especially nouns. Later a few verbs are acquired. Adjectives, adverbs, prepositions and ar-

⁶ Goldscheider, A.: *Handbuch der physikalischen Therapie*, part 2, vol. II, Leipzig, 1902; Gutzmann, H.: *Arch. f. Psych.*, vol. xxviii.

ticles, the parts of speech whose uses are to modify, limit, or express relation are so entirely lost to the patient as to cause, more than anything else, his difficulty in language. The same remark applies to conjunctions like *and* and *but*, and with a special force to the auxiliary verbs in all their modes and tenses. The meaning and use of such words or combinations of words as, *is* and *was* and *has been* are in eclipse or lost to a varying extent. The impairment or loss of the faculty of constructing sentences, or propositionizing in language is one of the most important, if not the fundamental defect. While thought is at times expressed by a single word, the sentence is the usual unit of thought expression, and the aphasic patient, or at least some aphasic patients, find their chief difficulty in regaining those parts of speech which are concerned with qualifying and correlating. The grammar of language no longer exists for them.

Considerations of this kind led me to the use of primers and grammars in the retraining of aphasics; and these with individuals previously reasonably educated are of great value. Patients should be taught the grammar as a child is instructed, in other words, by teaching him the meaning of the different parts of speech and the exact methods of using them in phrases and sentences. The significance and value of the qualifying, relating and conjoining parts of speech should be enforced by numerous examples. When the aphasic in his efforts to repeat after another or to respond to what another asks or indicates, uses incomplete sentences, the complete sentences should be given and explained. In every possible way the manner of using adjectives, prepositions, conjunctions and auxiliaries should be impressed. The patient with the book before him should be taught to conjugate verbs, decline nouns and pronouns, compare adjectives, and in other ways to go through the routine methods of studying language employed in the schools, these being modified by the particular requirements of the case. The dictionary can often be used as a valuable adjunct to the grammar, some patients taking a particular interest not only in reacquiring words in this way, but in thus learning their meaning and their uses as parts of speech.

A few words should be said about the general management of aphasics while attempts at their re-education are being made. It should not be forgotten that, owing to the impairment of their powers of communication with their fellows, they often tend to become irritable or emotional under strain, or even at times with little or no cause, although this is by no means without exceptions, as I have seen a number of instances in which the deprivation of language has been borne with patience. The instructor should be both patient and considerate. The aphasic should not be pressed too hard in the process of re-education. If the aphasia is of comparatively recent date, not improbably some dangers may be apprehended from too insistent methods of training. The limitations of each patient should be studied, and the crippled brain should not be exhausted and irritated by too prolonged sittings. Patients suffering from word deafness who are beginning to recover their cerebral hearing are at first easily exhausted and may become discouraged in this way, and the same is true, but probably to a less extent, of cases of pure motor aphasia. If the patient is given lessons in the repetition of letters, words or sentences, in reading aloud, in writing from copy or dictation, in the physiologic alphabet, in naming ob-

jects at sight, in the study of words in a dictionary or of parts of speech in a language primer or grammar; in whatever way the training is pursued, and whatever stage it has reached, the patient's powers of endurance and of further developments should be carefully studied and should be the main guide as to each succeeding stage.

When language is reacquired by an aphasic, how is this brought about? The answer to this question is not always easy. The basis of reacquirement may differ, and for several reasons: 1, Because of the difference in the original capacity and previous education of the aphasic; 2, because of the form of the aphasia; 3, because of the degree of destruction of the centers or tracts in the zone of language.

Everyone with experience among aphasics has noticed the difference in the time and in the completeness of the recovery in cases apparently equal in the original loss. This remark applies not only to those cases in which aphasia is the only symptom, but to the more numerous classes in which hemiplegia or hemiparesis is associated with the aphasia. A man of intelligence or education, or of both, and especially if he is endowed with a strong character, will often advance with great rapidity on the road to recovery. The previous business or mode of life of the individual, in persons of equal degrees of education, may also have much influence on recovery. One needs, indeed, only to recall and compare his hospital experience with his experience in private practice to appreciate the full force of these statements. In the nervous wards of the Philadelphia Hospital, where a number of aphasics of different types are always to be found, the majority of the patients have little or no education. Among these patients recoveries from aphasia are comparatively rare and are relatively incomplete, while better cared for private patients show much greater improvement and approach more nearly to complete recoveries when properly and persistently trained.

With regard to the type of aphasia, my personal experience, like that of others, has varied. Usually cases of pure sensory aphasia make rather rapid partial recoveries, at least this is true of cases with word deafness. Where sensorimotor aphasia is present associated with hemiplegia, the recovery from the aphasia is usually partial. It would seem probable that in many cases destruction of the cerebral areas for speech is incomplete, in these cases language being partially reacquired by calling into activity the unimpaired portions of these regions. The centers in the right hemisphere have a potentiality for speech which can be developed under necessity, but it is doubtless true, as Bramwell and others have pointed out, that the ability of the right hemisphere to take on the function of speech differs greatly in different persons.

In further illustration of some of the points given with regard to the training of aphasics, I would like to call attention to two patients who have been trained under my direction, in large part by Dr. T. H. Weisenburg, and who have made great improvement under the systematic efforts employed:⁷

The patient was a young man, painter by occupation, who had no history of syphilis, but had indulged in alcohol not infrequently to excess since the age of 15. When he was admitted to my wards at the Philadelphia Hospital, Dr. Weisenburg was the interne, and took charge of his training under

7. These patients were presented at the meeting of the section and a demonstration made of their improved ability in talking, reading and writing.

my direction. So far as his speech was concerned he was a typical instance of motor aphasia. He had no spontaneous vocabulary except the words yes or no, and his name, or a part of it, usually speaking of himself by his first name only. He could repeat single words if he took his time, but was easily confused. He could not read, although he was able to do so before his illness. He answered questions fairly well by pantomime. If given a start he could count from one to eleven, but forgot easily. He could not read aloud either script or text, although he seemed to understand them by sight. He was not word deaf. When he attempted to repeat what was said to him he did much the best as regards nouns and next as to verbs, but was unable to repeat a complete sentence, even a short one, by repetition. Besides his aphasia he suffered from a typical form of Jacksonian epilepsy. The spasm always began in the right side of the face, and sometimes extended to the right arm and even to the right leg. The initial phenomenon was always facial. The spasms frequently recurred. The eye examination showed no optic neuritis.

The training was confined to the method of repeating words from dictation and by having them pointed out in reading and writing, and to the method of Wyllie's physiologic alphabet. The man made slow but continuous improvement, until he left the hospital a few months after admission. During this time also the spasms practically ceased, the last seizures occurring at intervals of several weeks. When he left the hospital he continued to carry on his re-education at home, using a primer, and with the assistance of members of his family, re-studying the meaning and pronunciation of words and combinations of words.

He gradually improved till he could communicate spontaneously with others, but in a slow and halting manner, marked by the elision of a considerable number of words from sentences. Even the most careless study of the re-acquired language showed that the words chiefly at his command were, in the first place, nouns expressing the abstract; next, those of a concrete kind; next, verbs, and perhaps next pronouns. He very seldom put a sentence together unless it was a short one.

It is now about four years since this man was first attacked with his aphasia and Jacksonian spasms. Since he has left the hospital he has not had any recurrence of the convulsions. He has been able to earn money in various employments, as by peddling.

It is not improbable that a considerable part of his improvement has resulted from the use of iodids, although the method in which the case occurred would not seem to point to gummatous meningitis, but rather to a sudden hemorrhage localized to the left subfrontal convolution chiefly, perhaps invading slightly the lower extremity of the precentral gyre.

This patient can now communicate with others in an intelligible manner, although his sentences are incomplete. He can read aloud from a primer, and even from a book or paper sentences which are not too elaborate. He has made, in short, a degree of improvement commensurate with his original capacity and education, but not nearly so great as that of the highly educated physician recorded in this paper.

The second case is of so much interest in the study of aphasia that it is worthy of publication for its own sake, as well as to emphasize what can be gained by persistent training over a short period in cases of sensory or mixed aphasia.

The patient was a hotel keeper, aged 44. He was entirely well until November, 1903, when, after worry and hurry home, he was suddenly taken with severe headache and dizziness, but did not become unconscious and had no aphasia nor other objective symptoms.

After this, once or twice weekly he experienced severe attacks of headache, and on two or three occasions be-

tween November and February had attacks with dizziness. About the middle of February he had a sudden attack, in which he first called out, "Oh, my right arm," and very soon afterward became unconscious, remaining in this state for three days, with congested face and disturbed breathing. When he regained consciousness he was totally unable to speak except in jargon fashion, and could not understand a word that was said to him for a week. He was not, however, paralyzed in arm or leg, although he had difficulty in standing and in using his right arm. He could not carry it with precision to the place intended, as for instance, to his shoulder. Surely and gradually he re-acquired, although by no means fully, the power of speaking spontaneously or in response in conversation, using less and less of the jargon.

After his attack in February he had never been able to read the newspapers or anything else, as formerly, although evidently anxious to do this, as shown by his frequent efforts. It is interesting to note that he could read every word in the books in which he kept his accounts.

In testing him for his powers of word-seeing, letter-seeing and number-seeing, it was evident that he recognized some letters and some words much better than others. This was especially true with regard to words. He could always pick out words which had evidently been unusually familiar to him before his seizure; for example, the words whisky, brandy and beer in the hospital diet list were at once recognized, although most other words he could not tell, except in a few cases with difficulty. He showed curious variations in his ability to recognize words and letters, as when, for instance, he could spell out the word head, pronouncing all the letters except the d; sometimes he recognized a word without correlating it with its meaning. He had not only a well-known form of optic aphasia, that is, inability to indicate by name the object seen, but what might have been regarded the reverse of this, the inability to translate into meaning the word which he recognized. Sometimes when asked to spell an easy word, he did so correctly, and then would not be able to find the word in a page in which it was printed, although perhaps on the same page and nearby he would recognize another word of about the same simplicity. It happened at times that he could recognize a word on a page at one minute and a little later would be totally unable to do this. He made some curious mistakes in recognizing, or failing to recognize, parts of speech, as when he picked out *an* when asked to indicate *the*, although the latter word occurred several times on the page. Looking at *an* he would spell it out as if it were *the*.

Letters in a word like words on a page or in a paragraph were sometimes correctly recognized and sometimes not. He picked out some numbers on a calendar, and when asked to indicate other numbers he sometimes became confused. In some instances he would get at the number by starting with the units or numerals before the number and working up to it, as, for instance, when asked to indicate 15, he pointed to it and said, 12, 13, 14, 15.

It was noticeable in this man's case that if he were allowed to have his own way in talking spontaneously he apparently had very little difficulty in using language; for instance, when he was asked to count out money values he took notes of different value and various coins from his pocket, counted their number and talked about them almost as anyone else would.

Word deafness was a marked feature in the history of this case. At first, from what could be learned from members of his family, this was total. He had, however, slowly regained the power of recognizing some words and later some expressions, the improvement in this respect proceeding slowly when he came under my observation. In listening to others he was aided in his understanding of what was said by watching the facial expression and movements of the lips. I made frequent tests of his word deafness and found that it was partial and seemed to vary much from time to time. Another point of great interest was the fact that his word hearing powers were soon exhausted by efforts to communi-

cate with him. He would become confused and sometimes unable to comprehend what was said to him if the conversation were continued too long. He also became extremely confused if more than one person attempted to talk to him at the same time, or if a miscellaneous conversation were going on in his presence.

The patient stated that before he had the first attack in November, his hearing was different on the two sides. He heard better with his left ear than with his right; when he was a locomotive engineer he had often noticed this. Examination of his hearing with the watch tick showed on the right aërial conduction at 7 inches, and good bone conduction; on the left hearing was acute, hearing the watch tick at 41 or 42 inches; bone conduction was also good on the left. Such deafness as he had, except that noted for the right ear, was evidently cerebral and not peripheral.

With regard to his appreciation of tones and music, his daughter said that on several occasions during the first months after the apoplectic attack when she was playing the piano her father said that all music sounded alike to him. His wife also stated that he said to her on one occasion when he heard music, "It all sounds the same to me." Lately he had not said much about recognizing music. While at my office the patient's daughter played two or three familiar tunes, which he evidently recognized, and one of which he was able to hum in unison with the piano, but he could not recall the name of the song, although he said he knew well what it was; neither could he recall the words.

Careful examination of this man for reflexes, motor paralysis and hemianopsia was negative. Sensation in all its forms was retained, as was also stereognostic perceptions; he had, however, partial tactile amnesia as well as partial optic aphasia, not being able to name objects either through touch, manipulation or sight.

In brief, this patient was originally a total aphasic, the lesion being on the sensory side of his cerebral zone of language, probably near the position where the higher visual and higher auditory centers are coterminous, that is, about the caudal extremities of the first and second temporal convolutions. His early motor aphasia was simply due to the great general disturbance of his zone of language; his amusia also probably resulted from similar disturbance or from pressure rather than from direct lesion, as he recovered from this at a comparatively early period. Word hearing, word seeing, letter seeing and number seeing were the fundamental cerebral functions lost as the result of the destructive lesion. His partial recovery up to the time he came under observation was probably due largely to the recovery of power in those parts of the left cerebral hemisphere uninjured. The right hemisphere was also probably beginning to respond to the efforts at re-education, which he had pursued in an irregular manner spontaneously and with the assistance of those around him.

During a stay of less than a month in the Hospital of the University of Pennsylvania under a course of training which included some of the features of most of the different suggestions made in this paper, he made rapid progress, gaining steadily in his ability to understand spoken words, reading and writing and to carry on both responsive and spontaneous conversation. Although a man of quick perceptions and ready wit, he was not well educated. He had, however, been a fluent talker, and was able to write with fair correctness before his attack. He lost this power entirely, but is recovering it with considerable rapidity.

The following are two samples of his writing, the first made about three months after his apoplectic attack, and the second a few days later:

"Anie you to talk to last night me vhy did anie how long at this round time you whar is Chas Frindt did he work to fesh to me yet Anie did you teel about Dutch Rimling is he drink to fr him Anie you tell that to woking to me all to mutch calt whar is mind ducks thim ded or what happened."
"1904

Pheliaphet May 16,
Emma i will com from you at the Rehrig rail rod will com from 12.20 Right dont tell about the Boyes i will sneep Back on the holl Bor i haas mie things."

It must be remembered in passing a judgment on the man's improvement, as indicated by the above specimens of his writings, that he could not read or write a word a short time, probably only about three or four weeks, before the date of the first of these productions.

DISCUSSION.

DR. T. H. WEISENBERG, Philadelphia, stated that, under the direction of Dr. Mills, he trained three of the aphasics referred to in the paper. The principle of the methods employed was essentially the same in all the cases, but there was a wide difference in their application. In the first patient, a pure motor aphasic, Wyllie's physiologic alphabet proved of the greatest value, with the additional practice in letter and word writing and reading. The patient was sufficiently instructed in a short time to be able to carry on his studies by himself. Dr. Weisenburg did not see him afterward for over two years, when he told him that he was earning his living by street peddling, and that while selling his wares he could talk with but little hesitation. He still has difficulty in talking, but in view of the fact that he could say nothing but "yes, yes" when instruction was begun, the improvement is remarkable. This patient was young, fairly intelligent, and possessed of the greatest amount of determination. This last point is a very important factor in the prognosis. Dr. Weisenburg said that the second patient referred to by Dr. Mills was a sensory motor aphasic. A highly intellectual man, imbued with the determination to speak, he spent nearly all his time in study. The training was begun by a systematic instruction in sounds, first the vowels, then the consonants; the proper positions and relations of the mouth, tongue and lips were insisted on. After this point was firmly impressed on him and mastered by him, the improvement was rapid. Newspapers were read by another person, the patient following, all misunderstood words being explained by the use of a dictionary. Writing with the left hand, playing with pictorial cards, the reading of illustrated sentences, and drawing of geometrical figures were practiced and proved to be of the greatest benefit. Grammatical constructions were taught. The improvement was rapid. The third patient was a pure sensory aphasic, with little education and with much less intelligence and determination than the preceding patient. Here the training was difficult and consisted mainly in the repetition of letters, words and sentences, and the constant rewriting of the same; nevertheless, the improvement was considerable. Dr. Weisenburg said that from the experience he has gained, especially from these cases, that the method of training will largely depend on the form of the aphasia, and that most patients will be benefited if properly instructed. The mixed form is probably the hardest type to teach, although less progress was made for the time spent on the patient with pure sensory aphasia than on the others. The following brief résumé of the methods employed in training aphasics is taken from the *Handbuch der physikalischen Therapie*, Part 2, Vol. II, Leipzig, 1902:

Goldscheider insists that in the training of aphasics the mere repetition of words is not enough and that a systematic instruction is necessary. A beginning should be made by the simplest instruction of sounds as by the letters and short syllables. Gutzmann recommends a beginning with vowels, next the explosives and then to the first articulated P. The explosives are bound with the vowels, as Pa, Po, Pe, Ba, etc. Then come the nasal consonants, N and F and W, and so on in the list of consonants.

If the patient can not repeat sounds as they are he should be instructed to watch the mouth of the speaker and to try and imitate the sound thereby. If the patient is then sufficiently instructed he should next be taught articulation. Gutzmann also thinks that the comprehension of optic perception of speech movements can be greatly benefited by the patient watching articulatory movements in the looking glass, comparing this with illustrations at hand.

Goldschelder believes that systematic tongue exercises are of benefit, as the patient learns how to control accurately tongue movements.

If the aphasic has progressed sufficiently in the repetition and understanding of simple sounds, he should learn how to repeat sounds in a systematic manner, and by himself. This should not be always according to the alphabet, but should be changed. If the intelligence and the perception of the patient is sufficient, he should next be taught the different tones.

Further on, after the patient has learned to associate vocal sounds with speech movements, he should learn how to associate these with other perceptions, as writing and reading. This should consist in the copying of words, writing by dictation, or automatically. If there is paralysis of the right hand, the left hand should be instructed. The instruction should be systematic, as letters, syllables, words, sentences, etc. If there is optic aphasia, the patient should be instructed for forms as letters, as, for instance, he should be shown a letter from the alphabet, and should be made to remember it and to be able to point it out. Geometric perception should be taught, as this will help optic perception. Matches can be taken and figures built and the patient should reproduce them, or should do so by memory.

A number of aphasics are unable to read words, though they are able to perceive the letters of the word. These should spell a word loudly and be allowed to pick words from the alphabet, and should repeat the word until known.

It is also well known that a word can be better remembered, for instance, if impressed on more than one sense. So, a word heard should be repeated, written down, spelled, and so on. A patient should never be instructed for a long period at one time, and, again, should not entirely depend on the teacher, but should learn enough to write, spell, compute and observe movements in the glass by himself.

Next, the patient should be taught to repeat and remember short words. This should be done in a systematic manner and the words impressed by reading, writing and spelling.

Finger aids optic and acoustic perception by aid of fingers. Each finger is made to signify certain words or numbers, and as each number is called the finger is projected, and so forth.

The association of words with their meaning is now the next point to be desired. This can be accomplished in various ways, notably by holding an object in front of him, telling him what it is, making him repeat the word and asking him to spell it, and to pick it out by alphabet, until it is thoroughly impressed on his memory.

It is to be remembered that in aphasics the words for abstract objects and for the pure formal speech elements are in a large measure better controlled than for concrete objects. Therefore, the teaching of this is highly important.

To instruct the tones and accents of the words is very important. This is helped by declensions and conjugations very materially. A better way is for the patient to learn certain sentences, paragraphs, sayings, and to learn to repeat them properly, and also to be able to write them and to read them loudly. Goldschelder thinks that the best way is to memorize rows of meaningless syllables, the order of these being changed from time to time. By this method the patient learns to differentiate syllables, accents and tones, and learns to remember different shades of sounds. It is well known that it is more difficult to remember meaningless words than words with meaning, and that it is harder to remember words spoken than the meaning of them. Herein lies the value of this training.

The syllables ut, re, ml, etc., are taken and arranged in rows as shown below; the combinations may be changed indefinitely:

ut	re	ut	re	ml
ut	ml	ut	ml	re
re	ut	re	ut	ml
re	ml	re	ml	ut
ml	ut	ml	ut	re
ml	re	ml	re	ut

Dr. C. W. BURR, Philadelphia, said that the first case was a patient of his before he was a patient of Dr. Mills, so that he is able to certify and to state that there has been a very great amount of improvement in his speech since he saw him at that time. Dr. Burr considers that, so far as speech is concerned, these patients are in a state of childhood, and it seems to him that the only way to teach them is to proceed as if teaching a

child. Show the object, call the object by a certain name; write down the name of the object, let the patients draw pictures of it, and they will gradually learn what the object is. Dr. Burr does not think it a good thing to make them repeat monosyllables in order to educate the auditory centers, notwithstanding that high authorities approve that method. He believes it is much better to educate them in sounds that mean something—boy, bell, book, and so on. Dr. Burr said that it is very hard for us to say how much of the improvement is due to education and how much is due to the natural course of events. In a case of syphilitic brain disease, a case of this character, from the pure use of mercury, independently of instruction, may regain largely the powers of speech and writing. Unless specific disease can be excluded, it seems to Dr. Burr possible that some of the improvement is due, not to the training, but to improvement in the specific disease.

DR. W. G. SPILLER, Philadelphia, said that there are four factors to be considered in regard to the prognosis: Age; nature of the lesion; extent of the lesion; intelligence of the patient. He has never seen an adult who was aphasic, although there might be hemiplegia on the right side, provided the hemiplegia developed very early in life. At one time he examined 30 cases of hemiplegia developing in early childhood without finding any case of aphasia accompanied by right-sided hemiplegia. In cases where the lesions are in a limited portion of the speech area, there will be improvement in the natural course of events. Traumatic lesions, Dr. Spiller says, give better results, so far as aphasia is concerned, than hemorrhage into the brain or thrombosis of blood vessels. Seven years ago Dr. Spiller examined a man with distinct motor aphasia who has now entirely recovered. The aphasia was caused by an injury received on the head. Another interesting case was that of a man who received a blow on the head and had word deafness as a result. He was found to have a large cyst in the left temporal lobe. This man, by his own efforts, recovered partially from his word deafness. In a case due to trauma the aphasia may last a short time; if due to arteriosclerosis it may be of considerable duration.

DR. JOHN PUNTON, Kansas City, Mo., agreed with Dr. Mills that if complete success is desired attention must be paid to the co-ordination of the speech. Complete success is often impossible; patients never recover completely, and Dr. Punton does not believe physicians are warranted in holding out a prognosis of complete success in that sense. It seems to him that the nature of the lesion in the case should have something to do with the prognosis, as Dr. Spiller has said. In a large number of cases there is embolism and thrombosis, and whether their presence would have anything to do in determining a second attack. It seems to him that the extreme efforts the patient would put forth in trying to accomplish his end would have a tendency to induce a second attack. That is one of the things that text-books warn against.

DR. F. W. LANGDON, Cincinnati, Ohio, stated that erroneous ideas prevail in the profession on the subject of the function of Broca's or the third frontal convolution. It is not a motor speech center, and its destruction gives rise, so far as can be seen, to no defect of motion whatever. Dr. Langdon prefers to speak of it as a language construction center, where the words are thrown together in their proper relation, but the real motor center is the lower Rolandic region, where the movements of the face, tongue, lips and so on are directed. Dr. Langdon said that he does not consider that grammar has anything to do with the acquirement or reacquirement of language by a patient with motor aphasia. The acquirement of language and grammar is purely a memory process. The child raised in refined surroundings will acquire a very different language from that of a child raised in the slums; and with a child raised in the slums the language of the slums will occasionally crop out, in spite of education and grammatical training. Language must be looked on as a matter of pure memory and arrangement, independent of grammatical relation.

DR. C. W. BURN, Philadelphia, said that he did not mean that in a man whose brain was occluded through the obstruction of an artery due to syphilitic disease iodid of potassium would dissolve that softening and create a new brain, and hence bring about restoration of function. He meant that in syphilis there may be syphilitic arthritis, not sufficient to produce softening of the brain, but quite sufficient to interfere with the function and to produce aphasia which, under the administration of mercury and iodid, certainly does clear up.

DR. W. J. HERDMAN, Ann Arbor, said that this whole matter can be summed up in the simple statement that while educational methods are the best to employ when there is any capacity left after injuries or organic disease of the different sorts, yet it is this capacity for recovery that is really the condition which determines how far the recovery will take place. There are some cases in which one would not by any process of education expect any degree of improvement. There are other cases which do possess such a capacity for improvement, and the individual will no doubt, without any very great help, show progress for the better, but it is the physician's business to employ therapeutic measures so far as they are helpful. Whether it is called a "grammatical process" or not, there is no question that the aphasic, if he retains any capacity in language, retains the vertebræ of that language, and in order to make it more ornate and intelligible he must, of course, place on the vertebræ the soft parts. Dr. Herdman does not agree with Dr. Langdon that the instruction of the aphasic must proceed along the same lines as the instruction of a child. The whole possibility of development in an aphasic depends on what remains of what actually did exist there, and in arousing this into action again. If the capacity never existed it could hardly be expected that the patient could be educated beyond the stage of his former acquirements: if the capacity does, or did exist, then the process of a systematic attempt at education is exceedingly helpful.

DR. CHRISTOPHER C. HERSMAN, Pittsburg, said that it is true that language is used in spite of grammar, and that after language has been learned it is perfected by grammar. If the patient is word blind and has to be taught words, he also needs synthetic teaching, or instruction in synthesis, building up, as well as teaching the individual words, and while teaching him the words, if the construction is also taught, more thorough advance is made than by simply teaching him the words.

DR. CHARLES K. MILLS said that the method of re-educating the aphasic is not exactly that which is applicable to children. The aphasic has both an advantage and a disadvantage as compared with the child. His advantage over the child is that his brain was thoroughly organized and in some cases thoroughly educated before the occurrence of the lesion: his disadvantage is that the child in its education started out with a potential mechanism of speech not affected by disease. Dr. Mills, of course, has taken the nature and extent of the lesion into consideration. He has seen cases of gummatous meningitis with aphasia and without other symptoms, the aphasia disappearing under the action of iodid. The first patient may have had a specific infection, but there was something more, a destructive lesion of the language center, and it is for this that he requires re-education. Dr. Mills has seen uremic aphasia and aphasia due to all sorts of affections which are remedied and do remedy themselves in time, but the remarks here apply to cases not to be restored to speech by time or medication. Dr. Mills stated that one inference drawn from part of the discussion is that these patients would get well anyhow by the progress of time in proportion to their natural, plus their acquired capacity, before the aphasia: but this is not quite true, as he knows from a long experience. He used the term grammar in a rather broad sense, in order easily to convey his idea. The patient must be restrained in the use of language as he formerly used it. There is a grammar of the slums. If a child who lives in the Bowery and uses the language of Jimmie Fadden becomes aphasic, he must regain this particular sort of language. The method

of training must not be simply a method of memory. The patient must learn again the use of prepositions, adjectives, conjunctions, and auxiliaries, of all the parts of speech that go to make up sentences, and the methods of arranging these in sentences for the expression of thought.

THE CONTROL OF INTERNAL HEMORRHAGE BY DRUGS.*

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By the term internal hemorrhage, as used in this paper, I include all forms of bleeding in which the bleeding point is not within reach of direct topical application.

It will be my purpose to set forth the general principles on which rational medical treatment is based, and not to discuss the relative merits of surgical and medical means.

In the first place, it may be stated that we have no specific remedy for the control of bleeding, and secondly that the employment of many of the drugs recommended is not based on rational grounds. As will be seen presently various agents are advised for a similar condition which act antagonistically, so that if one does good, the other must do harm.

The preference given to many remedies by clinicians is too often based on insufficient data. The action on a small series of cases of certain character may not apply to all hemorrhagic conditions, and the tendency of the bleeding to cease from nature's efforts is so important a factor that we are never sure our drugs have exercised any influence whatever.

In order to discuss intelligently the control of internal hemorrhage, I shall state the following general principles:

1. The mere onset of hemorrhage does not necessarily indicate medical treatment. The general tendency of bleeding is to cease from natural causes, and often more harm than good is done by overdrugging.

2. All patients, bleeding from whatever cause, must be kept in a state of absolute rest and quiet, bodily and mental, so far as this is possible.

3. All forms of hemorrhage may be more or less benefited by what may be termed collateral treatment. Change of bodily posture as indicated, drawing the flow away from the bleeding point as much as possible, the use of cold, heat, counter irritation, ligature of the limbs, etc.

4. The drug treatment of hemorrhage includes:

- A. First, the use of hemostatics, acting locally when this action may be secured, as in certain forms of bleeding in the gastro-intestinal tract. Second, the use of internal hemostatics.

- B. First, the use of drugs for the purpose of lowering the blood pressure, by depressing the heart or widening the blood paths. Second, the use of drugs to produce a local constriction of the vessels around the bleeding point.

In the consideration of the action of drugs on the vasomotor system we face one of the great difficulties of our problem. Vasoconstrictors to be of value must possess an affinity for the vessels around the bleeding

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point and there alone; otherwise a rise of general blood pressure will more than compensate the constricting action. The local constriction of the bleeding vessels may be brought about relatively by those vasodilators which act on the vessels of the general circulation, but do not dilate those of the bleeding area. The difficulties of the problem are obvious. Sollmann discusses briefly the selective action of dilators and constrictors, a knowledge of which is of paramount importance.

"The lungs are not much influenced by vasomotors. Hence dilatation would be indicated: Nitrites.

"The vessels leading to the brain are very subject to dilators, but not to constrictors. Neither measure would therefore be useful. If there is not naturally a showing, aconite would promise good results.

"The splanchnic area is the area most sensitive to vasomotor influence, and which reacts most promptly to either dilators or constrictors. The latter would be indicated: Strychnin or hydrastis.

"The skeletal muscles are not readily dilated nor constricted. Dilatation would be indicated: Nitrites.

"The uterus is strongly subject to constrictors. In postpartum hemorrhage, ergot; in menorrhoea, hydrastis and especially local treatment."

These general postulates urge me to controvert the internal use of all drugs producing a rise of general blood pressure, either directly as digitalis, or indirectly as the emetics, ipecac, etc., with the exceptions of ergot and hydrastis in bleeding from the uterus, and possibly in hemorrhages of the splanchnic area.

With these preliminary remarks I shall proceed to outline briefly the general action of some of the remedies advised as internal hemostatics. This will illustrate how widely at variance have been the views of clinicians as to the therapeutic indication in cases of bleeding as well as the lack of knowledge of drug action.

VEGETABLE AND MINERAL ASTRINGENTS.

Astringents of both classes have a distinct constricting action on tissues. They precipitate albumin and other proteids and are effective only when applied locally. The vegetable astringents owe their activity largely to their tannin content. Tannic acid is itself derived from the oak gall and seems to consist of an anhydrid combination of gallic acid (Cushny). The greater part of the tannic acid administered is decomposed in the intestine into gallic acid. Hamamelis, gallic and tannic acid are alone of interest to us in this group.

Despite the fact that these remedies are administered routinely for the control of internal hemorrhages there is no satisfactory evidence, whatever, that they are of any value. Tannic acid is found in the tissues in minute quantities as a gallate or tannate of soda and the traces are so minute that they can have no action.

The mineral astringents, notably the salts of lead and iron, are very commonly prescribed for their supposed internal hemostatic action. They are, however, valueless for this purpose, being absorbed in very minute quantities and having no predilection for the bleeding point. If they were capable of coagulating the blood after absorption and thus stopping hemorrhage they would certainly do so in the portal circulation and would not be carried to the bleeding point before they acted. . . . They never reach the blood except in forms in which they have no astringent nor styptic action (Cushny).

SUPRARENAL EXTRACT.

The local effect on the vessels of preparations of the suprarenal glands is most marked and they have the added value of not producing a rise of general blood pressure when locally applied. The extract has been used with satisfactory results in gastric hemorrhage and it may be injected into the uterus, rectum and bladder, but it is only useful where a local application can be made. There is no satisfactory testimony that the bleeding point can be reached through the circulation. Experimentally it has been determined that when a small amount of epinephrin is injected into the blood vessels of animals that there is a very rapid rise of blood pressure with a slow heart beat; further, it has a distinctly selective action, some of the vessels being affected very much more than others. In the organs whose flow of blood is regulated by the splanchnics the effect is most marked while the vessels of the lung and brain do not seem to be affected; those of the skin are much contracted, and those of the muscles scarcely influenced. The rise of blood pressure following the intravenous use of epinephrin (which is a very unstable product) would be a contraindication to its use in internal hemorrhage.

DIGITALIS.

Digitalis is sometimes prescribed to stop hemorrhage, but the flow of blood is increased through the contracted arteries and there is no evidence but that more harm than good would accrue from the administration of large doses of the drug.

ERGOT.

Ergot, on account of its selective action on the uterus, however uncertain the method of this action may be, has found an established place in the treatment of hemorrhage from this organ. The general action of ergot, which depends on its still doubtful complete composition, is not satisfactorily known. As a remedy in internal hemorrhage it may be said to be of doubtful value on account of its slow and lasting action. The rise of blood pressure which follows its use may or may not be general and may or may not affect the vessels of the bleeding area. If it is general, it would be harmful by more than counterbalancing the local contraction of the bleeding point and, further, if the vessels contracted did not include the bleeding area the rise of pressure would then be a counter-indication to its use. There is excellent reason for not using it in pulmonary hemorrhage, for pharmacologic studies have shown that it produces a distinct rise in blood pressure in the pulmonary artery.

OPIUM.

Opium, preferably in the form of morphin, is of great value in internal hemorrhage and this, not from any hemostatic action it possesses, or vasomotor effect, but because it allays the patient's restlessness and nervousness, thereby favoring clotting of the blood.

HYDRASTIS.

Preferably in the form of hydrastinin, has some reputation as an internal hemostatic, especially in menorrhoea. It is a distinct stimulant to the circulation, causing a prolonged rise of blood pressure and a slowing of the pulse after moderate dose. The cause of the increased tension is not settled; there is probably stimulation of the vasomotor center and the peripheral vessels

are contracted possibly by direct action on their walls. The drug might be used in hemorrhages of a slow, oozing character, but in no others.

IPECAC.

The use of emetics in hemorrhages, especially pulmonary, has not met with favor of late. Graves, Trouseau, Peter, Massina, H. Weber and others were strong advocates of the use of large doses of ipecac, it being claimed that there follows a diminution in the size and strength of the pulse, and, in addition, that the blood is expelled from the bronchi where it is likely to become the source of reinfection. The great liability of the retching to induce fresh hemorrhage is a strong contraindication to its use. In tropical dysentery the drug seems to be almost a specific; we are in doubt whether this action is due to the alkaloids or the large amount of tannin the root contains.

ACONITE.

Aconite in small doses produces a slowing of the pulse with the fall of blood pressure, and seems especially indicated in the so-called sthenic cases. Aconite slows the pulse in the same way as digitalis but does not accelerate the arterial tension as does that drug.

NITROGLYCERIN AND THE NITRITES.

This group produces a profound fall in blood pressure by the dilatation of the peripheral vessels. It is stated that the vessels of the abdominal organs and the brain are more affected than those of the extremities. This group has been recommended for pulmonary hemorrhage. It would seem, however, that the general widening of the blood paths, together with the fact that the heart beats more rapidly under the lowered pressure, would contraindicate its employment. The general widening of the blood paths will frequently increase the caliber of the vessels of the bleeding area.

THE ANTIPYRETICS.

Antipyrin, especially of this group, possesses valuable properties as a local hemostatic, and has been employed internally for its supposed general styptic action. There is no evidence, however, that it possesses such. The depressant action of these drugs on the heart, together with the sedation which they often produce, may be of slight value.

FORMALDEHYD.

As a remedy by irrigation in the necrotic forms of dysentery, weak solutions of formaldehyd have been used with success. It has also been employed in climacteric hemorrhage and in uterine hemorrhages of unknown origin, by intrauterine application of a 40 per cent. solution of formaldehyd. A few drops of a very weak solution have been recommended for internal administration in gastric hemorrhage, yet the drug is distinctly toxic and highly irritating.

STRYCHNIN.

The action of this drug in producing stimulation of the vasomotor center has caused it to be employed for abdominal hemorrhage, owing to the constriction of the arteries of the abdomen and the dilatation of the vessels of the skin. Since, however, the blood pressure is raised and the drug possesses the property of producing motor excitement, it would not seem to be indicated in hemorrhage unless the patient was in a state of absolute collapse. The heart rhythm is slower after its use owing to

the stimulation of the inhibitory center, but the rise of blood pressure would seem to more than counterbalance any good this might do.

ALCOHOL.

The use of alcohol in cases of hemorrhage is generally deprecated by recent writers. As a matter of fact, the whole problem of the action of alcohol is more or less *sub judice*. We know that in fevers it will frequently slow the heart, which action is probably brought about by lessening the cerebral excitement. This action might be of distinct use in hemorrhage. The drug in therapeutic doses produces but slight fall in blood pressure. There is some widening of the blood paths, but this is not great. Taking the evidence under consideration, the employment of alcohol in cases of severe hemorrhage (shock) may rest with the personal preference of the physician. A good deal has been said on both sides.

THE PURGATIVES.

The employment of purgatives is recommended in certain forms of bleeding, as in pulmonary and cerebral hemorrhages, as a satisfactory means of lowering the blood pressure. When the need is imminent, as in certain cases of apoplexy, venesection is preferable, and it is a mooted question whether the physical and mental strain induced by purgation in general will not more than compensate any good that may follow such treatment.

SALT SOLUTION.

Isotonic salt solutions (0.6 to 0.9 per cent.) are administered with excellent immediate results when the body has lost considerable blood or other fluid. Such solutions, by whatever route administered, are absorbed rapidly and are unirritating. The rapid improvement in the circulation which follows their employment is due to the mechanical effect of the increase of fluid, but they do not stimulate the heart directly.

CALCIUM CHLORID.

Within the past ten years calcium chlorid has gained considerable reputation as an internal hemostatic, it being claimed by Silvestri, Wright and others that its administration distinctly increases the coagulability of the blood. Wright, however, emphasizes the fact that after the dose is given in full dose for a number of days, from 30 to 60 grains, thrice daily, a reverse effect is produced. G. Gross and others have used calcium chlorid in bleeding from the uterus, administering it both internally and by vaginal douche. It is a common practice among surgeons to use it routinely for a few days prior to operation on such organs as the liver and pancreas, it being claimed that this checks the hemorrhagic tendency quite effectually. The clinical evidence of its value is far greater than the pharmacologic evidence, it being urged that the coagulability of the blood can scarcely be increased by the administration of the lime salts, since more is taken in the food than is sufficient for the organism, and the chlorid is not more easily absorbed than the combination present in the food.

GELATIN.

The Chinese and Japanese have used gelatin as a hemostatic for hundreds of years, and among western clinicians it has come into general employment since its recommendation by Dastre and Floresco in 1897. The drug may be used either by mouth or rectum, or hypodermically after thorough sterilization. It is

claimed by many to possess a coagulant action on the blood, but so eminent authority as Cushny states that there is no satisfactory evidence that the clotting is accelerated by its use.

In the articles whose authors concede the hemostatic action of gelatin there is not a satisfactory explanation for the effect. Zibell believes it to be due to the lime salt contained, .6 per cent. being found. This is a very small amount to account for such action. Edsall suggests that the increase in coagulability is brought about by the more rapid formation of fibrin ferments, owing to the destruction of the red blood corpuscles. Certain oils, notably turpentine and erigeron, while possessing no distinct hemostatic qualities, may yet act beneficially by their local constricting action in certain cases, as in intestinal hemorrhage of slow oozing character.

CONCLUSIONS.

In conclusion, it is necessary to bear in mind that the direct indications for treatment vary with the individual case. These indications include the source of the hemorrhage, the condition of the circulation and the amount of blood lost. In cases of total collapse, alcohol and strychnin would probably prove of value. Fainting from loss of blood may not in itself be an indication for medical treatment, for we know the value of this condition in inducing thrombosis.

The use of the vegetable and mineral astringents in those cases in which the bleeding point can not be reached directly, is highly illogical. The same is true of the use of the mineral acids. Aconite approaches the action of this group on the circulation, without the untoward local effects.

Ergot seems distinctively harmful in pulmonary hemorrhage, and from its action can scarcely prove of any value in other than uterine bleeding.

Hydrastis has some value in similar conditions. The susceptibility of the splanchnic area to vasomotor influence might be utilized by administering hydrastis and strychnin in bleeding of this region.

I have never seen noteworthy or conclusive results follow the employment of gelatin or calcium chlorid. Normal salt solution is undoubtedly a valuable agent, and immediate response often follows its use. I have had poor success with suprarenal extract administered for its internal hemostatic effect and believe that the indications for its employment are distinctly local.

There is great reliance to be placed on rest and quiet for the patient who is bleeding, and often this will suffice. Collateral measures, ligation of the limbs, change of posture, etc., are of great service. Next in importance I should place morphin to induce quiet. In those patients whose circulation is powerful, aconite is of unquestioned value. In gastric hemorrhage, there is a great tendency to employ the astringents. It is well to mention the impossibility of their reaching the bleeding point, the stomach being filled with blood and often with partly digested food. Suprarenal extract, while at times serviceable in such conditions, may fail for the same reason. Many of the drugs advised are nauseous and should be especially avoided; emetics or drugs disturbing the stomach are only likely to cause increased bleeding, owing to the physical strain of the emesis.

This very brief and incomplete review has been presented to emphasize the fact that we have not at hand a single internal hemostatic, the value of which is generally conceded; to show further that many of the

agents employed do far more harm than good; that many are positively dangerous, and that a careful study of the individual case will generally show that very little drug treatment is indicated or can in any way do good. The physician is not certain in a particular case whether he has in any way aided nature in her efforts to check the bleeding.

The claims made for suprarenal extract, gelatin and calcium chlorid have not, in my experience, been borne out by fact.

DISCUSSION.

DR. WILLIAM J. ROBINSON, New York City, agreed with Dr. Coley that opium or morphin is of great practical value in internal hemorrhage, especially combined with a little atropin. He considers ergot unsuitable in hemorrhages from the lungs because it causes a rise in pressure in the pulmonary circulation. In gastric hemorrhage good results may be obtained from large doses of bismuth subnitrate, half an ounce at a dose. The patient should be kept in a reclining position and the stomach kept at rest. Aromatic sulphuric acid as an astringent is not safe in pulmonary hemorrhage, nor in gastric hemorrhage. In some cases of epistaxis that show great resistance to treatment, the bleeding will stop after the application of peroxid of hydrogen. Applications of fluid extract of hamamelis generally will control hemorrhage. Two hundred c.c. of gelatin injected into the back stopped a pulmonary hemorrhage which had resisted all other treatment. The patient died a few hours later and the pulmonary cavity was found filled with a large recent clot, showing the effects of the remedy. A number of cases are on record in which the use of gelatin was followed by recovery. One case of hemophilia was cured by gelatin, the treatment extending over six months. Dr. Robinson called attention to the great value of veratrum viride in hemorrhages; it does not act as an astringent; it lessens the peripheral resistance and lowers the pressure in the area around the point of hemorrhage.

DR. WILLIAM F. WAUGH, Chicago, suggested the use of atropin in addition to other therapeutic agents, as by its means the blood is directed to the peripheral vessels and can not flow from the wound at the same time. The life of a boy, with a pistol wound and apparently dying of hemorrhage, was saved by giving nitroglycerin to attract the blood to the capillaries, and atropin was given to keep it there. This was all that was needed. The action of hydrastinin is so slow as to exclude its use in all hemorrhages except those due to capillary oozing; it is not to be relied on in sudden uterine hemorrhage.

DR. W. C. ABBOTT, Chicago, emphasized the value of morphin, especially when combined with a little atropin, in pulmonary hemorrhage. Atropin relieves pressure and the morphin relieves the irritation in the respiratory organs, and quiets the patient. Therefore, the dose of morphin should be very small and that of atropin relatively large in order to produce the best effect. It is probably the fact that the arterioles around the area of hemorrhage are contracted by the effort of Nature to stop the hemorrhage. There is also a mental unrest and fear of bleeding to death, which by suggestion increases the condition. The morphin, therefore, aids the atropin in drawing the blood away from the part. The combination has no hemostatic action in typhoid fever.

DR. HORATIO C. WOOD, JR., Philadelphia, said that in a case of external or of internal hemorrhage the object of treatment is to permanently close the bleeding points with a clot. Therefore, any drug which causes increase of blood pressure does harm. The only reason that more patients are not killed by ergot is because it is used in too small doses. Atropin is equally with ergot contraindicated in hemorrhage; it elevates internal pressure more even than does ergot. Nature stops hemorrhage by lowering blood pressure until the blood has had time to clot. For this reason aconite in small doses may be useful. Stimulants may be of value, not, however, to check the bleeding, but to sustain the heart. Dr. Wood believes that

gelatin is of great value in increasing the coagulability of the blood, and pointed out that all the colloid substances possess this property. One reason why gelatin sometimes fails is because it is not used properly. In a Philadelphia hospital, a patient with typhoid fever had hemorrhage from the bowels. One-half an ounce of gelatin was ordered given every hour until relieved. The next day the same hemorrhage was going on, and it was found that a tablespoonful of ordinary prepared gelatin had been given, which contains about 3 per cent. of gelatin. Half an ounce of the dry gelatin must be given in order to have any effect.

DR. HENRY W. COOK, Richmond, Va., emphasized the danger of giving stimulants to persons with hemorrhage. A patient who was very badly injured and in shock from hemorrhage was given adrenalin, which caused a rise of blood pressure, but disturbed the clot; bleeding returned and he bled to death in ten minutes. Vasodilators may push the patient over the border line and cause death. Tentative treatment until the patient is over the danger point is the best treatment.

DR. W. B. ROBINSON agreed as to the value of gelatin in increasing the coagulability of the blood. When administered to a dog, the blood drawn will coagulate in ten minutes, while the blood from another dog, without gelatin, requires half an hour. It should be remembered, however, that the gelatin should not be cooked when given for this purpose, as by cooking it is converted into a different substance.

DR. ABBOTT disagreed with Dr. Wood, who said that atropin is not a remedy to give in internal hemorrhage. Dr. Abbott said that his views were derived from experience at the bedside. The increase of pressure at the point of hemorrhage will be overcome, if there is dilatation elsewhere, by the use of atropin.

DR. C. E. DE M. SAJOUS, Philadelphia, asked if some of the authorities quoted do not state that the action of the atropin is exercised on the arterioles. He said that this would sustain the contention of Dr. Abbott. One would have, in that case, to recognize the fact that the arteries are supplied with a muscular coat while the capillaries are not, and that the bleeding area could thus be deprived of blood and the hemorrhage arrested merely through contraction of the arterioles.

DR. HORATIO WOOD, JR., replying to questions, stated that the effect of atropin is demonstrable by placing a canula in a dog's artery. After giving atropin the blood pressure goes up, because the small arteries in the interior of the body are contracted. Atropin acts particularly on the arteries and very little on the veins; but the great danger is from arterial hemorrhage. Too small doses have no effect.

DR. ABBOTT said that while Dr. Wood gives atropin and gets internal rise of blood pressure, he claims that vasomotor influence sends the blood to the periphery and equalizes the circulation throughout the body.

DR. O. T. OSBORNE, New Haven, Conn., declared that one of the greatest dangers in internal hemorrhage is the contraction of the peripheral vessels, due to the fear of death. Atropin and morphin will produce peripheral flushing and will always help these cases.

DR. T. L. COLEY said that while morphin has no specific action in cases of internal hemorrhage, it allays the patient's restlessness, thus inducing conditions favorable to clotting. The use of bismuth in gastric hemorrhage is open to the same objection as the preparations of iron. In the presence of masses of food particles and blood clots the astringent action would, in the average case, be valueless and the mechanical effect slight. Washing out of the stomach in cases of gastric hemorrhage to remove the offending material is a step too fraught with danger to be employed with safety. The use of atropin seems to Dr. Coley to be contraindicated from its physiologic action—the rise of blood pressure which follows its administration. Clinical evidence is extremely unreliable in estimating the value of any treatment for hemorrhage. It is very difficult to calculate the extent of internal bleeding or the effect of a given drug. In a case of intestinal hemorrhage in typhoid fever several drugs may have been employed and we do not

know which of these, if any, has produced a favorable effect. The spontaneous effort of Nature must not be overlooked. A second patient may recover from severe intestinal hemorrhage without having received any drug treatment whatever.

A STUDY OF APOCYNUM CANNABINUM.*

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Demonstrator of Pharmacodynamics at the University of Pennsylvania.

PHILADELPHIA.

(Done Under a Grant from the National Academy of Sciences.)

Apocynum cannabinum, commonly known as Canadian hemp, has long been used by certain Indian tribes in the treatment of dropsies and as an antidote to snake-bite. The credit of being the first to call the attention of the medical profession to the value of this remedy appears to be due to M. L. Knapp who, in 1826, ascribed to it great value as a diuretic. In 1833 Griscom published the records of a number of cases of anasarca in which the drug had been used with marked benefit. Despite, however, several clinical reports confirming its utility, the remedy appears to have passed into comparative desuetude for a number of years, until in 1898 Dabney contributed a paper reviewing what was known of its physiologic action and describing a number of cases of various conditions of circulatory weakness from valvular lesions of the heart and of edema dependent on disease of the kidneys, which were benefited by the use of Canadian hemp. The evidence gathered from a review of the not very extensive literature on this drug, as well as from my own experiments, indicate very clearly that in *Apocynum cannabinum* we have a remedy of marked value, but which has not achieved such a prominent place among the practical therapeutic agents as it apparently deserves. It is strange how slowly the profession adopts new drugs, the evidence of whose value rests on the observations of experienced clinicians and scientific investigators, when compared with the avidity with which is taken up the products of interested pharmaceutical manufacturers, whose greatest recommendation rests on highly laudatory and widely distributed advertisements. The clinical evidence of the value of *Apocynum cannabinum* and the comparative poverty of studies of its physiologic action have made it appear worth while to study more exhaustively the effect of this substance on the animal organism, and especially on the circulation.

There are several representatives of the genus *Apocynum* indigenous to this country. It would seem, however, from the work of Griscom and Dabney that of this genus only the species of *Apocynum cannabinum* is of value in the treatment of dropsy, although some authorities ascribe similar virtues to *Apocynum androsaemifolium*. My experiments have been made with the fluid extract of *Apocynum cannabinum*.

CIRCULATION.

The changes in the circulation following the intravenous injection of moderate doses of fluid extract of apocynum consist in a marked slowing of the pulse accompanied with a rise of blood pressure. (Tables 1 and 2.) After large doses the pulse becomes exceedingly rapid, the pressure ascending as the result of the increased pulse rate still higher. (Tables 1 and 3.) There was no secondary depression of the circulation:

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Sells-Cohen and O. T. Osborne.

in those cases in which sufficient quantity was given to cause death the heart ceased with great suddenness. (Tables 4 and 5.)

After death the heart was always found in complete diastole. In one or two experiments mechanical irritation of the heart caused a few feeble contractions, but in the majority of the experiments in response to such irritation it passed into a state of fibrillary contraction. In one experiment in which the heart was exposed before the drug was given and directly observed under large doses, it passed into fibrillation directly on cessation of its beats without any stimulation.

TABLE 1.—(Weight of dog 10.6 kilo.)

Min. and sec.	Pressure.	Pulse in 10 secs.	
0:00	138	17	
1:00	145	9	1 c.c. inj. at 0:5. Not breath'g.
2:00	220	38	Heart stopped suddenly 1 min. later.

TABLE 2.—(Weight of dog 9.5.)

Min. and sec.	Pressure.	Pulse in 10 secs.	Resp.
0:00	100	17	33
1:45	116	11	42
3:30	155	19	11

At 0:5 inj. 0.25 c.c.
At 2 inj. 0.5 c.c.
Resp. dec., pulse irreg.

TABLE 3.—(Weight of dog 6.05.)

Min. and sec.	Pressure.	Pulse in 10 secs.	Resp.
0:00	120	30	12
1:30			Left vagus cut.
2:00	163	20	Inject. 1 c.c.
2:40			Inject. 1 c.c.
3:00	182	36	Resp. almost impercept.

Stimulation of peripheral end of vagus had no effect on pulse or blood pressure, but respiration became very deep.

TABLE 4.—(Weight of dog 16.6.)

Min. and sec.	Pressure.	Pulse in 10 secs.	
0:00	36	19	
1:30	67	10	An attempt was made to cut the cord, but postmortem showed it uninjured.
2:40	98	8	1 c.c. at 0:50.
3:10	154	10	Left vagus cut.
3:40	200	28	Right vagus cut at 3:20.

Later, 2.5 c.c. caused death. (Fig. 4.)

TABLE 5.—(Weight of dog 8.3.)

Min. and sec.	Pressure.	Pulse in 10 secs.	
0:00	135	31	
2:00	47	25	Both vagi have been divided.
2:30	31	23	Spinal cord has been cut.
3:00	54	23	Strongly irritate vagus for 20".
4:00	37	24	50" asphyxia.
5:00	4	24	
6:40	190	27	0.5 cm. fl. ext. of apocynum.
7:00	157	26	Inject. 5:10.
8:10	142	33	Begin asphyxia.
			End asphyxia.

Dog killed by 1.25 cm. (Fig. 5.)

TABLE 6.—(Weight of dog 5 kilos.)

Min. and sec.	Pressure.	Pulse in 10 secs.	
0:00	143	25	
1:30	119	22	Both vagi cut.
1:40			Cord cut.
2:30	72	19	Begin asphyxia.
4:30	55	23	End. Asphyxia.
4:55	58	25	
4:55	58	23	20" Irritation of central end of vagus.
5:10			Inj. 0.25 c.c. fl. ext.
7:10	175	22	

Asphyxia causes progressive fall of pressure till death. Traube waves. Postmortem showed cord almost but not completely cut.

The slowing of the heart was immediately abolished by division of the pneumogastric nerve (Tables 5 and 8), and did not occur if the vagi had been cut before the drug was administered. (Table 6.) It is, therefore, due to stimulation of the inhibitory centers.

The inhibitory stimulation is so marked that it interferes or may mask the stimulant influence of the drug. Thus, in Table 1, the blood pressure arose only from 138 to 145 mm., while in Table 7 the pressure arose as the result of the first injection from 77 mm. to only 117, and a second injection caused even a fall of

the blood pressure. It is noteworthy that in both of these experiments the rate of the heart was extraordinarily slow, in Table 7 being reduced from the rate of 192 a minute to 24 a minute. That the failure of the pressure to rise under these circumstances depended on the slowing of the pulse is shown by the fact that after the disappearance of the inhibitory stimulation the pressure primarily ascends. Thus, in Experiment 7, as the result of the division of the pneumogastric nerves, the pulse rate rose from 24 to 180 a minute, and the pressure in the arteries was more than doubled, rising from 84 to 188 mm. (Fig. 1.)

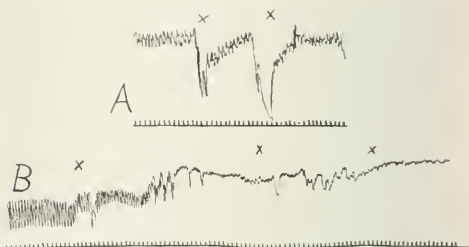


Fig. 1.—A. Before administration of apocynum. B. After administration of apocynum, showing the changes produced in the circulation by apocynum, namely, rise of pressure, slowing of pulse and later increase in pulse rate and the late paralysis of the cardio-inhibitory mechanism. X. Stimulation of vagus.

The rise in the pressure in Table 1 can, I think, also be justly attributed to the increase in the pulse rate, evidently brought about by secondary paralyzant effect of the drug on the pneumogastric nerve, and not to the asphyxia. Immediately before the rise an attempt was made to practice artificial respiration by manual compression of the chest. Of course, this method does not guarantee that the animal was receiving enough air to prevent asphyxial stimulation of the vasomotor cen-



Fig. 2.—Showing the sudden cessation of the heart in fatal apocynum poisoning. The movements on the fall of the needle are due to respiratory efforts and are not pulse waves.

ters; nevertheless, the rise of the pressure and the time of its occurrence indicate clearly that it depended on the increased rate of the pulse.

The secondary increase in the rate of the pulse is probably due to a late paralysis of the peripheral terminations of the pneumogastric nerve, since electrical irritation of this nerve had no effect on the pulse rate. (Table 3.)

The rise of the pressure is not dependent on any changes in the respiration or motor excitement as it

occurred equally as marked in thoroughly curarized animals as in the normal dog. (Table 8.) According to Dotschewski,¹ the rise of pressure depends on a stimulation of the vasomotor centers in the medulla and spinal cord.

TABLE 7.—(Weight of dog 7.7.)

M'n. and sec.	Pressure.	Pulse in 10 secs.	
0:00	85	33	Spinal cord has been cut. Asphyxia.
0:10-2:30			
2:40	69	22	
8:10	77	33	
8:10			Inj. 1 c.c. fl. ext. apocynum.
11:10	117	16	Inject. 1 c.c. at 11:15.
15:10	84	4	
15:20	188	30	Cut vagi.

Postmortem showed the spinal cord had been cut between the second and third cervical vertebrae. The cord was entirely severed save for a small amount on the anterior aspect. Both the lateral tracks seemed to be completely divided as well as all the posterior columns. (Fig. 5.)

TABLE 8.—Weight of dog 10.4 k. Curarized.)

Min. and sec.	Pressure.	Pulse in 10 secs.	
0:00	88	25	At 0:5-0:30 inj. 0.03 gm. Curare.
2:50	73	35	Artificial respiration.
3:00			Inject. 0.01 gm. apocynin.
3:50			Inject. 0.02 gm. apocynin.
11:00	77	29	Manometer tube slipped.
12:30	88	30	0.07 gm. has been injected.
14:30	91	30	At 14" inj. 0.07 gm.
17:30	81	28	
18:00	43		17:50 inj. 0.07 gm.
18:30	97	25	0.04 gm. inj. no marked effect.
20:30	92	29	20:35 inj. ¼ c.c. fl. ext. apocynum and 21:30 1.25 c.c. mere fluid extract.
21:10	142	15	
22:10	184	36	
23:10			Heart stopped suddenly.

Apocynin 1 per cent. solution in dilute sodium carbonate. (Fig. 6.)

My own results lead me to contrary conclusions, because I have found that after section of the spinal cord the elevation of the blood pressure is equally as marked, if not more pronounced, than in the normal animal. Thus in the experiment No. 5, in which the normal pressure was 135, but fell to 47, after division of the spinal cord, under the influence of apocynum the pressure arose to 197. That the cord was completely divided was verified both by postmortem examination and by the fact that neither irritation of the central end of the vagus nor asphyxia caused any elevation of the blood pressure. In the experiment No. 7 the result of the injection was the same. In this experiment, although after postmortem a small portion of the anterior part of the spinal cord was found not completely divided, the fact that neither irritation of the vagus nor asphyxia caused any rise in the pressure, shows that the vasomotor fibers had been completely divided. When we compare the effects of apocynum in the normal animal and after section of the spinal cord, it is seen that in the latter case the pressure arose not only a greater number of millimeters, but reached a point as far above the normal pressure as in the uninjured dog. Thus the average of rise in Tables 1, 2 and 3 in which the cord was not divided is 66.3 mm. above the normal, while the average in 5, 6 and 7 in which the cord was divided was 65.6 mm. higher than the pressure before the section of the spinal cord. It is evident, therefore, that destruction, at least of the medullary vasomotor centers, has no influence on the stimulant effect of the drug on the circulation. That the drug has a stimulant influence on the cardiac muscle, is evident from the

Min. and sec.	Press.	Pulse.	Kidney.
0:00	125	20	4.3
1:00	125	20	4.2
1:30	122	19	4.2
2:30	120	25	4.1
3:00	140	22	4.0
3:20	140	21	3.6
4:20	140	19	2.7
5:20	140	13	2.5
6:30	138	22	2.2
7:20	141	20	1.5
8:20	150	27	0.5
9:20	150	27	0.4
11:30	147	42	1.0

TABLE 9.—(Weight of dog 15 kilos.)

2:35 inj. 1½ c.c.

Inj. 1 c.c. at 6:50.

Min. and sec.	Press.	Pulse.	Kidney.	Dec. S. wt. of dog 17 k.
0:00	155	22	2.1	
1:10	155	25	1.6	
6:00	158	24	2.0	
6:40	180	20	2.1	6.20 inj. 1½ c.c.
6:55	170	17	1.5	
7:10	168	18	1.1	
7:30	174	16	0.9	
7:45	180	13	0.8	
8:00	200	10	1.0	
8:40	260	33	1.7	
9:00	290	40	1.9	
9:30	260	40	1.7	
10:20	46	..	2.2	Heart has stopped.

These figures refer to c.c. of fluid in the registering tube. The fall, for example, in Table No. 9, from 4.3 to 0.4 means that the kidney has diminished in volume to an extent of 3.9 cubic centimeters.



Fig. 3.—Crystalline body separated from apocynum cannabinum.

character of the pulse wave, and also from the fact that the frog's heart was arrested in systole.

It seems extremely improbable that any stimulation of the heart could be sufficient to explain such an enormous rise amounting to 156 mm. in one experiment (Table 5) as was obtained in these experiments if the blood vessels were relaxed, as, of course, they normally are after division of the spinal cord. Of course, these experiments do not prove that the drug has no influence on the vasomotor centers located lower down in the spinal cord, but these centers are so comparatively feeble that it seems unlikely that they play any great rôle in the marked elevation of the arterial pressure, especially in view of the fact that they did not respond to the stimulation of carbonic acid. It would, therefore, seem probable from these results that the rise of pressure depends on a simultaneous stimulation of the heart and of the muscular coats of the arteries.

My belief that there is a constriction of the vessels as well as a stimulation of the heart is further borne out by experiments made on the volume of the kidney. For this purpose I employed the well-known ocometer of Roy. With this method I obtained constantly a

1. I have not had access to the original paper by Dotschewski, which was published in the Russian periodical *Tratch*. In the abstract I have quoted from there were no details of the experiments by which he reached his conclusions. It is impossible therefore to explain the contradiction between his results and my own. Incidentally it may be mentioned that in all other points our conclusions are in accord.

diminution in the volume of the kidney betokening a corresponding lessening in the caliber of the renal capillaries. (Tables 9 and 10.)

If given in sufficient quantity, apocynum produces in the frog complete paralysis. Its action, however, on the nervous system is quite subsidiary to its effect on the circulation, for I found that after a dose sufficient to cause arrest of the heart, there was still a certain amount of voluntary and reflex power, and the motor nerve responded normally to electrical irritation for two hours after the heart had stopped beating.

ACTIVE PRINCIPLE.

In 1883 Schmiedeberg isolated two substances from *Apocynum cannabinum*, which he believed to be the active principles. Of these one was a glucosid, to which he gave the name of apocynin, the other he obtained as an amorphous substance, the chemical character of which he did not determine, and to which he gave the name of apocynin. I was kindly furnished by Merck & Co. with a substance labeled "apocynin," which, however, I found to be almost inert. It produces none of the characteristic changes in the blood pressure produced by the crude drug (Table 8), but when given in large quantities acted as a circulatory depressant. As Schmiedeberg did not give in detail the method he employed for isolating these principles, I was unable to make them for myself, and although I have applied to Merck & Co. for the glucosid, I have not received it.

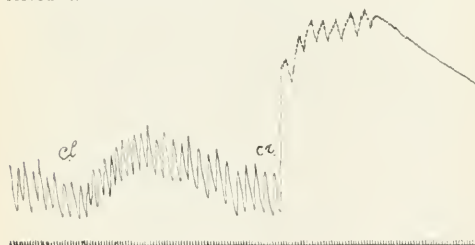


Fig. 4.—c. l. Cut left vagus. c. r. cut right vagus.

Under these circumstances it seemed to me advisable to make an independent attempt to isolate the active principle for myself. This portion of the investigation was carried out in the chemical laboratory of Professor Marshall, to whom I desire to express my thanks for constant advice and assistance in the investigation. After trials with a large number of extracting substances, I finally obtained by extraction with benzole a crystalline body, contaminated, however, with a large amount of yellow resin-like material. Physiologic tests of these impure crystals showing they were active, I attempted to obtain them in a purer form. To accomplish this end, I first tried washing the mass with a large number of solvents, but the result from this procedure was negative, the crystals being soluble in all these solvents which took up the resin. Finally, by dissolving the mass with hot water and then allowing it to cool, the crystals separated out in a comparatively pure condition. After repeating this process several times I obtained crystals which, although not absolutely clean, were very nearly so. These crystals when tested physiologically arrested the frog heart in systole; a dose of 2 mg. per kilo in a dog produced distinct elevation of the blood pressure with slowing of the pulse; a dose of 1 cg. was sufficient to cause death

in a dog weighing 4.2 kilo with the characteristic and sudden arrest of the heart. (Fig. 3.)

These crystals were soluble in ether, chloroform, alcohol, acetone, benzol and hot water, and were insoluble in cold water, petroleum ether and carbon bisulphid; their melting point was 112 C. On making comparative tests with Merck's apocynin I found it had the same solubilities and had a melting point of 113 C. I am inclined to believe, therefore, that the crystals which separated are identical with Merck's apocynin, the slight difference in the melting point being explained by the contamination which was present in my crystals.

In view of the fact that Merck's apocynin was inactive, I am inclined to believe that the activity of the crystals I separated was due to the adherence of the active principle which I regarded at first in the light

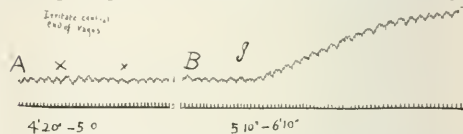


Fig. 5.—Both pneumogastrics and the spinal cord are cut. A. Before injection. The failure of irritation of the vagus to produce rise of blood pressure shows complete destruction of cord. B. Shows the rise of blood pressure under apocynum, also that the drug does not slow the pulse after section of the vagi. X. Irritation of vagus. 1. Injection of apocynum.

of a contamination. In support of this view are the following facts:

From 259 c.c. of the fluid extract I obtained 0.6 gm. of impure crystals, that is about 2.3 milligrams from 1 c.c. The dose of the fluid extract required to kill a dog is about 0.1 c.c. per kilo of body weight; if the activity of the plant depended on the crystals it would, therefore, require about 0.2 milligram per kilo to kill, but I found by experiment that with the impure crystals it required approximately ten times this amount. Moreover, the more I purified them the feebler did they become, so that with the purest crystals 43 milligrams

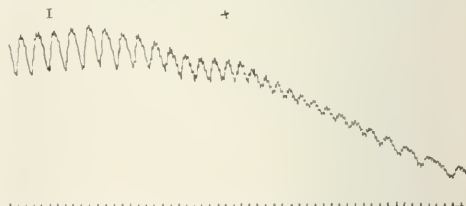


Fig. 6.—Showing the fall of blood pressure under large doses of apocynin; smaller amounts had no effect at all. I. Injected apocynin. X. Stimulation of vagi.

failed to kill a dog weighing 9 kilos, although it did cause a marked slowing of the pulse. Beside this, the original residue left after thorough extraction with a number of agents did not seem to be much diminished in its power, and the material which was separated during the course of the purification of the crystals and which I had regarded as an impurity was physiologically active.

The separation of the active principle from the residue left after extraction with benzol has been a difficult problem which I have not yet succeeded in solving. I have attempted to obtain the active substance of apocynum with a number of methods which have yielded me more or less concentrated preparations of

the active principle, but I have not yet succeeded in obtaining it in a pure form.

The addition of basic lead acetate produced a copious precipitate, but the active substance was not thrown down, passing over into the filtrate. After freeing the latter from lead by passing through hydrogen sulphid, and evaporating the resultant filtrate there was left behind a mass of thick syrupy consistence, which evidently was largely glucose, since it reduced Fehling's solutions and was also fermentable. In order to get rid of this sugar I took the filtrate resulting from the first precipitation from lead acetate, which still contained an excess of this reagent, and added ammonium hydroxid, with the hope that a portion at least of the glucose might be precipitated as a lead saccharate. Even by this means, however, I failed to get rid of all the glucose, so that I still had left behind a substance which could not be evaporated to dryness. This residue was extracted successively with ether, chloroform, benzol, acetone, amyl alcohol and petroleum ether without yielding any results.

Although I have not succeeded in obtaining the active principle in the pure form, I am, nevertheless, strongly inclined to believe that it is in the nature of a glucosid. This view is supported in the first place by physiologic evidence that all cardiac poisons which resemble digitalis in their action which have as yet been isolated have been glucosids. More important than this, however, is the following chemical evidence: I took 5 c.c. of the fluid extract, which had been freed from resin by precipitation with water, and evaporated off the alcohol, added to it some dilute hydrochloric acid and boiled fifteen minutes. The resulting fluid was neutralized with sodium carbonate and injected into the vein of a dog, with the result that there was neither elevation of the blood pressure nor slowing of the pulse.

DISCUSSION.

DR. CLEMENT B. LOWE, Philadelphia, stated that there is some uncertainty, when apocynum is spoken of, whether we are dealing with *Apocynum cannabinum* or *Apocynum androsaemifolium*, dog's bane. He went to a large drug house for some cannabinum, and found that it was androsaemifolium. He returned it and was told that they always supplied that preparation when apocynum was ordered. Dr. Lowe said that he is afraid, therefore, that Dr. Wood has been working with androsaemifolium. The two are very much alike, but differ microscopically in the arrangement of some of the bark cells, which in dog's bane are thick-walled and arranged in groups in a circle near the middle of the bark. It also responds differently to the phloroglucin test. To distinguish them is also more difficult because of the tendency of dog's bane and Canadian hemp to hybridize. A few years ago, when Dr. Lowe was out botanizing, he came across a plant that he could not understand; on studying it he found that it was a hybrid of these two species. The value of a bitter principle is that it causes an increased flow of gastric juice, just as it increases the saliva. Its bitterness is the important feature, and it is lost when disguised. If patients complain that it is bitter, tell them that is why it is given, and that the effect of the bitter can not be obtained without giving a bitter drug.

PROF. C. S. N. HALLBERG, Chicago, called attention to the fact that the alcoholic concentration has been on the market for twenty or thirty years. This preparation of *Apocynum cannabinum* is called "apocynin," and is prepared by precipitating a concentrated alcoholic tincture of the drug in water, following the usual eclectic method and nomenclature. It would be well to remember the fact that if any physician should prescribe apocynin he would probably get, in the vast majority of instances, the eclectic resinoid, instead of the glucosid recommended by Dr. Wood.

PROF. JOSEPH P. REMINGTON, Philadelphia, said that we are all very apt to believe that the active principles of the various drugs are either alkaloids or glucosids of a crystallizable character. We have been led to this idea from the fact that morphin, strychnin, codein and many others are crystalline. In a great many instances the active principles are not crystallizable. For instance, in cubeb and pepper oleoresins are the important constituents. He thinks that the active principle of the drug would be more likely to be a resinous substance, possibly left in the solution which Dr. Wood threw away, instead of the crystallizable principle. In determining these questions Dr. Wood has a much better opportunity of carrying on an investigation into their physiologic action than a pharmacist would have.

DR. H. C. WOOD, JR., said that he was supplied with fluid extracts of both cannabinum and androsaemifolium, but he had relied entirely on the statement of the pharmacist as to the identity of the fluid extracts. He stated that he did not throw away the residue after getting the crystals, and on subsequent trial he found that it had some activity. He said that the drug is useful in cases of dropsy, whether associated with cardiac weakness or hepatic cirrhosis. He hopes at a future time to bring some more accurate observations on the clinical uses of the drug. *

USE OF DIAPHORESIS AND DIAPHORETIC AGENTS IN OPHTHALMIC THERAPEUTICS.*

HIRAM WOODS, M.D.

BALTIMORE.

To properly estimate the therapeutic value of an agent, allowance must be made for the natural enthusiasm of those who introduce it and who often record results which later experience fails to confirm, and the tendency of certain things to remedy themselves, the exciting cause having been removed. Disappointment may ensue because too much is expected. Credit may be given when none is due. Truth lies between these extremes, and is to be reached, it seems to me, by finding out what one should look for, basing judgment on the physiologic effects of the remedy, and the teachings of clinical experience. An example of what one may, not illogically, term therapeutic enthusiasm and therapeutic chaos, is found in the statements of books on general therapeutics and those on eye diseases, regarding the use of diaphoretic agents in ocular affections. If we could accept, for instance, all of the following from Potter's "Materia Medica," pilocarpin would be little short of an ocular panacea. Says this writer: "Ophthalmologists employ pilocarpin with most excellent results in the amblyopia of alcoholism, and that from the use of tobacco, in detachment of the retina, chronic iritis, keratitis, glaucoma, hemorrhage into the vitreous, atrophic choroiditis, white atrophy, to promote resolution and absorption in inflammatory conditions with exudation." Bartholow and other writers indicate practically the same scope. The student turning from this general advice to special works will, I think, be disappointed if he expects to find specific and positive information as to what in this list is true and what is not. Most of our special writers indicate that diaphoresis has been recommended or may be tried in these conditions; but in no text-book with which I am familiar is there the positive teaching the subject deserves, and which is justified by our present knowledge. Scattered through current literature are many most interesting and in-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

structive articles, but they are so scattered that their usefulness is greatly lessened. The object of this paper and the paper by Dr. Woodruff is to set forth briefly what, in the opinion of the writers, may be theoretically expected in ophthalmic therapeutics from diaphoretic agents, and the extent to which their own and others' clinical observation confirm or contradict claims from time to time put forth for this method of treatment. I regret that my recent illness has prevented such a search of current literature as I wished to make, and confined me to articles at hand or with which I was previously familiar. Still they cover more or less completely the principles involved.

Normal sweating is the result of glandular secretion. Physiologists no longer hold that transudation from the cutaneous blood vessels is its most important element. Says Stewart in his "Manual of Physiology": "Though an actively perspiring skin is in health a flushed skin, the vascular dilatation is a condition and not the chief cause of the secretion." . . . "Even the sweating produced by exposure to high temperature is normally brought about by nervous influence and not by direct action on the secreting cells." How far is the profuse sweating from diaphoretic agents, or high temperature employed in baths or cabinets, to be attributed to secretion from nerve stimulation and how far to transudation from cutaneous blood vessels? That the sweat glands can be stimulated to such an abundant secretion as is observed seems almost incredible. Yet the great salivation, sometimes produced by pilocarpin, shows that glandular activity plays an important if not the main part.

Secretions, however, must ultimately be derived from the blood, and there is doubtless a large element of truth in Hansell's¹ statement: "The efficacy of pilocarpin is, I believe, to be attributed to the inordinate activity of the lymph system induced by its presence. By depriving the peripheral vessels of a large proportion of their fluid content, those of the internal organs meet the deficiency, thus eliminating morbid products together with physiologic excretions."

If the therapeutic efficacy of diaphoresis is due solely to this vascular effect, equally good results should follow similar action on other vascular areas, which, for our purposes, are essentially peripheral. Those of the intestines and the use of salines and hydragogue cathartics illustrate. The copious watery evacuations from these agents are not, however, at least in my experience, followed by anything like the results observed after the use of diaphoretics. Nor does emptying the cutaneous vessels, with compensative filling from internal structures, explain the good results of small doses of diaphoretic agents, which do not produce copious sweats.

There must be something besides this transudation from peripheral vessels, and, I think, we may well consider in this connection the nervous influence which lies behind the diaphoresis. Pilocarpin is the drug in most common use. It acts on the skin by its stimulating effect on the cerebrospinal nerves supplying the sweat glands. Another of its physiologic effects is its inhibitory and paralyzing effect on the vasomotor system. One is surprised—at least I was—to note the similarity between the physiologic effect on the eye of pilocarpin and the results of section of the cervical sympathetic nerve or ganglion, when reading the scholarly paper presented to this Section a year ago by de Schweinitz. If one has occasion to observe cases of bad effects from

diaphoretic agents—the nausea, vesical disturbance, cardiac weakness, etc.—he will find abundant evidence, that in both its stimulating and depressing effect, a diaphoretic has marked nervous influence. By its action on the vasomotor system dilatation of the small arteries, with lessened resistance to blood flow and heightened local temperature, are produced. It seems to me, then, that in estimating the cause of the efficacy of diaphoretic agents, we should count first, as Hansell has said, depletion of cutaneous vessels; and secondly, the action of diaphoretic agents, pilocarpin particularly, on the small arteries.

From this we can draw two theoretical conclusions which clinical experience confirms: 1. Diaphoretic agents should have their greatest efficacy in structures richly supplied by blood vessels. 2. This efficacy should show itself in lessening of hyperemia and removal of exudates.

Of ocular structures the uvea, and hence the vitreous, retina and orbital tissues seem to present most prominently the anatomic and physiologic characteristics. Certain lesions with which the use of diaphoresis has been associated can, I think, be excluded. Atrophy of the optic nerve, no matter what the primary cause nor how clearly it might have come earlier, under this plan of treatment, is out of the question; so is optic neuritis, dependent, as it nearly always is, on extraocular disturbance. An exception must be made here of certain retinal lesions which may be accompanied by more or less papillitis.

It is equally irrational, I think, to apply this treatment to choroidal atrophy, cicatricial changes in the vitreous or uvea following long-standing iridochoroiditis, "chronic iritis" (in the sense of irritative symptoms persisting after an iritis has recovered with synecchia, and to be distinguished from relapsing iritis), retinal detachment resulting from cicatricial contraction, primary glaucoma. All of these lesions are either essentially incurable or else are better treated in other ways. Whatever good seems to ensue in such patients from the use of diaphoretic agents is probably due to their influence on the choroidal circulation, and hence on the vitreous opacities; but the underlying diseases are not influenced, and in glaucoma time and possibly opportunity is lost.

In another class of cases there is little probability of good, because the tissues involved are not sufficiently vascular to respond. I allude to keratitis and affections of the sclera. In such of these cases as seem to have been helped, I incline to the opinion that a more careful diagnosis would have shown some form of uveitis underlying the superficial disturbance.

Excluding all the above, there are left many lesions which are most satisfactorily treated by diaphoresis. They are acute troubles in the uvea, retina, orbital tissue and toxic blindness. Uveal disturbance will be presented at length in the paper of my friend, Dr. Woodruff. I want, however, to mention in passing three observations made this past winter in cases of iritis. All three were of rheumatic origin, two private cases of my own, and one a hospital patient of my colleague, Dr. F. M. Chisholm. In both of mine, atropia seemed to dilate the pupil a very little, and then, in spite of pushing it to constitutional effects, using an eight-grain solution, and finally the atropia discs, I could not obtain further dilatation. One patient was in intense pain, the other suffered only moderately. The former was given a copious pilocarpin sweat. The latter was sweated, somewhat unintentionally on my part, by taking an unusually large dose of salicylate of sodium. In

1. Philadelphia Polyclinic, Nov. 20, 1897.

each instance, the day after diaphoresis both pupils dilated ad maximum. An interesting thing was then observed, viz., that there were no points on the lens surface indicating synechia. Apparently the pupil was kept small through intense iridic hyperemia, and dilated when this was relieved. Chisholm's case was similar in essentials, and had resisted eleven days of strong atropia. There were, however, marks of synechia.

A case illustrating the ease with which one can think he has obtained results which he has not is the following:

A young colored man came into my clinic two years ago with a history of defective sight for a fortnight, terminating in pain, which latter symptom led his physician to send him to a hospital. He was almost entirely blind. Pupils were immovable and a little larger than normal. Cornea were steamy, tension increased, nearly plus 2. I advised immediate iridectomy for glaucoma, which the patient declined. He was put to bed, eserine used locally, and he was given three profuse jaborandi sweats on successive nights. Vision improved, and the case proved to be one of choroidoretinitis with iritis in its later stage, and secondary glaucomatous symptoms. Later I found spots of deposits on the posterior surface of the cornea—so-called descemetitis. Probably I should have found them at first had I looked for them, but it was primary glaucoma, as first supposed.

In leaving the subject of uveitis, I want to urge the systematic study of Descemet's membrane for these spots. As de Schweinitz, Friedenwald and others have pointed out, they are present nearly always in disease of the uveal tract, and when found in connection with such symptoms, as in the case just narrated, or those of keratitis interstitialis or scleral affections, point to the uvea as the seat of the underlying disturbance.

A number of cases of detachment of the retina, cured by diaphoresis, have been recorded. The method employed in most of them has been to confine the patient to bed and administer sweating doses of pilocarpin daily or on alternate days for six to ten times. Some clinicians have advocated the use of small doses as equally efficacious, and have not thought confinement to bed necessary, except for two or three hours when the treatment was given.

An interesting discussion of the subject can be found in the Proceedings of the British Medical Association held at Montreal in 1897. Mittendorf claimed excellent results "in cases of opacity of the vitreous and especially if associated with detachment of the retina" from the administration three times daily "for a long time" of pills containing 1/100 of a grain each of pilocarpin. Holt of Portland and Burnham of Toronto advocated the use of small doses, preferably by hypodermic injection. The most striking report came from Nettleship, who had a man with complete detachment of the retina, high degree of myopia, and no light perception in either eye. He used pilocarpin, and the result was satisfactory. He could read large type, but he could not say he could hold that.

Many of the reported cases give little data regarding the history and condition of the eye, besides stating that the retina was detached. Alt of St. Louis, however, reported in this discussion the case of a girl with high myopia, in whom the retina had become detached, and had remained so for eleven years after the diaphoretic treatment. Like most oculists who read these reports six to ten years ago. I used the sweating treatment for retinal detachment as opportunity offered. In the class of detachments which is most numerous—in myopic eyes with choroidal atrophies and floating vitreous opac-

ities—my individual experience has been disappointing. It has sometimes occurred to me that maybe a warning given in 1892 by Spalding of Portland might be repeated. In an article in the *Archives of Ophthalmology*, advocating the use of pilocarpin in cases of hemorrhage into the vitreous, he speaks of the possibility of confounding the black appearance of the blood in the vitreous chamber with a detached retina, and insists on confirmation of the ophthalmoscopic diagnosis by field examination and demonstration of a scotoma. Be this as it may, I do not recall ever seeing in my own or the practice of colleagues a permanent cure of retinal detachment in a myopic eye with choroidal atrophy and floating vitreous opacities. Twice I have seen reattachment and improvement—very little—of the field; but they relapsed. Vitreous opacities improve, but this is not cure of the detachment. I have, however, seen three cases of reattachment in eyes which were not myopic and which did not show the chronic degenerative changes observed in the class just under consideration. Acute choroiditis was present in two of these cases, both hypermetropic, and exudate from the choroidal vessels seemed the only explanation of the detachment. Rest in bed with antisyphilitic treatment effected absorption in one. I saw the man several years afterward,

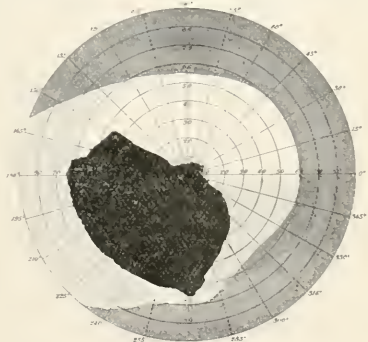


Figure 1.

and the retina was still attached, but that portion of the fundus was blind. Later the eye developed cataract. The patient was first seen in 1889, and disappeared five or six years ago. The other eye remained good. A second case presented, in hypermetropic eyes, double detachment following rapidly the onset of severe choroiditis with floating vitreous opacities. Cause was indeterminable. The case was reported in an analysis of choroidal cases at the Saratoga meeting of this Section in 1902. Pilocarpin was used, with rest in bed. The retina reattached, but there was no improvement of vision in the affected field. The only case in which I have seen apparent improvement of vision is now under observation:

A woman, 22 years of age, came into my clinic the second of last March. She had a positive central scotoma in the left eye. The right was normal. A detachment of the retina, apparently involving the fovea and upper and inner quadrant, was made out. Her scotoma on admission is shown in Figure 1, and was practically the same eighteen days later. She was kept in bed, with pilocarpin sweats three and four times a week for four weeks. At that time her scotoma was as seen in Figure 2, and central vision 20/30. I last saw her April 19, nearly three weeks after her discharge, and the condition was unchanged.

I confess to some misgivings of my own diagnosis, based on comparison of the fields at the beginning and end of treatment. While there certainly was a detachment and as certainly the retina became reattached, I am skeptical about the involvement of the fovea in the detachment. Central vision seems to have improved from nothing to nearly normal, with very little change in the periphery. It would be easy for the upper detached retina to overlap the fovea, and so shut off central vision, at the same time giving the appearance of involving the fovea. The cause of this detachment was a mystery. A few fine muscæ were in a clear vitreous, but there was no other evidence of choroiditis.

I have had no experience in the use of small doses of pilocarpin in retinal detachment, but in a single case of retinitis seen a few years ago I employed such dosage with good effect. The patient was a boy of 12 who presented in one eye a beautiful example of the exudative retinitis, arranged in radiating spokes about the fovea, described by Marcus Gunn at the Edinburgh Congress in 1894. A few small extravasations and mild papillitis completed the picture. Otherwise the boy was in health. Prolonged exposure to glare from snow was the only possible cause I found. After the mercurials and iodids had failed, the administration of

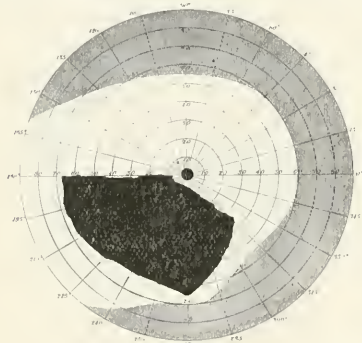


Figure 2.

pilocarpin in one-thirtieth grain doses cleared the exudates in a month.

The good effects accomplished by diaphoresis in general medicine in the treatment of nephritis, effecting elimination of products which should go off through the kidneys, suggests its usefulness in toxic amblyopia. I think one has to be very careful how he draws conclusions here regarding any remedy. For instance, when we were seeing methyl alcohol and Jamaica ginger cases in Baltimore, it seemed that pilocarpin was the only thing which did good, and that its effects were but temporary. Later we found that these transient clearings and cloudings were part of the toxemia. Again, when a toxic agent is withdrawn, the natural tendency is toward cure. Recently a saloon keeper, with typical alcohol amblyopia, came under my care. I wanted him to go to bed and sweat. He said he could not leave his business, but would let whisky alone. He did so, and with no other treatment than abstinence and epsom salts improved in a week from 2/200 to 20/100. Such observations naturally tax one's faith in the efficacy of drugs reported to have brought about identical results. Still, I had another case this winter, a physician, 33 years of age, with tobacco-alcohol blindness, who did

not improve for three weeks at his home in a neighboring state under abstinence and strychnia. He had 10/200 when I saw him first, and when he returned for hospital treatment. In two weeks under pilocarpin sweats he improved to 20/40. He wrote me recently that he had stayed well. There is, I think, no doubt that diaphoresis is effective in eliminating toxic products, and its employment in toxic amblyopia is not only justifiable but imperative. The fact that some cases do well without it is no argument against its use. It only calls for more exact study of cases before we make up our minds what we have accomplished by treatment and what has gone on without our help.

While orbital lesions logically come under the class of cases apt to be helped by diaphoretic treatment, I do not know of any special reports. Orbital diseases are, I think, among our rare observations, and when they occur usually indicate some other line of treatment.

Last autumn a woman, 41 years of age, came to my clinic with a right subconjunctival ecchymosis of the lower cul-de-sac. It presented an appearance different from that usually seen, in that the blood formed a definite tumor. She had 20/30 vision. The fundus presented evidence of former disseminated choroiditis. There was no doubt of syphilitic infection. She was put on specific treatment, with heat locally, and instructed to return in two days. When she did the blood tumor was nearly double in size, and there was slight exophthalmos. She was now urged to come into the hospital, as I believed the case to be one of syphilitic disease of the orbital vessels. She did so, and the exhibition of mercurials and iodids for a week did no good. The exophthalmos remained about the same, and the blood beneath the conjunctiva was not absorbed. The external rectus became paretic. I now put her on pilocarpin sweats, given alternate days. After three such treatments improvement commenced, and in a short time all traces of trouble, including that in the rectus muscle, had disappeared.

The case illustrates what has frequently been noticed before, that in syphilis diaphoresis, when indicated by the part involved and symptoms present, is a powerful adjunct to specific treatment.

CONCLUSIONS.

I would offer these conclusions:

1. The greatest utility of diaphoretics is in the acute congestive and exudative lesions of the uveal tract.
2. Diaphoretics are useful in retinal detachment produced by exudate from choroidal vessels during the course of acute choroidoretinitis. Judging from reported cases, they are also useful in the retinal detachment of high myopia. It is doubtful if restoration of function in the detached retina is usual or permanent.
3. Diaphoretics are useful in alcohol-tobacco amblyopia and probably in other forms of toxic blindness.
4. Diaphoretics influence to a slight extent only, if at all, lesions of the cornea and sclera.
5. Diaphoretics are useless in atrophic and cicatricial lesions.

842 Park Avenue.

The Physician as a Business Man.—Dr. C. U. Collins, in the *Medical Standard*, says that the physician must lay sentiment aside and, like the man in business, keep his income equal to or above his expenditure in order to maintain his credit. The business men from whom he buys expect him to be able to pay for what he buys. If he collects a goodly amount each year, it not only enables him to keep his family comfortable, but it also enables him to buy books, instruments and other accessories that make it possible for him to render better service to his patients, and this is a very good argument to give to his patients for collecting promptly.

DIAPHORETICS AND DIAPHORESIS IN OPHTHALMIC THERAPEUTICS.*

T. A. WOODRUFF, M.D.
CHICAGO.

The enumeration of the more important points in treating pathologic conditions of the eye by means of sweat baths and the most successful means for their application are here attempted. As in other organs of the body, the complete performance of absorption and elimination are constantly going on in the eye without any disturbance of its other functions. When this fails to take place deleterious products accumulate in the vascular and lymphatic systems from the non-elimination of poisons or toxins and pathologic changes manifest themselves.

On what disturbing influences these ocular diseases depend we are still in a large percentage of cases somewhat in the dark. Although syphilis and rheumatism frequently act as predisposing causes they can not be held accountable for all; many of them are probably the result of defective metabolism obscure in origin.

The inflammatory affections, in which we may expect to derive the most satisfactory results from the use of diaphoretics, are those involving the uveal tract. This portion of the globe, by reason of its abundant blood supply, is prone to inflammatory and degenerative changes which show themselves in the form of an exudative inflammation beginning usually in the choroid and less frequently as a catarrhal inflammation of the ciliary body. An endeavor is made by these means to eliminate the toxic or infectious products on which the lesions probably depend. Although a history of syphilis, either hereditary or acquired, can in many cases be elicited, it is not here that our best results are obtained from the use of the sweat-bath alone. It is indicated in just such cases, in conjunction with mercury or potassium iodid, not only as an aid to the absorption of these drugs, but by acting on the skin, helping in their elimination and rendering it possible to give much larger doses without experiencing their untoward effects. It is in those cases of exudative choroiditis which usually come on insidiously, without cause and in patients apparently in good health. The disease manifests itself by ciliary congestion without previous complaint from the patient, but on examination various changes are seen in the interior of the eyeball. The cornea is found to be hazy and on strong illumination Descemet's membrane is found to be covered with a number of opaque dots situated in its lower portion and arranged triangularly with the apex above. If seen in the early stages, and a view of the fundus can be obtained, a number of exudates can be seen situated in the choroid. The choroiditis is probably always the starting point of the uveitis, although in some cases the ciliary body seems to be the initial seat of the disease, beginning as a catarrhal inflammation of the glands situated in this region, according to Treacher Collins. Iritis is usually present, but in many cases is of the quiet variety, the pupil dilating readily with atropin and with little tendency to the formation of synechiae. The exudates become more abundant until covering Descemet's membrane and rendering the aqueous and vitreous humor cloudy and of such a density that all view of the fundus is obscured. Later on, permanent opacities form in the vitreous and atrophic areas form in the choroid.

While sweating as a means of treating intraocular diseases has been advocated by a number of authorities, it is most useful in exudative inflammations and especially in those of recent occurrence. Diaphoresis by means of pilocarpin has been successfully employed by a number of men of good repute in the treatment of various intraocular affections, especially the inflammatory diseases of the uveal tract, while some few have reported cases in which marked benefit has been derived from such treatment. Among others of the earliest writers who advocate this method of treatment may be mentioned Weber,¹ Scotti,² Schmidt-Rimpler,³ Landsberg⁴ and deWecker,⁵ who obtained favorable results, and in some cases where other remedies had failed, in cases of chorioretinitis with vitreous opacities, and recommended it as highly efficacious in the treatment of such disorders. Fuchs⁶ used the sweat bath promoted by pilocarpin for the absorption of serous as well as of organized fresh exudations, and reports having successfully treated several cases of detachment of the retina. In his experience it was ineffective in old opacities of the vitreous and in neuroretinitis. Of more recent date J. A. Spalding,⁷ Hansell,⁸ Burnham,⁹ de Schweinitz¹⁰ and myself¹¹ have written of the advantages to be derived from the use of diaphoretics in the treatment of certain exudative intraocular inflammations and as an adjunct to other drugs, especially mercury and potassium iodid, and in the elimination of the toxic and infectious products on which these diseases probably depend.

Although sweating is a useful remedy in many inflammatory affections of the eyeball, especially those of a low-grade character and those involving the internal structures of the globe, I by no means wish it to be understood that such affections are to be combated by this means alone, although a fair number of cases have been met with in which not only marked improvement has taken place without the use of any other medication, but the disease has been brought to a successful termination. In exudative choroiditis I have found diaphoresis usually assisted by the subcutaneous administration of pilocarpin hydrochlorate, very useful in the early stages before there is any involvement of the retina previous to the appearance of patches of atrophy, as in this advanced stage of the disease very little improvement of vision can be expected, but even then the further progress of the disease may be checked and useful vision be retained. It undoubtedly has a beneficial influence in the absorption of choroidal exudates and in allowing the affected tissues to resume their activity, and we can safely encourage the patient in the hope of a favorable termination of his symptoms.

In vitreous opacities very gratifying results can be obtained in many cases from the use of the sweat bath alone, the opacities becoming readily absorbed and the vitreous clearing up. In the recent cases, where the opacities are small, although the vitreous may be so cloudy that the details of the fundus are made out with

1. Weber: *Centralblatt für Med. Wissenschaften*, 1876.2. Scotti: *Berliner klin. Woch.*, 1877, No. 11.3. Schmidt-Rimpler: *Berliner klin. Woch.*, 1878, No. 24.4. M. Landsberg: *Philadelphia Med. Times*, 1878-9, vol. ix, pp. 345, 369.5. deWecker: *Graefe-Saemisch Handbuch der Gesamten Augenheilkunde der Ophthalmologie*, vol. iv, No. 2.6. E. Fuchs: *Wiener med. Woch.*, Ncs. 37 and 38.7. J. A. Spalding: *Arch. of Ophthalmology*, April, 1892.8. Hansell: *Ophthalmic Record*, vol. vi, No. 12, p. 668; *Philadelphia Polyclinic*, Nov. 20, 1897.9. G. H. Burnham: *Ophthalmic Review*, 1897, vol. xii, p. 259; *Arch. Ophthalm.*, 1898.10. G. E. de Schweinitz: *Therapeutic Gazette*, 1892, vol. viii, p. 436; *Ophthalmic Record*, 1898, vol. vii, p. 85.11. T. A. Woodruff: *THE JOURNAL A. M. A.*, October, 1902.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

difficulty and visual acuity is very much lowered, there is usually a rapid clearing up of the exudates and visual acuity, if not fully restored to normal, may be greatly improved, so that useful vision is obtained.

In cases of long standing and where the opacities appear as large, dark, irregular masses, the degeneration has been too extensive to expect much improvement from any treatment, and in such cases the prognosis is less favorable. In elderly people, even when the disease is of recent occurrence, the prognosis is not so favorable, still the progress of the degeneration may be checked and absorption of a considerable portion of the exudate take place with retention of a useful amount of visual acuity. It is in the young individual that most favorable results are to be looked for.

In hemorrhage into the vitreous more favorable results are to be looked for where the extravasations are small, in which case complete absorption may take place. In the larger hemorrhages more permanent opacities are apt to remain in spite of treatment. In detachment of the retina I have not seen any favorable results from the use of diaphoretics.

In toxic amblyopia diaphoresis materially aids in the elimination of the toxic agent, but it is very difficult to estimate its true value as a curative agent, and as such its value is very doubtful.

METHOD OF ADMINISTRATION.

As to the technic employed in getting the patient into a profuse perspiration, the baths should be given when the stomach is empty, as being less liable to produce any untoward effects, this being especially the case when pilocarpin is to assist in the production of the sweat. The patient should be in bed and wrapped up to the neck in a blanket and again covered with at least four blankets. Under the latter half a dozen quart bottles containing boiling hot water should be placed. If used at all, pilocarpin should now be given hypodermically, beginning with one-tenth to one-eighth of a grain, the dose of which can be increased if considered necessary to produce a more profuse perspiration, but usually a larger amount of the drug is unnecessary and not at all essential to the success of the treatment. The patient is now given to drink at least a pint of hot water, weak, sour lemonade or tea. In a few minutes he should begin to break out into a profuse perspiration, which should continue for at least two hours, only stopping short of that time if he shows any bad symptoms. At the end of the sweat he should be thoroughly dried and the skin rubbed with alcohol and then allowed to rest the remainder of the day. This treatment should be continued at least every other day until twelve baths are taken. At an interval of two or three weeks a similar course of treatment should be repeated, and then continued at various intervals so long as necessary. It is important that the treatment be carried out systematically and at regular intervals if we desire to get results.

DISCUSSION

ON PAPERS OF DRs. WOODS AND WOODRUFF.

DR. W. B. MARPLE, New York City, agreed with Dr. Woods that if therapeutic nihilism is had, undue therapeutic enthusiasm is worse. Dr. Marple said in regard to the use of diaphoretics that the unwillingness of patients to undertake the treatment often deters physicians from using it in what would be suitable cases. The practice of Dr. Kipp in this regard is a most excellent one. When he has a case where he thinks it indicated, instead of going through the troublesome methods in the hospital he sends the patient to a Turkish bath establishment, and Dr. Marple thinks that is a very good idea. Diaphoretics are useful especially in cases of disease of parts

abundantly supplied with blood vessels; all forms of uveitis of an acute character. The more chronic conditions are not so much benefited. The unwillingness of the patients to subject themselves to the sweat-bath has led Dr. Marple to use the salicylates, and while the beneficial results may not be so great in this way, still they have a very useful action. He agreed that in most cases the withdrawal of the poison is the most important element, although he can readily see that the addition of diaphoretics may be of distinct advantage. He was recently interested in seeing a child who had been poisoned by instillation into the eyes of atropin drops. The child was violently delirious and it was not until it had been given a good sweat-bath that it quieted down and went to sleep.

DR. WALTER L. PYLE, Philadelphia, said that he is a firm believer in thermotherapy and in hydrotherapy, but he protested against the promiscuous employment of hypodermic injections of pilocarpin, and considers it a very dangerous procedure. He knows of one case in which the patient never recovered, and it seems to him that such a dangerous procedure should not be recommended. It is true that this patient had an advanced nephritis, but all these patients have either visceral disease or profound disturbances of the circulation or of metabolism. In his practice, to produce diaphoresis, he employs the Turkish bath, hot-water bottles, hot blankets, hot drinks, etc. There is one drug that he uses frequently—that is Dover's powder. He has never seen any bad results from it, and the patients all seem to do better when it is given. It has a quieting action that is beneficial. He is afraid of the massive doses of salicylates that are recommended by some to produce profuse sweating, although he generally uses one of the salts in rheumatic cases. Another point regarding the use of heat in his practice, when he can not dilate the pupil in the ordinary way, is to order hot fomentations and to instill the atropin solution hot.

DR. A. TIMBERMAN, Columbus, Ohio, said that in regard to the matter of undue enthusiasm for certain remedies, he thinks that some are not enthusiastic enough. One man thinks pilocarpin does no good and another pins his faith unreservedly to it. A patient with toxic amblyopia may get well without pilocarpin, and again he may not get well and the amblyopia may persist even though the toxic agent is withdrawn. A case of uveitis may progress for months without any apparent cause and get progressively worse and then, with the administration of these remedies, excellent results may be obtained. Recently a man who for six months previously had noticed a failure of vision in his left eye, consulted Dr. Timberman. He could make nothing out of the fundus appearance; there was a great black mass over the pupillary area which precluded any examination of the fundus whatever. He did not suppose he could do any good, but he put the patient to bed and gave increasing doses of pilocarpin. He always begins with small doses and runs up as high as the patient will stand. He is never afraid of the drug when he handles it himself. The results were very satisfactory.

DR. WENDELL REBER, Philadelphia, rose to the defense of pilocarpin. He said that it has the function of eliminating toxic material from the system and there is relatively little danger from its use if the condition of the patient's heart be studied beforehand and that, of course, is all important. He is careful to begin with 1/12 the first day, then 1/6 and on to 1/4. Treated in this way there is no danger. He feels that there is no more valuable adjunct to the treatment of iritis than pilocarpin. He agreed with Dr. Pyle that it is advisable to give stimulating drinks. In uveitis and in exudative choroiditis its value can not be overestimated. Patients who would not stand more than 20-gr. doses of iodid of potassium or sodium will tolerate much larger doses with pilocarpin treatment.

DR. S. C. AYERS, Cincinnati, said that for some years past he has been using the hot-air cabinets instead of pilocarpin. They produce a diaphoresis which can be regulated to any desired effect. They are entirely free from danger and the results are quite satisfactory.

DR. LEARTUS CONNOR, Detroit, Mich., declared that in the present condition of medical knowledge the use of hot air and

hot water has come very nearly to an exact science. The trouble is that physicians do not always have the appliances for using these in accordance with their advanced knowledge. The physicians in Boston about a year ago established an institution by which they are able on prescription to have hot water and hot air used exactly as they want it. And in many cities a similar plan might be adopted. They are the best diaphoretics and their intelligent use is without any risk. Where is the hospital that has proper appliances for the use of these valuable agents? In the conditions that have been mentioned, when Dr. Connor can secure the proper application of these remedies, excellent results have been obtained.

DR. E. E. HOLT, Portland, Maine, said that in the discussion of this subject in Montreal he referred to a case of myopia with detachment in which pilocarpin was used and there was a complete cure. There were eight diopters of myopia. He followed the case twelve years and there was no relapse in that time. He used hypodermic injections, beginning with small doses. He has never seen any bad effect from the use of pilocarpin.

DR. J. L. BORSCH, Philadelphia, stated that he has had most excellent results with pilocarpin injections, though, of course, cases must be thoroughly examined before instituting this or any form of treatment, and he would not advise the promiscuous injection of pilocarpin. He finds that cases of toxic amblyopia stand pilocarpin very well.

DR. F. BULLER, Montreal, said that he thinks there must be a certain amount of enthusiasm if anything is to be accomplished. Pilocarpin has been ably defended, but some unkind things have been said about the salicylates, and Dr. Buller thinks it only right that some one should defend them also. He has used the salicylates freely in uveal troubles and is convinced that they are very useful in these cases. Recently he had an illustration of this. In a severe attack of iritis following cataract extraction the patient was treated with the salicylates and with atropin, and in three or four days was entirely well. In another case, one of sympathetic ophthalmia, where the disease appeared to be steadily progressing in spite of everything, he put the patient on the salicylates and he commenced to improve immediately. The improvement was so marked that in a few days one could not tell from a casual glance that anything had been the matter with the eye, though it actually had been much inflamed for several weeks. Dr. Buller advocated the use of the salicylates at least in certain inflammatory affections of the uveal tract.

DR. HIRAM WOODS, Baltimore, said that when any one says that white atrophy of the optic nerve, choroidal atrophy and like destructive lesions can be cured by sweats produced by diaphoretics or by external agents, that person is indulging in a pretty gross form of enthusiasm. Dr. Woods agreed in general with Dr. Pyle concerning the dangerous possibilities of giving large doses of pilocarpin. A small tentative dose should be given at first, maybe not over a twelfth of a grain. Some patients are susceptible to the remedy and show marked reaction; others resist even large doses. Dr. Woods recently saw in consultation a young lady with acute otitis media, and was told that she had had no physiologic reaction from doses of a sixth, a quarter and a half grain. The patient's age is another consideration. The only serious depression Dr. Woods ever observed was in a man over 60 with organic heart disease, who never should have had the drug. Moderately severe vesical pains followed its use in another case, but these are the only instances of trouble Dr. Woods has observed. Dr. Pyle's method of using atropia in obstinate cases of iritis is most useful. Heat is certainly an adjuvant to atropin. Diaphoresis has not in Dr. Woods' experience helped senile or disseminated choroiditis. The exudative choroiditis, with deposits on the posterior surface of the cornea, so-called descemetitis, as described by Hills Griffith in Norris and Oliver's System, is the form of disease which is most benefited.

DR. T. A. WOODRUFF, Chicago, said that he has never seen any bad effects from the hypodermic use of pilocarpin. He always gives small doses unless it is difficult to get the patient

to sweat; then he increases the dose; generally gr. 1/10 to 1/8 is sufficient. He has found it unsatisfactory to give the patient the cabinet bath at home. In a hospital, with a nurse to handle the patient, good results may be obtained.

THE CONSERVATIVE MANAGEMENT OF LACHRYMAL OBSTRUCTION.*

S. D. RISLEY, M.D.
PHILADELPHIA.

It is by the request of the chairman that I venture for the third time to present my personal views as to the value of conservative methods in the treatment of lachrymal obstruction. Added experience has served to confirm the conviction that, in many cases, the practically incurable affections of the tear duct so frequently observed, have been produced through faulty technic or by the violent surgical measures adopted at the outset of treatment. In my early experience I approached the treatment of lachrymal retention with a doubtful prognosis; but of late years I entertain this feeling of doubt as to results only in cases which have already been subjected to some form of radical surgical treatment having in view the creation of a patulous nasal duct.

It is probable that a normal duct is never patulous, but that the tears escape into the nose from the lachrymal sac by capillarity aided by gravity, and possibly by muscular pressure on the sac exerted by the act of winking. It is the opinion of some that a vacuum is caused in the empty sac by this pressure and that the tears are sucked or drawn into it through the puncta and canaliculi from the lake formed at the inner canthus. The drainage system according to this view is therefore a pump forcing the tears forward into the nose.

The onward course of the tears may be obstructed in any part of the apparatus. The puncta, one or both, may be closed entirely or partially as the result of abnormalities or by chronic disease of the conjunctiva or lid margins; the lumen of the canaliculi at the same time may be obliterated or diminished; the lachrymal sac may be diseased and its cavity closed by hypertrophy or by the swelling of its surrounding tissue caused by a phlegmonous inflammation; or the peculiar tissue lining the bony nasal duct, may be so changed by disease as to close its caliber and so obstruct the escape of the tears from the lachrymal sac. Lastly, the form of the nasal duct may be such as to render it susceptible to obstruction by even slight causes. It is probable that the majority of cases of lachrymal retention belong to this last class.

When the cause of the retention lies in the puncta or canaliculi, gentle dilation after cocaineization is usually sufficient to effect a cure. If the sac is diseased it will usually be found necessary to slit the lower canaliculus to secure a more ready access to the sac and the nasal duct for the purpose of subsequent treatment.

In relatively few cases it will be found that the inflammation of the sac, dacryocystitis or blepharorrhea, exist without any marked stricture of the nasal duct. If any obstruction exists it is apparently due to swelling or thickening of the sac itself which readily closes the valve-like entrances to the duct. If the entrance to the duct is narrowed, the egress of the tears is prevented by the increased proportion of mucus or mucopurulent material formed in the sac, or entering it from the con-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and E. L. Randolph.

junction. After thorough cleansing, a few drops of a 4 per cent. solution of cocaine, followed by adrenalin, will contract the swollen or edematous tissues in a few moments, so that fluids will readily pass into the nose from the cannula of the lachrymal syringe, and that without first probing the nasal duct, a procedure which should be avoided whenever possible. When fluids can be made to pass into the nose freely, the inflammations of the sac and nasal duct will readily recover and I believe more speedily and with better final results than when the already inflamed tissues are subjected to traumatism by probing.

In purulent affections, the sac can be readily cleansed by solutions of peroxid of hydrogen and the inflamed surface treated by weak nitrate of silver solutions, sulphate of zinc or, in chronic affections, by solutions of tannin and glycerin, with iodine. These should not be allowed to remain in the cavity of the sac, however, but made to pass through it into the nose, and the surface subsequently washed with boracic acid or salt solutions. Many of these cases I often treat without ever passing a probe into the nasal duct.

In long standing disease, however, the lining membrane of the nasal duct becomes thickened and may quite close its lumen at one or more points in its course, usually at the bottom of the sac, i. e., at the entrance into the duct, or the entire course of the duct is apparently closed by swelling or a hypertrophy of the soft tissues, in which case probing becomes necessary. It should be undertaken with caution, having in mind the peculiar anatomy of the tissues lining the bony duct. A system of abundant veins surrounds the duct in its bony canal, which Dwight, quoting Heme, cites as an instance of what he calls compressible cavernous tissue, which gives support to the walls, and probably when congested can quite compress the cavity.

When we consider the variable and irregular form of the bony duct, it is obvious that the probe, impinging on a bony angle, may very readily be made to penetrate the soft tissue and so pass between it and the bony wall, causing profuse hemorrhage by injuring the bloodvessels, the traumatism doing more harm than the original disease. I am convinced by many of my earlier experiences that, in some cases which would have been readily curable by other and milder measures, more or less permanent and troublesome strictures of the lumen of the duct had been caused by this accident. It certainly can be avoided in most cases by filling the sac with cocaine solution and adrenalin chlorid, which, as the tissues contract, will pass into the duct, so that after the lapse of ten or fifteen minutes, the probe can be cautiously passed through the duct to the floor of the nose. Too fine a probe should not be selected. Numbers 3 and 4 of Bowman's series are less likely to penetrate the mucous membrane than numbers 1 and 2. The design in using the probe should not be to rend or tear a stricture, as in urethral surgery, but to compress the tissue between the probe and the bony walls of the canal, where it should be allowed to remain from fifteen to twenty minutes. By this means the absorption of the thickened tissue can often be effected, much as the indurated edges of a leg ulcer are reduced by firm strapping. After withdrawing the probe the duct may readily be treated with suitable astringent washes applied by aid of the lachrymal syringe.

I have found much caution necessary in slitting the canaliculus as a preparatory step to subsequent treatment. I invariably employ for this purpose the probe-

pointed knife of Weber, and am careful not to carry the incision into the sac, since to do so is to destroy the admirable function of the part, that of a pump.

The drainage duct throughout should be regarded not as an open drain pipe, but as a delicate and most ingenious mechanism, the operation of which may be readily destroyed by bungling interference. The canaliculus should therefore be slit only to its junction with the common canal. The probe or cannula of the lachrymal syringe can then be passed into the lachrymal sac and carried into a vertical position without the injury which would result from passing it through the uncut canaliculus.

Great care is often necessary to avoid passing the probe-pointed knife through the floor of the canaliculus at its junction with the common canal. I have many times seen patients where this has occurred and a false passage made. The results of this accident are extremely difficult to remedy, as I know from many attempts to do so; therefore it should be sedulously avoided. It can usually be prevented by carefully straightening the canaliculus by dragging the lower lid strongly toward the temple. The probe point of the Weber knife can then be carried forward to the nasal wall of the sac, when all tension on the lower lid will cease. In cases of acute dacryocystitis or phlegmon of the sac, with great swelling, the direction of the opening of the canaliculus into the sac is displaced, so that the operation of slitting should be deferred until the swelling has subsided under cold compresses, or by opening the abscess through the skin and by subsequent treatment through the incision. Without this precaution it is difficult to avoid making a false passage, which under the existing circumstances is likely to lead to a pus pocket, and subsequent contraction and permanent displacement of the opening into the sac. After the parts have gained their normal relation the canaliculus can then be slit safely and the final treatment of the sac and nasal duct conducted through it, and the opening through the skin be permitted to close.

There is another group of cases which present peculiar difficulties for their successful treatment, and while presenting the general characteristics of those already mentioned, are important because of their etiology.

Any careful study of the anatomy and physiology of the parts involved in lachrymal obstruction, and of the contiguous bony cavities in the anterior segment of the skull, either in dried or wet preparations, reveals marked variation in structure. One does not go far in such an investigation without being impressed by the idea that the anomalous relation of these anatomic structures may be in large measure responsible for the tendency to disease of the tissues composing the delicate lachrymal drainage apparatus.

It is obvious from any extended inspection of a collection of skulls that not only is the size and shape of the bony orbits modified by distortions of the skull, but the nasal passages and the accessory sinuses undergo marked variation in size and form, and in the relation of their walls to contiguous structures. In a number of specimens I have seen the direction, size and form of the nasal duct changed by the encroachment of the inner wall of the maxillary antrum.

In one patient, a woman, who had been treated for a long time by a general surgeon for lachrymal obstruction, I found that in his efforts to secure a passage into the nose the probe had been forced into the sac through

the floor of the canaliculus and thence downward through the walls of the maxillary antrum, failing entirely to reach the floor of the nose. In my efforts to relieve the condition I found that unless the point of the canula were carried beyond this false passage, the fluid from the lachrymal syringe would flow into the antrum. By changing the direction of the canula the contents of the syringe flowed freely into the nostril. She had suffered from a chronic rhinitis for many years and had a deflected septum and ethmoidal disease. Her lachrymal disturbance was no doubt primarily due to the nasal condition. By skillful treatment of these, and by simple syringing of the sac and nasal duct, a cure could readily have been secured; whereas a condition of affairs had been produced, which was curable only by some radical surgical procedure to which she would not submit.

In cases of blennorrhœa of the sac, with a large nasal duct through which a relatively large probe can be passed, I have usually found that the retention of tears was due to obstruction at the nasal end of the duct through disease of the soft tissues or some deformity of structure at this point. The passage to the floor of the nose does not always end with the bony duct, a fact which suggests both the futility and absence of any necessity for harsh probing or other surgical measures. In one case in which a No. 8 probe of the Bowman series passed without difficulty, and where washes flowed freely into the nostril, the patient nevertheless had constant retention of tears and mucus and a chronic conjunctivitis, which demanded more or less constant treatment. The bony duct was a short one, but opened as a narrow slit under a broad fold of membrane back of a scroll-like inferior turbinate, which hugged closely the wall of a very narrow nostril. In all cases of lachrymal retention, therefore, no study should be regarded as complete which does not include a careful inspection of the nostrils.

In this connection, however, it should be borne in mind that lachrymal disease is rare when compared to the great frequency of the affections of the nose. That the nasal disease does not more frequently cause obstruction of the outflow of the tears, I believe is explained by the protection afforded by the constant and ready exit of the tears under normal anatomic conditions of the lachrymal duct. Given cases of abnormal anatomic structure, as, for example, the absence of the valve-like fold protecting the opening of the duct, or a slit-like exit which is readily closed; or some of the abnormal irregularities in the course of the duct itself, and we have anatomic conditions which, even in health, introduce more or less difficulty in the escape of the tears and render such cases susceptible to closure by disease.

When we consider that the mucous membrane forming the nasal duct lies in a bony canal, which is subject to great anatomic variations in size and form, with great irregularities in its walls; that between the periosteum lining and the mucous membrane forming the tear duct, there is a small amount of intermediate tissue in which run veins of considerable size which are connected with the plexus of the inferior turbinates in the nose, it is obvious that we should at least hesitate before we plunge forcibly through this duct instruments which can only hopelessly injure the admirably contrived apparatus for the drainage of the tears. Such surgical procedure should be adopted only when other means have failed. My own experience seems to show that this is comparatively rarely necessary.

DISCUSSION.

DR. G. E. DE SCHWEINITZ, Philadelphia, stated that, in large measure, he agreed with Dr. Risley and commended the conservative measures which Dr. Risley adopts in the treatment of these cases. Dr. de Schweinitz considers it deplorable that epiphora alone has been made too often the indication for the introduction of probes, when in point of fact there has been no fault in the drainage system to account for the overflow of tears, which may be due to many causes—exophoria, uncorrected presbyopia, refractive error and some functional as well as organic nervous diseases. Such cases, to be sure, do not come into the discussion at the present time. In the presence of a stricture of the lachrymo-nasal duct, Dr. de Schweinitz thinks it may be necessary to use a probe, but his experience agrees with that of Dr. Risley, that large probes do not yield satisfactory results. So often continued overflow of tears is due to coexisting intranasal disease, and especially to obstruction at the intranasal end of the duct, that this region requires the closest scrutiny and the most accurate treatment. This often yields the happiest results and without the necessity of interference with the delicate drainage apparatus. In the presence of dacryocystitis, when the sac has been long inflamed and its walls are thickened, probing seems to be unnecessary when by the simple operation of extirpation of the sac a radical cure may be effected that is usually a satisfactory one.

DR. L. D. BROSE, Evansville, Ind., stated that there are some cases where he does not feel like trying conservative treatment. One is where one eye has been lost and there is a suppurative condition of the other tear sac. There the patient runs a risk of losing the other eye. Again, where the patient has had a severe septic ulceration of the cornea in one eye and the disease has been cured and then the same trouble starts in the other eye. In these cases the lachrymal sac should be removed. Where the sac is repeatedly inflamed and the probing is very painful, Dr. Brose resorts to the radical operation of removal of the sac.

DR. E. J. BERNSTEIN, Baltimore, said that he tried, in 12 skulls, to pass the larger probes and found three adult skulls through which it was impossible to pass them. In trying to pass the largest ones, he found that this was only possible by fracturing some of the small bones. This year he has had two or three cases which have been under the care of men using large probes for the treatment of chronic lachrymal sac troubles, in spite of which the tear drop had persisted. It was found on examination that there was an enormous hypertrophy of the turbinates which had been entirely overlooked. In some of the more chronic cases, Dr. Bernstein has been doing the radical operation of removal of the sac. Instead of doing the usual operation, as recommended by Petit, he goes through the skin only and lays bare the sac. In that way he dissects it out more readily and thoroughly.

DR. MAITLAND RAMSAY, Glasgow, Scotland, agreed with Dr. Risley regarding the conservative treatment of lachrymal diseases. Dr. Ramsay was taught to use probes frequently in these affections, but gradually, as his experience became greater, he has come to employ probes only in special cases, and to teach that the less probing the better in the treatment of diseases of the tear passages. Of course cases occur now and again in which there is an organic stricture in the nasal duct, which can only be overcome by the use of a probe. Under these circumstances it is his practice to administer an anesthetic (usually nitrous oxid gas), slit the lower canaliculus, pass a No. 6 probe into the nasal duct and then introduce a lead style, which is kept in position for at least 24 hours. At the end of that time the style is removed and the sac and nasal duct syringed thoroughly with an antiseptic solution. If the obstruction has been difficult to overcome, the style is reintroduced and is worn as long as may be necessary to effect a cure.

DR. SAMUEL THEOBALD, Baltimore, said that, from his point of view, one of these questions is as definitely settled as the other. A radical error is made in supposing that the normal condition of this apparatus can not be disturbed without

serious consequences. For the proper performance of its function it is not necessary to have a punctum or a canaliculus in its normal condition, nor is it necessary to have the valves which are commonly present in the nasal duct. Dr. Theobald does not know of any operation that gives more satisfactory results than slitting the canaliculus for eversion of the punctum. If it is necessary to preserve the normal state of these parts this certainly would not be the case. He has had considerable experience in the last twenty-five years or more in the use of the large probes and he states most emphatically that the normal physiologic function is not spoiled. He meets with patients whom, in some instances, he has not seen for ten or fifteen years and finds them absolutely cured. The ducts are pervious, as may be shown by the Valsalvan experiment. They may be abnormally pervious to air, but that is of no moment. Dr. Theobald considers Dr. Risley's experience singular in that all his troublesome cases had first been dealt with by other men, who had made them worse. He thinks that Dr. de Schweinitz uses probes of inadequate size.

Dr. E. E. HOLT, Portland, Maine, said that he interviewed the men at the Seventh International Congress, held in London in 1881, and that it was very interesting to learn what a difference of opinion existed in regard to the treatment of dacryocystitis. Dr. Holt's plan has been for the last twenty years, in cases of suppuration that he could not cure by syringing, to slit the canaliculus and pass the large Theobald probes and then to put in a lead style to fit the case. He does this to avoid repeated probing and he is so well satisfied with the treatment that he has followed it for years.

Dr. W. H. WILDER, Chicago, recalled a discussion some ten years ago in this section, when almost all the men advocated probing. At that time the conservative treatment of washing out the sac did not seem to be so well received. Dr. Wilder thinks, with Dr. Risley, that such conservative treatment in recent cases is the proper one and will prevent many from going on to impervious stricture of the duct. He is coming to believe that for those chronic cases that require regular probing, and that have received such measures from the hands of other practitioners, the most conservative treatment is the radical one of excision of the lachrymal sac and duct. If there is no need of the valves, or canaliculi, as Dr. Theobald says, then there is no need of the sac itself. When this is inflamed it is a constant source of irritation that is of itself enough to cause profuse lachrymal secretion. This all subsides when the sac is excised, and he does it more and more, not only for the relief of such irritation but for the prevention of infection of the cornea. A little method that facilitates the operation is to inject into the sac just before the operation liquid paraffin of a melting point of 112°, which is then chilled at once with ice; the dissection can then be carried on with greater ease and accuracy.

Dr. S. D. RISLEY stated that he has simply given his own experience and candidly stated his own judgment. The subject of probes, or of no probes, is not under discussion at all, as has just been pointed out by Dr. Reik. The cases where the probe does no good are those where the skull is very large. Under such conditions large probes may be useful, through pressure causing absorption of thickened tissue by stimulation. This is probably the only way in which probes do good. It is bad surgery to repeatedly pass large probes through a duct that is so small that the friable, bony structures must be crushed. Where the duct is large, the trouble is apt to be due to disease in the nasal passages at the lower end of the duct, which, through thickening of the surrounding parts, becomes closed, the lumen of the bony duct becoming secondarily involved by extension or through retained tears and the contents of the conjunctival sac. There are many cases that are stubborn in spite of and possibly because of continued probing which recover rapidly as soon as the probes are omitted and gentle syringing substituted. Given a case of acute dacryocystitis, if treated in the way suggested, often without even slitting the canaliculus, it will prevent them becoming cases of chronic blepharitis of the sac.

At one time in his clinic, Dr. Risley often found it necessary to have patients with lachrymal disease await their turn for the probes. There were not enough probes to go around. Now one rarely sees a probe in use in his clinic and the lachrymal cases no longer accumulate as in former years.

SOME INJURIES OF THE EYE IN THEIR MEDICOLEGAL ASPECT.*

JOHN JOHNSON KYLE, M.D.

INDIANAPOLIS.

For me to submit a paper on the medicolegal aspect of injuries of the eye in general would be rank temerity. My efforts will be especially directed to two interesting cases of injuries of the eye, with reference to the medicolegal aspect of one of them in particular.

Exaggeration of injuries and feigning seems to have taken its origin in the early dawn of man's existence. Erichsen, of London, in 1866 published six lectures on obscure injuries of the spine due to collision on railroads. Since that time thousands of cases of obscure nervous and physical disorders have been correctly and incorrectly attributed to trauma.

Unfortunately, it is necessary in a consideration of obscure sequences of accidents that we remember the weakness of human nature and draw conclusions from conditions as they really exist, rather than try to prove facts from abstract conditions.

The point I wish especially to make is that in cases of injury of the eye, obscure or otherwise in origin, occurring among employes of great corporations, soldiers, sailors, passengers of steamships or railways, we should exercise precaution in all we say regarding such injuries, not alone to patients, but also to interested corporations.

Wounds of the eyeball may be classified as direct and indirect. Direct injuries are punctured, contused, lacerated, incised and gunshot. Among the indirect are especially injuries from concussion, which may result from fall, blow on the head or gunshot wound. Direct injuries are of interest on account of their varied causes and the great spectacular forms presenting.

The greatest danger from such injuries is infection and sympathetic ophthalmia. The danger of infection is, as a rule at the present time, in direct ratio to the time the patient is seen by the surgeon. It may be a reiteration of an established fact that many foreign bodies strike the eye and even enter without bringing about inflammatory change, due to the early, careful and antiseptic treatment of the wound, to feeble pathogenic property of bacteria found in conjunctiva (Randolph) and to the bactericidal properties of the secretion of the eye. On the other hand, sterile bodies as copper may excite suppuration, as related by Leber, Kostenitschi, Kipp and Meyers (Baudry), the inflammation being of a chemical origin. Foreign bodies which are not susceptible to the chemical properties of the secretion or fluids of the eyeball may remain in the eye, innocuous for years and often a lifetime.

Injuries of the eye from cuts, foreign bodies or contusion are of greater interest when enucleation is not immediately indicated. With the introduction of the magnet favorable results in the extraction of steel and iron are daily recorded. Subsequent loss of eye months afterward from cicatricial irritation and inflammation may follow, as a report of the following will show:

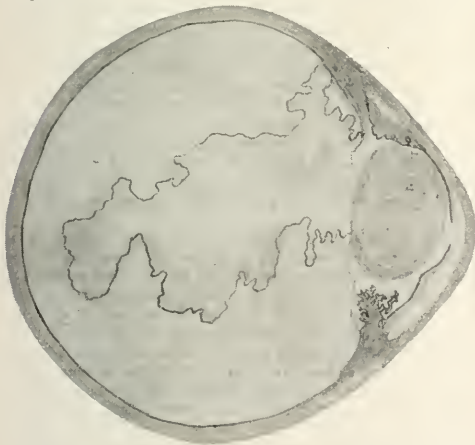
* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

Mr. A., an employe of the Atlas engine works, was referred to me by Dr. Dorsey, surgeon. Patient struck by particle of steel $\frac{3}{8}$ in. wide $\frac{7}{16}$ in. long, weighing $20\frac{1}{2}$ grains.

The track of the wound was through the upper lid, slightly below the supraorbital bone and in the median line; the object penetrated the orbit $\frac{1}{16}$ of an inch back of the sclero-corneal margin, making an irregular clear-cut antero-posterior wound. The large particle of steel was extracted by a Johnson magnet. Had we used the giant magnet the probability is that a great deal of the vitreous would have escaped, with possible collapse of the eyeball. As it was, there was but little loss of the vitreous. Two stitches were taken in the eyeball and three in the lid; healing by first intention took place with vision 20/30. No measurements, unfortunately, were taken of the field of vision.

Seven months after discharge of patient he returned and gave a history of slight pain and progressive loss of sight for a period of three months.

Vision was reduced to perception of light. The eye was very much injected, soft and tender to the touch. The iris was bulging on a line with the wound as though propelled by a foreign body. On account of the cloudiness of the vitreous, ophthalmoscopic examination was negative. Suspecting the presence of a melanosarcoma, enucleation was advised and accepted.



Operation.—On puncture of posterior chamber with needle previous to hardening with formaldehyd, a thin, turbid fluid of a reddish color escaped. On section, the retina and the flat portion of the ciliary body was found to be drawn into the scar two- to three-tenths of an inch. The gradual cicatricial contraction produced detachment of the retina and caused the lens and capsule to be drawn upward and by pressure at the point of contact, produced atrophy of the ciliary body and iris. The suspensory ligament at its lower portion was completely ruptured. Until fibrous tissue was fully formed in the scar there was no contraction or detachment and thus we had a good vision for a few months following the injury.

The lens is observed to be degenerated, the upper portion being filled with hyalin material. Cyclitis was in process of development, which in a short time would have brought about a general panophthalmitis.

As regards the magnet, I might repeat that Professor Schmidt-Rimpler prefers the large Haab magnet to the small Hirschberg magnet, except where foreign bodies are in the anterior chamber. If they are embedded in the iris, there is great danger, in using the Haab magnet, of pulling the iris out with the foreign body. In such cases Professor Schmidt-Rimpler¹ recommends exsection

of the iris, and that the Hirschberg magnet be used to complete the operation.

Wounds by contusion are of interest from a medico-legal standpoint especially when there is no hemorrhage into or rupture of the membranes of the eye. In such cases we may have a condition of traumatic anesthesia of the retina or molecular shock (Baudry) as described by Leber, Berlin, de Schweinitz and others, resulting in total temporary blindness or permanent partial blindness. In such cases we may have contraction of the field of vision, with good central vision and with total absence of objective symptoms.

The attending oculist or medical expert called by the court may be asked to testify in damage suits involving thousands of dollars, as to the existence of real or functional blindness.

Makin² in his interesting book relates a number of cases of contusion produced by bullets causing total blindness. In one case contraction of the field of vision resulted, with symptoms of a lesion involving the upper part of the uncinate lobe about the calcarine fissure. In this case in particular he says: "I feel satisfied that there is considerable loss of sight in the right field also, but the functional element obscures its exact nature."

Among the indirect injuries to the eye, I desire to dwell especially on those classified as due to concussion. It is difficult to always differentiate certain nervous conditions of the eye, classified as concussion, from those produced by contusion.

Concussion of the brain as described by DaCosta and others, "is a force that shakes, oscillates or jars the brain, giving rise to waves of cerebral fluid." Such waves may be transmitted to the fluids of the optic sheath, resulting sometimes in hyperemia of the nerve, either unilateral or bilateral, and occasionally passive blindness. Hysterical amblyopia may result from concussion of the brain, not alone from hysteria, but many latent nervous diseases may be hastened by concussion (Bailey).

To differentiate between feigning, hysterical amblyopia and concussion is indeed a difficult problem, especially when the blindness is bilateral. Blows or injuries on the periphery of the orbital wall or on contiguous bones of the face, may bring about concussion of the eyeball and nerve, producing temporary blindness and even slight permanent alteration of sight. Where we have no direct injury, vibratory force or possibly stunning is, without doubt, the cause of the loss of sight.

L. M., manufacturer by profession, while en route from Indianapolis to New York City, was, according to the history of the case, thrown violently from the train while in motion, striking on the forehead and bridge of the nose with sufficient force to cause unconsciousness for three hours. The man was brought to the city of Indianapolis the second day after the accident and confined in one of our hospitals. I saw him two days after the injury. The forehead and nose were badly contused and there was a slight bloody discharge from the nose. Eyeballs normal in appearance. Conjunctiva slightly edematous, tenderness along supraorbital ridge.

The patient said he could not see; could open eyelids normally; no muscular insufficiency of any kind could be detected. Pupils reactive to light. Examination of fundus showed nothing abnormal. Pulse at this time was 60, temperature slightly subnormal, breath fetid.

On the fourth morning the patient said he had suffered, during the night, a great deal of pain at the back of his head. Optic nerves were very much hyperemic and congested. On the seventh day, in addition to the eye symptoms, the patient complained that he could not hear in right ear; tuning fork C, 512 was heard for four inches through the air. The con-

1. Amer. Jour. of Ophthal., February, 1904.

2. Surgical Experience in South Africa.

gestion of the optic nerves after five days began to clear up. In a few days the nerve was quite normal. About this time the patient claimed he could not open his eyelids. The eyeballs were much deflected, resembling paralysis of superior oblique muscles, so much so that ophthalmoscopic examination of the nerves could be made only with great difficulty. The case continued in this condition for six weeks, when I lost track of the patient. At my last examination I emphatically told patient there was no excuse for his not seeing.

Because I, unguardedly, some twenty days after the accident, told the patient and his attorney that atrophy of the optic nerves would probably follow the congestion, the patient brought suit for \$100,000 on account of blindness. Six weeks after the injury I read in the paper of a sudden miraculous return to sight in the right eye of my patient, superinduced by accidentally striking his head against some object. Ten days after this injury, in the presence of a number of oculists of our city, Dr. J. L. Thompson conducting the examination, the patient was anesthetized and right eye bandaged up. On his partial return to consciousness, he said that he could see out of the left eye.

One year afterwards suit was instigated and damage was awarded to plaintiff for \$2,000 on grounds of temporary blindness. As a witness in the suit, I testified that during my observation of the case objective symptoms indicated vision, while subjective symptoms indicated blindness. The temporary congestion of the nerve and early action of the case would indicate blindness from concussion. The concussion may have produced hysterical amblyopia. On the other hand, many symptoms of the case would indicate feigning blindness, a proposition advanced by the defendants.

It must be remembered that many remote conditions may result from concussion. These conditions, according to Walsham, occur more likely in those with predisposition to nervous diseases. Among the remote ocular conditions mentioned are optic neuritis and atrophy.

In conclusion I want to say that I believe it unfortunate that in damage suits the real physical condition of the patient is often obscured by both the attorneys for the plaintiff and the defendant. Only such evidence as may appeal to the jury is too often brought out.

To give a history of the case, with complete and accurate conclusions, too often subjects the physician to ridicule, detracting proportionately from the value of his testimony. It is for this reason that we are compelled for self-protection before a court of justice to volunteer no information and answer questions as briefly as possible.

DISCUSSION.

DR. H. M. STARKEY, Chicago, agreed that these cases of injury are most perplexing; not only the cases where damage is sought for injury, but the pension cases. Every case that comes to the Pension Bureau with loss of vision from injury or when applying for pension is viewed as a case of probable malingering, and it is the rule of the Pension Bureau where there is no physical condition to account for the blindness to reject the claim. As a rule, this is undoubtedly right, but still there are cases where that is not justice. There are cases in ordinary practice where there is no reason for the patient to want to appear blind, and where no physical reason can be found for the reduction or loss of vision. Dr. Starkey has had several such cases, in neither of which was there injury to the eyeball. The first patient was a man aged 30, who first came to him November 4, 1901, having suffered injury sixteen days previously from an explosion. The eyes escaped because of very thick glasses which he wore, being a myope of high degree. The lashes and other hair on the face were singed. Vision in one eye was 20/20 and in the other 20/50 at times, but he would see for a moment and then lose the sight suddenly. Vision improved in this case gradually to 20/30. The second case was that of a young man shot at from a distance of seven feet with a thirteen caliber ball. The bullet struck the border

of the orbit, but did not penetrate the eyeball. It was extracted from near the ear and sight was permanently lost.

Dr. J. L. THOMPSON, Indianapolis, stated that the patient mentioned in the paper was brought to him some weeks after Dr. Kyle had examined him. It was a very difficult case to examine, as he persisted in closing the eyes, and when the eyelids were lifted the eyes were forcibly turned downward. The pupils responded to light promptly, but that may take place when the patient is not pretending blindness. It is never wise to give an opinion hastily in such cases, because there is no certain test which is proof that a patient can see when he persists he is blind in both eyes, especially if he persists in shutting his eyes and looking down when his lids are raised. Dr. Thompson made several appointments with the patient's brother-in-law, who is a physician, and who was very honest about the matter. Five or six subsequent examinations were made at stated intervals, when drawings were taken of the fundus of each eye, with extreme difficulty. After some weeks the patient claimed that sight returned to one eye, but that he could see nothing with the other. This made the case a very easy one. A prism was placed before the seeing eye, the lids of both eyes were lifted by an assistant, when it was plainly evident that he could see with both eyes. Dr. Thompson did not inform the relatives of his discovery, but told the patient's brother-in-law that he must be examined under chloroform to determine as to the paralysis of the superior recti muscles, and of the upper lid muscles. All the physicians who had examined him previously were present when the chloroform was administered. As he was recovering objects were held above the eyes and he raised the eyeballs and lids with ease. The seeing eye was closed and he recognized the physicians with the blind eye and called them by name. The relatives were told that it was a case of hysteria, thinking thereby to let him down easily, supposing that would be the last of the case, but many months afterward the jury found that the hysteria was caused by the injury and awarded him several thousand dollars.

DR. H. V. WÜRDEMANN, Milwaukee, declared that, to be of use to the jury, the testimony of the medical expert, more particularly as to ocular injuries, should not be alone confined to the ocular lesion that may be present, and the effect of that lesion on the sight, not only the visual acuity and all the other visual factors, but also to their effect on the earning capacity of the individual. Of what does it avail the jury to tell them that a man has suffered from paralysis of the inferior rectus muscle, or that he has a hemanopsia? The testimony should, if possible, show that there is some actual lesion and should be described in plain language. In loss of vision from injuries attended by internal lesions which cause damage to the optic nerve, it is very difficult for the expert to demonstrate this to the jury. In the collection of the Supreme Court and Appellate Court judgments in the last ten years Dr. Würdemann has found but few cases in which the damage was not awarded except for loss of an eye or some great internal injury. They run from \$150 for a black eye to \$12,000 for loss of both eyes. Physicians should testify regarding the permanent results of the accident where possible. The medicolegal relation of these cases is not alone that which deals with the patient and his loss of earning ability, but also to the party causing the damage and to the physician or consultant who has seen the case previously. Dr. Würdemann has been in a considerable number of damage suits, and found that there is generally some blame attached to the physician who attended the case. This is especially true of the fourth of July accidents.

DR. EDWARD JACKSON, Denver, in reference to the detection of simulated blindness in both eyes, said that he believed that the plan suggested by Priestley Smith several years ago will be found always satisfactory. It is a prism test, not based on diplopia, but on the behavior of the eyes when both are open and a sufficient strong prism is placed before one. A person with binocular vision can not avoid the movement of one eye to escape diplopia when the prism of 8 or 10 degrees is placed before it with the base toward the temple. If there is vision in the two eyes there will be movement in the eye

before which the prism is placed. The patient can not overcome the impulse of attempting simulation. There may be a form of hysterical blindness in which the eye movements are under the subjection of some inhibitory influence, the same influence that causes the inhibition of the visual centers, in which this test would not work, but voluntary simulation can always be detected in this way.

DR. JOHN J. KYLE agreed with Dr. Würdemann that the jury would rather see the injury or result of injury than have the physician tell them about it. He was on a case a few weeks ago where a woman claimed damages for deafness, alleged to have been caused by a fall from a street car. From examination we had to deal with a case of labyrinthine disease. The attorneys for the woman wanted to prove that there was a perforation of the drum, which the woman did have. They wanted this fact brought out, instead of the fact that there was a labyrinthine trouble, knowing the jury could fully realize the danger of a perforated drum, and could form no conception of any trouble of the labyrinth, and by insisting on this point they secured damages.

IS BILATERAL OPERATION FOR CATARACT EVER JUSTIFIABLE?

AND IF NOT, HOW SOON AFTER THE OPERATION ON THE FIRST EYE IS IT SAFE TO EXTRACT THE SECOND CATARACT?*

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An exhaustive review of text-books, medical journals, special periodicals and pamphlets revealed a total lack of literature bearing on this subject, and a letter of inquiry, sent to forty-one competent and experienced oculists in different sections of the country, showed the greatest diversity of opinion; about an equal number being on each side of the question.

This paper, therefore, is largely based on a personal and clinical experience of more than fifteen hundred cataract operations.

I can conceive of no circumstances that would justify me in making bilateral extraction of cataract. There are so many sources of infection and so many opportunities for it, that we can never be sure that an eye will not be infected during or after an operation, however careful we may have been in our work, or however perfect the patient's local, mental or physical condition may have been. The difficulty of cleansing the conjunctival sac is well-known. Indeed, the assertion has been made that the sac can not be made aseptic.

The intimate connection, through the lachrymal canal, between the nasal mucous membranes and the conjunctiva, renders the latter peculiarly susceptible to all the irritations and inflammations of the former, and every operator must recall to mind cases of infection traceable to this source. Regardless of the great advance made in the operation for cataract and its after-treatment, in spite of every precaution, suppurative occasionally occurs, and will continue to occur. A distinguished surgeon recently stated to me that he had seen suppurative occur thirty days after a seemingly successful extraction.

More frequently an iritis springs up, not necessarily fatal to the eye, but most distressing to the patient, and equally discouraging to the surgeon. Unexpectedly and without apparent cause, an anomaly in the healing pro-

cess sometimes becomes a menace to the eye after extraction, adding another danger as to infection, and this would necessarily interfere with the normal process of healing in the fellow eye. I have had cases take not only days, but weeks, for the thorough healing of the corneal wound, there being all the while slight, gradually diminishing seeping of the aqueous through the wound. Some remote or hidden constitutional weakness was no doubt the cause of this. Such a case is a decided disturber of the surgeon's peace of mind, and would be suggestive of grave disaster in a case of double operation for cataract. Therefore the possibility of infection alone, should cause the too enthusiastic surgeon to pause and seriously consider, before proceeding to the bilateral extraction.

How absolutely helpless a patient must feel, with both eyes operated on at the same time; and if a severe form of iritis or other serious inflammation should set up in one or both eyes, there would certainly be great mental depression; and a cheerful and hopeful spirit is a mighty force in aiding recovery from any ailment.

A certain amount of experience, arising from the patient's peculiarities and from possible complications, is always gained by making the single operation, whether the results be good or bad, and the use of this knowledge would surely be a valuable guide, and increase the chance of success on the second eye. Not infrequently it has happened to the most experienced and competent oculist that an eye has been lost after extraction through inflammation or other mishap—whereas later on, guided by his first experience, the other eye has been operated on by the same surgeon with perfect success. Now and then it happens that an eye lost through violent inflammation following a cataract operation, requires to be enucleated because of the sympathetic irritation, before we dare proceed with the operation on the other eye. It is easy to predict what would have happened to the fellow eye, had bilateral extraction been performed in such an instance. In this connection I would say that sympathetic ophthalmia is not a frequent, but a distinct element of danger, to be reckoned with in considering the double cataract operation.

Accidents and the patient's disturbed mental condition following cataract extraction, are contraindications to the bilateral operation. The unmanageable patient tossing from side to side of the bed, displacing his bandage, striking the eye with his hand, springing suddenly up in bed and by a strain disturbing the corneal wound, coughing, sneezing, etc., are actual occurrences in the hands of every experienced operator.

I once had a patient, who from a violent fit of coughing, sneezing and vomiting, had a profuse intraocular hemorrhage with complete emptying of the contents of the ball. If one could be happy under such circumstances, I was reasonably so, when I reflected that the other eye had not been touched. Loss of the vitreous, hemorrhage, panophthalmitis following accidents, glaucoma and possible sympathetic inflammation, with infection from many sources, constitute a chapter of possible accidents with such dreadful results, that I feel warranted in asserting that it would be unwise and unjustifiable to extract both cataracts at the same time.

Mental disturbances after cataract operations are of sufficient frequency to cause the surgeon some concern. Occasionally, after several days of confinement with both eyes bandaged, the patient becomes melancholy, has hallucinations and, in rare instances, becomes violent and ungovernable. This condition generally passes

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

rapidly away on uncovering the other eye, even though this is practically blind, and getting the patient into the fresh air. One such patient threw himself through a window, carrying sash and glass with him, while in this temporarily perturbed mental state. Another, who had been a sleep walker in his boyhood days, eluded his attendant and climbing through a second story window, leaped to the ground below. Again, I would say, there is some comfort in such cases, when we consider that only one eye has been operated on.

On one occasion Mr. Nettleship, a surgeon of vast experience, after having extracted one cataract under general anesthesia, turned to his class and remarked: "Now, gentlemen, what a temptation the opportunity presents to extract the other. But, gentlemen, never do so, until your patient has fully recovered from the first operation."

Looking at it from every point of view, to my mind, the extraction of cataract is one of the most important of all surgical operations, the whole future of the patient depending on its successful outcome. Answering from the standpoint of the patient, would one of us willingly submit to the bilateral extraction? I would myself unhesitatingly cry out "No!"

The second part of my subject is quickly answered. "How soon after the operation on the first eye is it safe to extract the second cataract?"

There are competent surgeons who maintain that it is not wise to operate on the second eye at all, if good results follow the first operation. There are good reasons for this conclusion. The frequent disturbance of muscular equilibrium, the confusion due to unequal vision in the two eyes, constitute reasonable grounds for advising against the second operation, provided the first has been a success.

My rule, however, is to operate on the second eye if the patient desires it, but I do not urge the operation. Circumstances should always guide us in selecting the time for the second operation, but except for some special reason, I prefer to wait six or eight weeks, when the first eye has recovered from all reaction, and the general health of the patient has been thoroughly restored. There can be no rule; each case must be its own law, but I am convinced of the fact that in ignoring the patient's desire for haste, we are but adding to his chances of successful results.

DISCUSSION.

DR. J. M. RAY, Louisville, considers that the majority of ophthalmic surgeons will agree almost entirely with Dr. Calhoun. Fortunately, as a rule, cataract matures in one eye before it does in the other, and so one cataract can be extracted before the other requires operation. Early in his career Dr. Ray became prejudiced against the double operation, and while he has seen it done once or twice he has not attempted the procedure. He sees no reason, however, why, in six or eight days after a perfectly smooth operation, the second eye should not be operated on, if the anterior chamber has perfectly reformed and if there is no reaction. The only class of cases to be excepted are those in which it is necessary to give a general anesthetic. In persons under 50 it is wise to urge the removal of cataract in the second eye, but at another time, while in persons over 70 Dr. Ray is inclined against operation on the second eye, because they can get all the vision necessary with one eye. In cases between these ages he generally leaves it to the patient to determine.

DR. J. L. THOMPSON, Indianapolis, said that before he knew so much about it he had almost phenomenal success in operating on both eyes at the same time. He operated on eleven persons with excellent results. One old gentleman of 87 lived

to 106 years and 3 months old and read until he died. But Dr. Thompson would not do the double operation now under any circumstances. Two of his patients went quite insane for a while, but there was a good result finally. Afterward Dr. Thompson changed to operating on the second eye eight days after the first, and now that is not correct. The patient may appear well and then in twelve or fourteen days some inflammation show itself, so that he does not now operate on the second eye until three months after the first operation, and, where one eye has been lost, he always does a preliminary iridectomy and then waits six weeks before extracting the lens. He thinks very much is to be gained by this preliminary iridectomy.

DR. HOWARD F. HANSELL, Philadelphia, said that during last winter he reported to the Ophthalmic Section of the College of Physicians the results of seven cases of bilateral operation. Since then he has operated on five more patients. His experience leads him to believe that the operation is not only justifiable but advisable in selected cases. The risk to vision is no greater, indeed less than that incurred by two single operations. His practice is to fully explain the situation to the patient and allow him to decide, since the procedure is one of choice rather than of necessity.

DR. LEWIS H. TAYLOR, Wilkesbarre, Pa., stated that he believes that we are never justified in operating on the second eye at the same time as the first. He mentioned one case in which the patient had been operated on in a neighboring city by a good surgeon, who performed a successful operation, and in spite of that fact the eye was lost. Iridocyclitis set up and the eyeball had to be enucleated. When the time came for operating on the second eye, knowing this history, Dr. Taylor felt a little afraid and advised the patient to go to New York, which he did, and was operated on there by one who has had the largest cataract experience of any of us, the second eye being lost in the same way as the first. Now, had that patient been operated on the first time in both eyes nothing, in his opinion or in that of his friends, would have exonerated the surgeon. Dr. Taylor always advises the patient to go home and remain some time until everything has quieted down before having the second operation.

DR. PETER A. CALLAN, New York, thinks that Dr. Calhoun is a little too radical. Dr. Callan has never hesitated to perform a double cataract extraction, and so far has escaped disaster. There is no question but that Dr. Callan's stand, in the main, is correct, but if all his ideas are followed out no eye would ever be operated on; that is to say, there are so many difficulties that one would rarely operate at all. Dr. Callan never hesitates, if the patient desires it, to operate on both eyes if the conditions are such as to justify it. He does not think that any fast and fixed rule can be made. As to the patient being satisfied with removal of the cataract from one eye, he thinks that is a mistake.

DR. C. F. CLARK, Columbus, Ohio, declared that he does not think that a physician is ever justified in being influenced by what the patient desires. The physician must decide that on his own responsibility on medical grounds, and if the second operation is desirable it should be done, but the responsibility should not be shifted to the patient.

DR. E. E. HOLT, Portland, Me., stated that he used to operate on both eyes, but for the last four or five years he has absolutely refused to do so. He never had a bad result, and often looks back on his experience now and wonders that he did not. He remembers going to a neighboring state and operating on two patients in this way in one day. One was 92 years old, and the patient wrote Dr. Holt letters for four years after the operation. But, while he has never had a bad result, nothing could induce him to do the double operation now.

DR. A. W. CALHOUN stated that his early experience was very much like that of Dr. Thompson. In the beginning, he operated on both eyes, but later he made up his mind never to do it again. He saw in the hands of a friend a case in which both eyes went wrong, and since then he has not done the double operation. Dr. Calhoun said that it is possible for suppuration of the wound to take place, or a slow form of

iritis may spring up within two weeks or more after the operation. To operate on the fellow eye after a week or ten days and then have an iritis occur in the first eye would be very bad. Another thing is that these patients are very liable to have conjunctival troubles make their appearance from one to three weeks after the operation. For these reasons Dr. Calhoun has come to the conclusion that it is best to wait six or eight weeks, or even longer.

A NOTE ON THE OPERATION OF GASTROENTEROSTOMY.

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I am prompted by the report of a discussion on various gastric operations, which was published in *THE JOURNAL of the American Medical Association*, Sept. 17, 1904, to send a brief description of the operation of gastroenterostomy as I now practice it. The papers and the contributions to the discussion in *THE JOURNAL* are of the highest merit; and the distinction and the wide experience of all those who joined in the debate make the opinions therein expressed worthy of serious thought. The fact that there was not a little difference of opinion as to the mere mechanics of the operation of gastroenterostomy is my excuse for this paper.

I propose briefly to describe the method of gastroenterostomy by suture which I now adopt. It is modified in some slight degree from that which I mentioned in a paper I had the honor to read in May, 1903, before the American Surgical Association.

We may assume that any method of intestinal anastomosis must possess certain attributes which are of primary importance. These are:

1. Simplicity. The simplest surgery, provided the desired purpose is accomplished, is the safest surgery.
2. Rapidity. The quicker an anastomosis is completed the better.
3. Absence of exposure of viscera. In all abdominal operations there should be no unnecessary exposure nor handling of any part; while the manipulation of the area of anastomosis is going on, all other parts should lie within the abdomen and out of sight.

4. Perfect security of apposition immediately on the completion of the anastomosis and for a length of time sufficient for sound healing of the united viscera.

I believe that the method of gastroenterostomy by simple continuous suture with the aid of clamps fulfills all these essentials with perfect success.

TECHNIC OF OPERATION.

The operation of gastroenterostomy is performed in the following manner: The abdomen is opened about three-quarters of an inch to the right of the middle line, and the fibers of the rectus are split. After the peritoneum is opened, the great omentum and transverse colon are lifted out of the abdomen and turned upward over the epigastrium. The under surface of the transverse mesocolon is exposed, and the vascular arch, formed mainly by the middle colic artery, is seen. A bloodless spot is chosen, a small incision made in the mesocolon, and the finger passed into the lesser sac. The opening of the lesser sac is not always quite easy, and this is more particularly the case where there are adhesions between the transverse mesocolon and the stomach. It will be found of advantage to seize a small portion of the mesocolon in a clip, at a point near the spot selected for the opening. On drawing the clip away from the stomach the mesocolon is put on the

stretch; a snip of the scissors by the side of the clip opens the lesser sac at once. The opening in the mesocolon is then gradually enlarged by stretching and tearing until the fingers can be passed through it. It is occasionally necessary to ligate a vessel. The left hand of the surgeon now makes the posterior surface of the stomach present at this opening, and with the right hand the stomach is grasped and pulled well through. A fold of the stomach, about three to four inches in length, is seized with a clamp (a modification of Doyen's clamp), whose blades are sheathed in rubber tubing. The clamp is applied in such a way that the portion of the stomach embraced by it extends from the greater curvature obliquely upward to the lesser curvature and toward the cardia. This is accomplished by applying the clamp obliquely, the tip of the blades pointing to the patient's right shoulder and the handle to the outer side of his left hip. It is important that the point on the greater curvature held by the clamp should be the lowest point. This is made certain before the stomach is turned over to reach its posterior surface, by observing that point which lies lowest in the abdomen. When the posterior surface is exposed, special care is taken that this lowest point is fixed in the end of the clamp.

The duodenojejunal angle is now sought, and readily found by sweeping the finger along the under surface of the root of the transverse mesocolon to the left of the spine. The jejunum is then brought to the surface, and a portion of it, about two to five inches from the angle, is fixed in a second pair of clamps. The two clamps now lie side by side on the abdominal wall, and the portions of stomach and jejunum to be anastomosed are well outside the abdomen, embraced by the clamps.

It is most important that precisely the right portion of the jejunum should be selected for the anastomosis. Almost all operators select a point far too low down. I decide on the point for the anastomosis by grasping the jejunum in my fingers and pulling it taut from the flexure. The jejunum while so held is laid against the posterior surface of the stomach and the fingers are moved along until they grasp the point which reaches exactly to the greater curvature of the stomach. The clamp is then applied so that this portion is the lowest piece (the piece that is most distal from the flexure) embraced by it. The result is that the jejunum from the duodenojejunal angle to the anastomosis forms a straight line, not a curve. The relation, therefore, is that which approximates most nearly to the normal. It is, I believe, the sagging of the jejunum, when a point eight to twelve inches or more from the flexure is used for the anastomosis, that is responsible for regurgitant vomiting.

The stomach, with the exception of the part embraced by the clamp, is returned to the abdomen through the upper part of the incision. The whole operation area is now covered with gauze wrung out of hot sterile salt solution, the clamps, with the stomach and jejunum which they embrace, alone being visible outside the abdomen. A continuous suture is then introduced uniting the serous and subserous coats of the stomach and jejunum. The stitch is commenced at the left end of the portions of gut enclosed in the clamp, and ends at the right. It begins on the stomach in that part which is nearest to the cardia and to the lesser curvature, and on the jejunum at that point which is nearest to the duodenojejunal flexure. The length of the sutured line should be at least two inches; its average length is two and one-half or three inches.

In front of this line an incision is now made into

the stomach and jejunum, the serous and muscular layers of each being carefully divided until the mucous membrane is reached. As the cut is made, the serous, muscular and submucous coats retract and the mucous layer points into the incision. The cut edges of these coats are loosened all round from the underlying mucosa. An ellipse of the mucous membrane is now excised from both stomach and jejunum, the portion removed being about one and three-quarters or two inches in length, and rather more than half an inch in breadth at the center. The gastric mucosa shows a marked tendency to retract; it is, therefore, seized with a pair of miniature (French) vulsella on each side. No vessels are ligated, as a rule. The cut surface of the bowel and stomach may occasionally ooze slightly; this can be checked at once by tightening the clamps one notch.

The inner suture is now introduced. It embraces all the coats of the stomach and jejunum, and the individual stitches are placed close together and drawn fairly tight, so as to constrict all vessels in the cut edges. This suture begins at the same point as the outer one, and is continued without interruption all round the incision to the starting point, where the ends are tied and cut short. It will be found that there is no need to interrupt the stitch at any point, for there is no tendency on the part of the sutured edges to pucker when the stitch is drawn tight. It is indeed a positive disadvantage to interrupt the suture anywhere, for by so doing the hemostasis is not so secure. The clamps are now removed from both the stomach and the jejunum, in order to see if any bleeding point is made manifest. Very rarely—about once in ten cases—a separate stitch at a bleeding point is necessary. The outer suture is now resumed and continued round to its starting point, being taken through the serous coat about one-sixth of an inch in front of the inner suture. This outer stitch is also continuous throughout; when completed, the ends are tied and cut short, as with the inner stitch. There are thus two suture lines surrounding the anastomotic opening—an inner hemostatic, which includes all the layers of the gut; and an outer approximating, which takes up only the serous and subserous coats.

For both stitches I use thin Pagenstecher (celluloid) thread. The needle used is of a special pattern, being rather more than half a circle and having a slot-eye for easy threading. In introducing the stitches it will be found a great advantage to draw lightly on the thread between the needle and the last stitch. A little ridge is thus raised up both in the stomach and in the intestine, and into these ridges the needle passes quite readily. There is, then, no need to dip down, as it were, to pick up the gut on the point of the needle.

The gut is lightly wiped over with a swab, wet in sterile salt solution, and the stomach and transverse colon and omentum which had been replaced within the abdomen are now withdrawn.

With the left hand holding these and the right holding the jejunum, the slit made in the mesocolon is seen to embrace the line of suture snugly. Two or three interrupted sutures are now introduced which unite the margins of the slit in the mesocolon to the jejunum close to the suture line. As a rule, I use three stitches, one on each side, and one at the lowest point of the anastomosis. The result of this is that the line of suture in the anastomosis is not seen from below. It is everywhere closely embraced by the edges of the rent in the mesocolon, and it is thereby considerably reinforced. Leakage from the suture line or yielding of it is vir-

tually impossible; it has never occurred in any of my operations. If it were possible, it would be rendered very much less likely by this little modification.

There are one or two fears entertained with regard to the operation of gastroenterostomy which may be dissipated. The first of these refers to regurgitant vomiting. Regurgitant vomiting is a thing of the past. In over 100 consecutive cases I have never seen any vomiting except that due to the anæsthetic, and very rarely that. There can be no question that patients after gastroenterostomy vomit less than patients after any other abdominal operation. This may be due to the very slight exposure and handling of parts or to the fact that a new and free road from the stomach is now open. In my early cases I noticed regurgitant vomiting of a severe type in three patients; on two of these I operated a second time, performing entero-anastomosis.

Regurgitant vomiting is prevented in the operation I describe by attention to three points:

(a) The anastomosis is made very high in the jejunum; there is no loop.

(b) The anastomosis is made at the lowest part of the stomach.

(c) The patient is propped up in bed as soon as he begins to come round from the anæsthetic.

The second of the fears is that which has reference to the subsequent narrowing of the new orifice. This fear is ill founded. When narrowing and closure of the new opening occur I believe that they are due to imperfection in the method which has been used. By the operation as now described, a large opening, not a slit, is made between the two viscera. The free removal of the mucosa (which I was the first to practice and for thought of which I am indebted to the Murphy button, which "stamps out" a piece of the stomach wall), lessens the likelihood of closure. This alone, however, could not prevent it. In addition to this removal of mucosa, it is necessary to make the opening of large size; of a size, too, that is not always the same, but is proportioned to the size of the stomach. When a greatly dilated stomach is operated on and a free outlet made from it, it is obvious that, under the new conditions, the stomach will speedily lessen in size. As it does so, the new orifice lessens also; moreover, some cicatricial contraction in the orifice occurs. The result will be that the anastomosis becomes less than it was when the surgeon left it. It is absolutely necessary, therefore, that when a very large stomach is operated on the size of the orifice should be large.

By the method I adopt, an opening of any size can be made, and on one occasion, when dealing with an amazingly dilated organ, I made the anastomosis four inches in length. Dr. W. J. Mayo has often expressed the opinion that contraction in the new anastomotic opening is due to a renewed patency of the pylorus. Anyone who has seen Dr. Mayo at work, who knows his vast experience, and who realizes the wonderful accuracy of his judgment, will not be eager to dissent from him unless strongly convinced of the accuracy of his own observations. In the opinion which I have just quoted I can not acquiesce. I have seen an anastomosis which I have made (on reopening the abdomen for another purpose) after two years, and though the pylorus was, and always had been patent, there was no appreciable shrinkage in the size of the opening. In two recent cases I have repeated this experience. Marked shrinkage in the size of the anastomotic opening is due, therefore, I believe, not to any condition of closure or

patency of the pylorus, but to errors in the making of the opening. The new orifice should always be large, and when occasion demands it, should be as much as four inches in length. For this reason a transverse incision in the jejunum, as made by Mikulicz, is undesirable. The opening when so made can not be longer than the diameter of the jejunum, and this size even in an ordinary case is not enough.

Such additions to operations as enteroanastomosis closure of the pylorus, etc., are entirely unnecessary. If the operation is properly performed there is no loop; the two branches which are to be joined in an entero-enterostomy do not, therefore, exist.

The average time needed for the performance of the operation, from beginning to end, is between twenty-five and thirty minutes. I have done the operation in seventeen minutes, in twenty-one minutes, and perhaps a score of times in less than twenty-five minutes. But these times are exceptional, and were due to the need of haste, owing to the poor condition of the patient. The usual operation lasts twenty-five to thirty minutes.

Finally, I venture to urge that those surgeons who are undertaking operations on the stomach in large numbers will give this method of mine a reasonable trial. It is the simplest of all methods, rarely offers any difficulty, and has been attended by most satisfactory results. I can not think that elastic ligatures and twines or any mechanical appliances possess equal safety or simplicity. I have performed gastroenterostomy in 162 cases of ulcer of the stomach and duodenum (excluding hour-glass stomach, for which a double operation is often necessary). In 20 cases the operation was done for acute hemorrhage (with excision of ulcer in 2) with two deaths. In 142 cases of chronic disease there were two deaths.

The two deaths in the acute hemorrhagic cases were due to great collapse at the time of operation and were the result of an unsuccessful attempt to save lives doomed, without doubt, unless operation could save them. The deaths in the chronic cases were due, the first to a hernia of all the small intestine through the opening in the mesocolon (this is prevented now by the stitching of the mesocolon to the jejunum); and the second to failure of the kidneys.

Clinical Report.

A LAYMAN'S TREATMENT OF A URETHRAL STRICTURE AND RETENTION OF URINE.

C. J. RINGNELL, M.D.

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MINNEAPOLIS.

Many curious incidents occur in the practice of medicine and surgery, but the one which I am about to relate is certainly unique.

Condition on Admission to Hospital.—One evening, some time ago, I was called to the hospital to attend an old man who had been brought in from the country suffering from some trouble for which prompt relief was necessary. On approaching the bed I noticed the odor of gangrene and decomposed urine; the patient had an anxious look about him; he was excited at intervals and at times delirious; tongue was coated and dry; there were sordes on the teeth, and the lips were parched. The respiration was labored; pulse small, wiry and rapid; temperature 100 F. The trouble was evidently of a grave nature.

History. From the young man who had brought the patient to the hospital I gleaned the following history of the case: The patient was a widower, aged 64, and lived a hermit life by one of the beautiful lakes not far from this city, cultivating a few acres of land and amusing himself with fishing and hunting whenever a change was desired. His health had always been good, with the exception of an old urethral stricture of which only his most intimate friends had any knowledge. (I mention this because no one but the young man who told me these facts had any idea of the condition the old gentleman was in just before being brought to the hospital.) The old fellow's neighbors were few and far between and so at times he would get lonesome and wander away to the city; there his old habit of indulging too freely in strong drink would return, and, as alcoholic drinks and old strictures are generally incompatible, trouble of an annoying nature invariably ensued. On such occasions a physician was generally consulted, and a catheter brought the desired relief. This operation had been repeated so often that the sufferer had acquired some knowledge of its execution, but at times the technic would be faulty. Rubber catheters, straws, and various other objects of a similar nature had been employed in the execution of this delicate operation. Before leaving the city after the last visit, a good-sized flask of whiskey had been procured. Feeling tired and weary on his arrival home, after the troublesome journey and "good time," the color of the flask soon began to change. Beer and various mixed drinks are fairly efficient diuretics, and as overstimulation at times produces a certain amount of anesthesia, the bladder soon became overdistended and the muscles, instead of relaxing, contracted. The old stricture also refused to relax, and right here the trouble, which proved so stubborn and refused to yield, although the most extraordinary treatment was resorted to, commenced, for which my services were sought. The catheter could not be found, so various sizes of straws were collected and manipulated in the usual manner; but the old stricture was firm and refused to let Nature's instruments pass. It was now far into the night, and no physician could be reached. The kidneys continued their work, and the bladder was filling up rapidly. Relief must come soon!

The Patient's Treatment.—There was no one to consult with, and a new line of treatment, which finally proved disastrous, was instituted. Some years ago, while drilling and blasting ledges of rock in a stone-quarry, the power of gunpowder had been observed. Why should it not work here. The ammunition box was secured and a few cartridges emptied of their contents. The urethra, from that incompressible stricture to the meatus, was carefully filled with powder; a lighted match was applied, and an explosion occurred, shattering the urethra and surrounding structures completely. But relief from the original trouble was only partial. The mutilation produced by the explosion brought on hemorrhage, extravasation of urine, septic inflammation and, finally, gangrene.

Hospital Treatment and Results.—Three days after this heroic treatment he was found and sent to the hospital. The gangrene had already invaded the scrotum and abdominal parietes, and treatment would, in all probability, be of no avail. Under other anesthesia, the gangrenous parts were removed, the bladder drained through the perineum and antiseptic dressings applied. The patient rallied after the operation, but the septic intoxication was too pronounced, and death ensued the following day.

Country Practice.—In 1871 Germany was a nation of 39,000,000 inhabitants, of whom 60 per cent. were engaged in the agricultural pursuits. In 1900 it had increased to an empire of 58,000,000 inhabitants, of whom 35 per cent. were engaged in agriculture and 65 per cent.—nearly two-thirds—in industry and trade. The above statistics suggest the inquiry whether a similar change has taken place in the United States. If so, this has considerable bearing on the proportion of country practitioners then and now.

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GOVERNMENT CONTROL OF VACCINE VIRUS.

It is seldom that the good effects of legislation are so quickly seen as in the results following the act of Congress, approved July 1, 1902, regulating interstate traffic in vaccine virus, antitoxin and analogous products.

In accordance with the provisions of this act and the regulations framed thereunder, the Surgeon General of the Public Health and Marine-Hospital Service is required to cause an inspection of the establishments manufacturing vaccine virus for interstate sale, and the director of the hygienic laboratory, of that service, is required to buy vaccine virus on the open market from time to time, and examine it to determine the presence of impurities or lack of potency. The laboratory examinations are made in accordance with the usual bacteriologic methods, and primary vaccinations in children are made to determine the potency of the virus and to study the character of the "takes."

We learn that it has been over a year since any great number of bacteria have been discovered in a vaccine point or capillary tube, and the bacteria that are present are of the harmless variety. The frequent inspections which, by the law, are required every year of the vaccine establishments by officers of the national health service and the almost constant laboratory examinations of the vaccine virus sold by druggists, have enabled the Federal Government to obtain a firm grasp on the vaccine situation of the country. The notable improvement in the quality of the vaccine virus is not only manifest in the lessened impurities, as shown by laboratory tests, but fewer infected "takes" are reported.

These results are especially gratifying, and recall Rosenau's¹ work in 1902-03, before the passage of the act above mentioned, at which time the many sore arms were readily accounted for by the serious contaminations found in vaccine virus produced by irresponsible manufacturers. Rosenau showed at that time that "green" virus was sold on the open market, and that manufacturers did not give sufficient attention necessary to the production of a clean product. Within a few months following the enactment of the law, four firms went out

of business, not having been able to comply with the modern requirements.

There is still one phase of the vaccine problem peculiar to the United States that needs the attention of the government. Greater care must be exercised by manufacturers in shipping their product from place to place. We know that milk, fruit, meat and all perishable products are shipped in refrigerator cars or under special conditions, and it is not too much to ask that similar precautions be taken in the transportation of vaccine virus—equally perishable and equally important. Much of the vaccine virus found on the market is impotent, because it has been sterilized in the baggage or mail car by too close proximity to the steam coils. Vaccine virus is particularly susceptible to a temperature above the body heat, and must be kept in a cool, dark place in order to retain efficiency. We understand that the Surgeon General of the Public Health and Marine-Hospital Service is giving attention to this phase of the question.

DUPLICATE TWINS AND DOUBLE MONSTERS.

From the lay point of view, the humorous complications which might and do occur in connection with duplicate individuals, seem to have found most favor, and since the time of Shakespeare and his "Comedy of Errors," we not infrequently find the twin both in literature and the drama. Even in medical works the similarities of twins rather than their dissimilarities have been noted and commented on.

Recently, H. H. Wilder¹ has completed an elaborate study of twins, in which he not only discusses their method of origin, but also considers their similarities and dissimilarities from a new point of view, namely, the resemblances and differences of configuration in the skin patterns of the palms and soles. As Wilder shows, there are two types of twins—those in which the pair are invariably of the same sex, and are characterized, especially as children, by their marked resemblance to one another, and those in which the pair may or may not be of the same sex, and are not more alike than children born of the same parents at separate births. The first class of twins Wilder calls duplicate twins, and the second class fraternal twins. From his investigations into multiple births, in which more than two children are born at a time, Wilder concludes that the same rule in a modified form holds good here. In the case of triplets, for example, two of them may be duplicate twins, and the third different, i. e., fraternal, or all three may be fraternal.

Wilder's studies of the finger and foot prints in duplicate and fraternal twins bring out many points of interest. He finds that in duplicate twins, with some minor exceptions, the finger and foot prints are the same in the two individuals down to, but not in-

1. The Bacteriologic Impurities of Vaccine Virus: an Experimental Study, M. J. Rosenau, Bulletin No. 12, Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service. The Antiseptic and Germicidal Properties of Glycerin. M. J. Rosenau, Bulletin No. 16, Hygienic Laboratory, U. S. Public Health and Marine Hospital Service.

1. American Journal of Anatomy, vol. III, No. 4, 1904. See a letter from Wilder in this issue of THE JOURNAL, page 1982.

cluding, the minutiae. He thinks that this difference in the minutiae is due to the fact that influences acting after birth may modify them, while the main patterns already exist at birth. In fraternal twins the foot and finger prints are no more alike than is usually the case with different members of the same family. Curiously enough, in the duplicate twins the index-finger pattern in one of the twins may be exactly reversed in position to that of the other twin; that is to say, the pattern in one twin may face toward the radial side, and in the other toward the ulnar side of the hand.

Wilder's explanation of the two forms of twins leads us into the field of experimental embryology. He thinks that in the case of the fraternal twins we are dealing with two distinct ova which became fertilized at the same time, and this view is borne out by the fact that twins of this sort usually have separate placentae. In the case of duplicate twins, we are dealing with a single egg fertilized by a single spermatozoon, which, after fertilization, begins to divide in the usual manner. After the first cleavage of the egg, the two resulting blastomeres become separated, and each develops into a separate child. That this actually does occur in some of the lower forms of animal life has been abundantly demonstrated by experimental methods, and that it is probably what occurs in duplicate twins is shown by the fact that such twins have each a separate chorion and placenta. In the case of duplicate monsters, which are very closely allied to duplicate twins, we have a partial instead of a complete separation of the two original blastomeres. The fused portions of the two blastomeres give rise to a single individual, while each separated portion gives rise to a separate individual. We can easily see, following this explanation, how in some instances double monsters are fused at the head, in other instances at the feet, and in other instances at the midportions of the body, this depending on the portions of the original blastomeres which were separated. Besides bringing out these many interesting facts, the study shows how few cases of twins there are which are adequately studied, and suggests a fruitful field for the general practitioner, who alone is often able to follow twins over the long period of years which must elapse to make such studies of value.

THE MODE OF ACTION OF ANTISTREPTOCOCCUS SERUM.

In 1895 Denys and Leclef immunized rabbits by injecting them with small but gradually increased doses of a virulent streptococcus, and succeeded in getting animals that were resistant to about one thousand times the minimum fatal dose for their organism. At about the same time, Marmorek, Roger and also Denys and Leclef immunized horses and mules against these organisms, and each of them obtained an antiserum that had some protective properties against the particular strain of streptococcus used in preparing the serum.

Since that time many other experimenters have prepared antistreptococcus sera which protected laboratory animals against many times the minimum fatal dose of the streptococcus used in preparing the serum, but it is still an open question whether or not any of these sera protects against a streptococcus coming from a different source and rendered virulent for an animal of a different species. Some investigators, as Van de Velde, Tavel and others, believe that antistreptococcus serum for clinical purposes must be prepared, not by injecting the animal with one strain of streptococcus, but with a mixture of cultures of many different strains of this organism. They hold also that the streptococci must not be passed through animals before they are used in immunization, but must be used as they come from the human body. This entire question is, however, still in a very unsettled state and needs to be investigated further.

The exact mode of action of antistreptococcus serum has also been made the subject of careful studies by Denys and Leclef, Bordet, Neufeld and Rimpau, Besredka and others. We know that antidiphtheria serum and antitetanus serum contain a true antitoxin for the soluble toxins of these organisms, and the neutralization of the toxin by the antitoxin may be likened to the neutralization of an acid by a base. Careful investigations have shown that there is another class of antisera which do not contain antitoxin, but are destructive of the bacteria. These are the so-called bacteriolytic sera, of which antidysentery serum is a good example. It has been shown conclusively that antistreptococcus serum is not a bacteriolytic serum, because streptococci multiply rapidly in it, and it is not likely that this serum is of the nature of a true antitoxin, because nobody has as yet succeeded in preparing a strong soluble toxin of streptococci. Some samples of antistreptococcus serum do, however, possess protective properties against these organisms, and they seem, therefore, to represent a third class of antisera. Bordet was able to show that there is more active phagocytosis of streptococci in the peritoneal cavity of a rabbit that had been injected with a dose of antistreptococcus serum than in the peritoneal cavity of a normal rabbit.

In the normal rabbit hardly any of the virulent cocci were taken up by the phagocytes, and the rabbit soon died of streptococcus infection, while in the treated rabbit all of the cocci were taken up, and if the dose was not excessively large the animal recovered. In test-tube experiments the addition of antiserum to a mixture of leucocytes and virulent cocci aids phagocytosis, but there is no lysis of cocci by a mixture of immune serum and normal serum. The filtered broth cultures of a virulent streptococcus do not prevent phagocytosis of the non-virulent streptococci. Bordet concluded from his experiments that the antistreptococcus serum stimulates the phagocytes so that they will take

up the virulent cocci. This conclusion was also reached by Besredka in a very recent paper on antistreptococcus serum. These experimenters do not believe that antistreptococcus serum is of the nature of an antitoxin, but that it is a stimulant to the phagocytes.

Whether or not this view is correct can hardly be stated positively at present, but the experiments of Denys and Leclef,¹ and very recently those of Neufeld and Rimpau,² make it seem very probable that another explanation is the correct one. It has been shown by these investigators that leucocytes from an immune rabbit, and also those from a normal rabbit, suspended in immune serum, take up and destroy many virulent streptococci, while neither the leucocytes from an immune rabbit nor those from a normal rabbit in normal serum will take up the virulent cocci, unless immune serum is added. If now the leucocytes are treated for twenty minutes to half an hour with immune serum, centrifugated out and washed in salt solution and then suspended in normal serum, it is found that they do not take up virulent cocci which are added to the suspension. If, however, the virulent cocci are treated with immune serum, then washed in salt solution and added to a suspension of leucocytes in normal serum, they are readily taken up by the leucocytes. These experiments show that the streptococcus immune serum does not bring about a change in the leucocytes, by virtue of which they are enabled to take up virulent streptococci, but that it has a direct effect on the cocci, changing them in some way so that the leucocytes will ingest them. It is not probable, therefore, that there is a stimulation of phagocytes, but the immune serum seems to neutralize something (toxin?) in the bacterial cells which protected them against ingestion by the leucocytes. Heating the antistreptococcus serum to 59 C. for one-half hour does not deprive it of its power to change the virulent cocci so that they will be taken up by the leucocytes, and hence Neufeld and Rimpau conclude that the serum owes this property to the presence of an amboceptor, or a substance having the nature of an amboceptor. This conclusion can, however, not be accepted without further proof.

In general, this view seems to be the correct explanation of the mode of action of antistreptococcus serum, and it becomes even more plausible when we recall the experiments of Wright and Douglas³ on the rôle of the body fluids in phagocytosis of less virulent bacteria. They have shown that washed human leucocytes do not ingest any bacteria unless the latter have been treated for some time with normal serum, or are added to leucocytes suspended in serum. We see, therefore, that phagocytosis of non-virulent bacteria by human leucocytes and phagocytosis of virulent streptococci by rabbit leucocytes, aided by immune serum, are two closely analogous phenomena.

ENURESIS IN CHILDHOOD.

Involuntary discharge of the contents of the urinary bladder is physiologic in infants, ceasing at varying times in different individuals. Control of the sphincter of the bladder by day is acquired earlier than such control by night. Intercurrent disease may delay the manifestation of continence. When the lack of control persists beyond the third year it may be considered abnormal, and it is then designated enuresis. In the absence of disease of the nervous system the disorder has been thought, on the one hand, to be merely a functional disturbance, or, on the other hand, to be a symptom or a sequel of underlying or antecedent disease. The distinction between functional and organic disease is, however, only one of degree, and while tangible evidence demonstrative of a pathologic basis is not obtainable in every instance of enuresis, it must be inferred that some morbid process or abnormal condition is present, often, perhaps, undiscoverable by present means of investigation. Testimony to this effect is given by Dr. J. C. Rey,⁴ in a recent communication, in which he details the results of a careful study of the state of the bladder and of the urine in 52 cases of enuresis in children during a period of five years. It was found that in the overwhelming majority of cases in which disease of the central nervous system, idiocy, infantilism and athyresis were not etiologic factors, the cause of the disorder could be traced to disease of the bladder or adjacent organs.

In order that enuresis, which may be considered physiologic in the first ten months of life, shall persist beyond this time and even after the third year, there is necessary, in the presence of an otherwise normal nervous system, and in addition to the direct or indirect irritation of the bladder, a certain degree of enfeeblement or deficiency of the will. This latter, likewise physiologic in infancy, may persist in consequence of habituation to the enuresis from vesical disturbance due to disease of the bladder or to some peculiarity of the urine. Such impairment of the will may persist longer than the affection of the bladder. The sudden improvement that follows application of the faradic current, epidural injections and the like, under such circumstances is readily explained on neurotic grounds; but, when the vesical irritation persists, all educational and antihysterical measures will prove futile. The cases in which enuresis appears to be the only symptom of hysteria in children are likewise readily explained in a similar manner, unless the disorder can be attributed to the existence of a cystitis or urethritis or their consequences, namely, residual hyperesthesia of the bladder and the neck of the bladder.

In order to clear up the etiology of enuresis, it is necessary, in all cases that continue under observation for some time, to make frequent chemical and bacteriologic examinations of the urine, and to take note, more

1. *La Cellule*, 1895, xl, 177.

2. *Deutsch. med. Wochens.*, 1904, xxx, 1458.

3. See *THE JOURNAL A. M. A.*, 1904, xlii, p. 1689.

4. *Berl. klin. Woch.*, Aug. 29, p. 922; *THE JOURNAL*, p. 1014.

than has been the practice in the past, of the frequent occurrence of catarrh of the bladder in infants, and, when possible, especially in girls and older boys, also to make endoscopic examination of the bladder.

NON-FATAL RUPTURE OF AORTIC ANEURISM.

Although rupture of an aneurism of the aorta is generally fatal, the resulting hemorrhage has, in rare instances, ceased, and the mortal issue has for the time been deferred. In one instance on record, life was prolonged for as long as five years and in another for two years. Under such circumstances the cessation of the bleeding must be attributed to a plugging of the opening by a portion of the clot contained in the aneurismal sac. A case of the character under consideration is reported by Dr. Charles H. Melland.¹ A laborer, 56 years old, was admitted to the hospital with a history of having coughed up a large amount of blood. He was apparently moribund, but as the bleeding had ceased, two pints of normal saline solution were introduced into the median basilic vein. The patient rallied rapidly, and great improvement took place in his general condition. This persisted for three weeks, when death resulted from another hemorrhage. Necropsy disclosed a sacculated aneurism as large as a hen's egg, arising from the convexity of the arch of the aorta immediately beyond the left carotid artery. The sac was almost filled with firm, laminated clot, and posteriorly it extended between the trachea and the esophagus. The trachea wall had been thinned and the blood had escaped through a small slit.

THE TREATMENT OF HEMOPHILIA.

Nothing is known of the essential nature of hemophilia, and the disorder has proved most rebellious to treatment. The affection is believed to be due to disease of the blood or of the vessels, or of both. It occurs almost exclusively in males, although it may be, and usually is, transmitted through females. In view of this fact Dr. Lachlan Grant² argues that the blood or the tissues of the female must be the seat of some restraining influence which, he suggests, may emanate from the reproductive center, perhaps an internal secretion; for example, that of the ovaries. In accordance with this reasoning, he proposes the internal administration of extract of ovaries, mammary gland or other tissue peculiar to the female as a therapeutic procedure for the control of the bleeding in cases of hemophilia, and he relates a case in which he was able to put the suggestion to practical test. A boy, eight years old, with a hemophilic heredity, bled freely and obstinately from a wound on the sole of the foot inflicted by a piece of glass, despite active treatment, including pressure and local applications of adrenalin hydrochlorid. Finally, after the patient had become anemic and the prognosis grave, extract of ovarian gland was given in doses of two and a half grains thrice daily, with the result that the bleeding soon ceased, while improvement in both the general and the local

condition also ensued. Of course, it is not to be concluded from the foregoing report either that the reasoning put forth is correct, or that the result attained was really due to the treatment instituted. Nevertheless, the experience gained in this case is at least sufficient justification for the further use of ovarian extract in cases presenting the hemorrhagic diathesis.

PHYSICIANS AND RECIPROCITY.

The physician, because of the nature of the work required of him, may usually be expected to have his wits about him. We have read of the physician who, receiving a large plumber's bill and being scandalized by some of the time-consuming methods of that tradesman, paid the bill and bided his time. Being the family physician of the plumber, he was called one day and went without medicine case or instruments. On finding what was the matter, he went home for his case, and included in his bill a liberal charge for this procedure. The plumber remonstrated, but when it was explained to him that the physician did not know what tools he wanted until he saw the patient, the plumber grasped the situation and paid the bill. From across the water comes the news of another bright physician, one able to appreciate the possibilities of reciprocity when the circumstances made it necessary. A physician received a box of cigars by mail with a bill therefor and with a letter, stating that, although the physician had not ordered the cigars, yet the maker took the liberty of sending them, convinced that he would find them excellent. The cigars were good and the physician smoked them. When the box was empty he sent the maker several prescriptions, accompanied by a bill for the same, which amounted to the same as the bill for the cigars, and accompanied by a letter stating that, although the cigarmaker had not asked for medical advice from him, yet he took the liberty of sending him some prescriptions, convinced that he would find them excellent.

ELECTRIC POSSIBILITIES.

The future uses of electricity, as described by Nikola Tesla, are interesting to contemplate from the standpoint of fiction, whether one is prepared to accept the statements as plausible or not. In a recent article in the *Electrical World and Engineer*, Tesla announces that "many thousands of simultaneous telegraph and telephonic messages, through one single conducting channel, natural or artificial, and without serious mutual interference, are certainly practicable, while millions are possible." We should certainly welcome this wholesale elimination of telegraph and telephone wires which form such networks in our great cities and which are often a menace to life. This elimination would certainly be a step in advance from the standpoint of municipal art. Tesla further announces the possibility of collecting electric energy all over the globe in small amounts, and by it running clocks and all the common machinery. Thus the physician will only have to tap the atmosphere, so to speak, by having the proper sort of a gatherer of electricity, to which he may attach his

1. *Lancet*, Nov. 19, 1904, p. 1414.

2. *Lancet*, Nov. 5, 1904, p. 1279.

centrifuge, his bone drill, etc. But this is not enough. Tesla declares that "this planet, with all its appalling immensity, is to electric currents virtually no more than a small metal ball," and when "the first plant is inaugurated it will be shown that a telegraphic message, almost as secret and non-interferable as a thought, can be transmitted to any terrestrial distance." Finally, "the sound of the human voice, with all its intonations and inflections, can be faithfully and instantly produced at any other point of the globe, or the energy of waterfall made available for supplying light, heat or motive power, anywhere—on sea or land." "I am hopeful," says he, "that these great realizations are not far off, and I know that when this work is completed they will follow with mathematical certitude." For a vision from a visionary mind, this is almost incomparable.

THE INFLUENCE OF DISEASE OF ONE KIDNEY ON THE MOLECULAR CONCENTRATION OF THE BLOOD.

Some doubt yet exists as to the value of cryoscopy from the diagnostic and prognostic points of view, and as to the validity of conclusions to be drawn from studies of the molecular concentration of the blood, as determined from the freezing point of the urine, and it is to be feared that the hopes aroused by the earlier investigations on this subject will not be realized. The freezing point may be reduced, among other causes, by disorders that cause interference with the circulation, such as uncompensated cardiac lesions and disease of the blood-vessels and the liver; also as a result of the presence of large tumors, especially in the abdomen, interfering with the circulation and giving rise to symptoms of stasis and exerting pressure on the ureters. It has been thought that if in the presence of disease of the uropoietic system the molecular concentration of the blood is increased there must be disease of both kidneys, while if the freezing point of the blood remains normal the urinary passages or at most only one kidney is affected. Evidence is, however, not wanting that disease of both kidneys may be present without increase in the molecular concentration, while disease of one kidney may be attended with such increase. A demonstrative case belonging to the latter category has recently been placed on record by Drs. A. Loeb and C. Adrian.¹ A man, fifty years old, presented symptoms of malignant neoplasm of the left kidney, with increase in the molecular concentration of the urine from both kidneys and reduction in the freezing point of the blood. On account of this fact, in conjunction with the debilitated state of the patient, operation was decided to be inadvisable and death took place in the course of six months. On postmortem examination the left kidney was found to be the seat of carcinoma, while the right was quite healthy. In explanation of the cryoscopic findings in the foregoing case it is suggested that the rapid growth of the neoplasm in the left kidney caused the entire burden of the secretion of urine to fall within a relatively short time on the right kidney, whose functions were interfered with by the existence of the carcinomatous cachexia.

NURSING AND PATRIOTISM.

In the early part of 1904 the War Department sent out—through the various training schools for nurses and through other available means—circulars requesting the registration of such trained nurses as were willing to hold themselves in readiness for government service in case of war. Of these circulars, according to the leading organ of the nursing profession, only six were returned to the War Department up to a recent date; that is to say, only six trained nurses in this country were willing, or took the trouble to announce themselves as willing, to serve their country in case of its need. The requirements of the registration were not onerous. All that was asked was a statement that the nurse would hold herself in readiness and would make periodical reports as to residence and condition of health. In case the services were needed there was the assurance of continuous and fair pay and support, with duties confined to base hospitals, and ample opportunity for interesting and profitable experience. As female nurses are not wanted at the front, the element of danger is practically eliminated from this kind of military service, except, of course, the danger of contagious or epidemic disease, and from possible change of climate. As the *American Journal of Nursing* says, there is no doubt that in case of war the government would be overwhelmed with applications of volunteer nurses, good, bad and indifferent. The enthusiasm of the moment would be sufficient to insure this. It would be a very different thing, however, if there were a selected list of well-accredited, competent persons to call on in emergency. The saving of expense, disappointment, and even of possible scandal, would be almost incalculable. It is to avoid the possibility of embarrassment by applications from discreditable persons that this waiting list was proposed, and it is, moreover, in the interest of the nurses themselves that they should not be misrepresented by such persons in the case of the country's need. It is a pity that the trained nurses of the country have not made a better showing of their patriotism and philanthropy than seems to have been the case.

THE PURE-FOOD BILL.

The pure-food bill now before Congress is one of paramount interest from a medical view-point, as evidenced by the fact that nearly 3,000 individual physicians and hundreds of medical societies have written to Senator Heyburn and to their various senators asking for the enactment of this piece of legislation. We trust that they may be rewarded for doing their duty by seeing the bill become a law. So far, there has been no direct opposition to the bill, as its virtues are fully recognized. Several members of the Senate, however, have claimed that certain terms and clauses are vague and indefinite, and are calculated to give the courts trouble in placing the responsibility where adulterated or misbranded goods are sold. In the interests of the drug trade and of the proprietary medicine concerns, it is desired to restrict the term "drug" to substances and preparations described in the United States Pharmacopeia, but as Senator McCumber¹ of North Dakota

1. Berliner klin. Wochenschrift, Sept. 26, 1904, p. 1021.

1. Congressional Record, Dec. 13, 1904, pp. 198, 199.

says: "The bill does not prevent a man from buying what he desires to eat, or what he desires for a drug; it simply declares that he shall be protected in buying what he does want, either for food or in the drug line." No honest dealer or manufacturer should object to a bill of that kind; nor should he object to putting a label on his products, stating plainly their composition. Senator McCumber¹ argues: "The government passes stringent laws with reference to counterfeiting. Those laws provide that if I pass a counterfeit coin the penalty may be ten years' imprisonment. If the government, therefore, compels me to use coins of absolute value and integrity, then, I submit, it is incumbent on the government to protect me in securing goods of absolute integrity, so far as in its power. . . . It seems to me that if it is an injury to the country to flood it with spurious coin, used in the purchase of good goods, it is equally an injury to the country to flood it with spurious goods to be traded for good coin." Because of the alleged lack of clearness in some respects, it is said that the bill is not likely to become a law at present. This is much to be regretted. The adulteration of foods and drugs in this country has become an evil of great magnitude, and one with which the individual states seem to be unable fully to cope without the aid of a Federal law. If the objections to the bill on the ground of indefinite phraseology are founded on fact, no time should be lost in rewriting those portions. If, on the other hand, these objections are instigated by some person or persons desiring to delay the passage of the bill, they should be overruled and the ulterior motives given publicity.

Medical News.

CALIFORNIA.

Warrants Issued.—The executive committee of the San Francisco County Medical Society has obtained warrants for the arrest of ten individuals who, it is alleged, are practicing medicine without having first obtained licenses, as required by law.

"Quaker Doctors" Assistant Sentenced.—Fred S. Walton, an attaché of the "Quaker doctors" who have been operating in California, was found guilty December 10, at Fresno, of obtaining money under false pretenses, and was sentenced to imprisonment for 150 days.

Personal.—Dr. James R. Curnow, San José, has broken down from excessive study and has gone to a sanitarium for needed rest and change.—Dr. J. Walter Key, San Francisco, was seriously injured by the explosion of a shotgun, November 26.—Dr. Herman E. Mueller, Oakland, has returned from abroad.

State Board Asks Power.—The secretary of the State Board of Health has prepared a series of bills to be introduced at the coming session of the legislature. The object of these measures is to give the board increase of power, which is greatly needed, to provide for thorough registration of births and deaths, and of data with relation to disease, also to create a system of local sanitary inspection. The board has not power essential to make it a useful arm of state government. It will ask the legislature to reform the laws that the board may better guard public health, enforce proper sanitary regulations and enlist the aid and sympathy of the people, and gather reliable mortality, health and other statistics.

ILLINOIS.

Cost of General Vaccination.—Dr. Martin W. Cushing, health commissioner of Joliet, estimates the cost of general vaccination in that city at \$4,000. The population of Joliet is more than 31,000.

Personal.—Dr. William J. Chenoweth, Decatur, recently celebrated his eighty-first birthday anniversary.—Dr. Louis J. Smith, Chester, has been succeeded as penitentiary physician by Dr. Milo H. Trovillion, Metropolis.—Dr. Edward Hasson, Peoria, has been elected physician of Peoria County.

Hospitals.—The State Board of Charities has recommended that appropriations of \$426,500 be made for the Illinois Western Hospital for the Insane, Watertown. Of this amount \$315,000 is for current expenses and \$60,000 for female infirmary and dormitory buildings.—Belleville has decided to purchase the Harrison homestead, two miles south of the city, for use as a permanent isolation hospital.

Chicago.

Resignation.—Dr. Robert H. Babeock has resigned from the faculty of the College of Physicians and Surgeons.

Rush Medical College Commencement.—At the quarterly commencement of Rush Medical College, December 19, Prof. Paul Shorey of the University of Chicago delivered an address on "Some Lessons from Greek Medicine," and 17 graduates received diplomas.

The Week's Deaths.—During the week ended December 17, 509 deaths were reported, three less than in the preceding week and 41 less than in the corresponding week of 1903. The respective annual death rates per 1,000 were 13.77, 13.84 and 16.28. Pneumonia heads the list of death causes with 95; then come consumption with 57 deaths, Bright's disease, with 45; heart diseases, with 42; nervous diseases, with 27; cancer, with 24; bronchitis, with 22, and violence, with 20.

Children's Hospital Staff.—Dr. Nicholas Senn has been appointed consulting surgeon of the Children's Memorial Hospital, Dr. Frank Billings, attending physician, and the following physicians have been appointed on the attending staff: Drs. Fernand Henrotin, William W. Quinlan, Samuel J. Walker, Malcolm L. Harris, Walter S. Christopher, Hugh T. Patrick, George F. Fiske, Alfred M. Ifall, William J. Class, Henry G. Anthony, Willis D. Storer, Julius W. Oswald, Norman Kerr, James P. Houston and George L. Chapman. The hospital realized about \$1,500 from the benefit "Travelogue," December 19.

Smallpox.—The chief medical inspector reports 16 new cases of smallpox sent to the Isolation Hospital during the week; 15 patients never had been vaccinated; one had an old, imperfect scar; 4 were unvaccinated children under the school age. One was an unvaccinated school child in school on a false certificate of vaccination, and four came from the downtown lodging-houses. Since January 1 there have been 323 cases of the disease, of which number 22 died, 251 recovered and 50 remain in the hospital under treatment. The health commissioner has asked the city council for an emergency appropriation of \$5,000 to fight the disease.

KANSAS.

Sanitarium Rebuilt.—Bonner Springs Sanitarium, which was burned in July, 1903, and is being rebuilt, will be operated as the Bonner Springs Lodge and Sanitarium Company and will be under the management of the former superintendent, Dr. Milard P. Sexton, Kansas City.

New Health Board.—The mayor of Kansas City has appointed the following board of health: Drs. Earnest J. Lutz, James W. May, Jr., Preston Sterrett, William J. Gates and C. J. Sihler. At the first meeting of the board, December 2, Dr. Lutz was elected president; Dr. Gates, vice-president, and Dr. May, secretary.

Warning.—We have received complaints that an individual calling himself Frank B. Kenneth or F. C. Burnett is calling on physicians in Kansas, offering to take subscriptions for THE JOURNAL at a discount. This man is not authorized to represent THE JOURNAL. We would again give warning not to pay money to any one on account of THE JOURNAL of the American Medical Association, unless the collector can show proper credentials.

Kansas Health Report.—During November 224 cases of diphtheria, with 42 deaths, were reported to the State Board of Health; 195 cases of scarlet fever, with 7 deaths; 318 cases of smallpox, with no deaths, and 130 cases of typhoid fever, with 15 deaths. The secretary reports that out of a total of 102 counties having county health officers only 60 have reported. From the number of cases of diphtheria and smallpox reported from these counties, should the same ratio obtain in the counties not reporting, it would show the prevalence of these two diseases to rather an alarming extent. As the season progresses, the infection of diphtheria, scarlet fever and smallpox

seems to increase in malignancy, and it is of the utmost importance that a strict quarantine be maintained in all these cases. General vaccination should be insisted on, and fresh supplies of antipneumococcal serum should be within convenient reach of every physician in the various counties.

KENTUCKY.

Lose Books and Instruments.—Fire in the offices of Drs. John P. Ferguson and John G. Clem, Louisville, December 1, destroyed instruments and books, causing a loss of \$400.

Lexington Physician Goes to Washington.—Dr. Daniel J. Healey, Lexington, has recently passed with credit the civil service examination for the position of anatomist to the Army Medical Museum and, as soon as he has received formal notice of his appointment, will move to Washington. Dr. Healey was married several years ago to Dr. Louise Bergmann, Louisville, then assistant physician to the Eastern Kentucky Lunatic Asylum, who will assist her husband in his work.

McMurtry Infirmary Nurses Graduate.—The annual commencement exercises of the Jennie Casseday Training School for Nurses connected with the private infirmary of Dr. Lewis S. McMurtry, were held December 8. After an announcement by Dr. McMurtry the address of the evening was delivered by Dr. Joseph M. Mathews with appropriate words of congratulation and advice. The address to the graduates was made by the Rev. T. M. Hawes and the pins were delivered by Dr. J. Garland Sherrill.

Smallpox.—Trigg County still has 30 or 35 cases, but the authorities have all infected houses quarantined and under guard. —In Christian County, on December 8, there were 168 cases under treatment in five localities. —In Hopkinsville during the two weeks ended December 6, 5,346 vaccinations were made. —"Dr." G. W. Waddle, Elizabethtown, was fined, December 12, for assisting a smallpox patient to escape from the health authorities. —Dr. Lee P. Trabue, health officer of Todd County, was fined \$50 on December 15 for having some smallpox patients hauled through the streets to the isolation hospital.

MARYLAND.

Bids for Hospital.—Of six bids received by the Navy Department for the new naval hospital at Annapolis the lowest bid was \$180,925.

Diphtheria Endemic.—An endemic of diphtheria is prevailing at Braddock Heights, Frederick County, and the public school there has been closed.

State Tuberculosis Society.—At a largely attended meeting for the organization of the Maryland Tuberculosis Society, held under the auspices of the Maryland Tuberculosis Commission, December 13, Dr. Henry Barton Jacobs was elected president.

Personal.—Dr. Joam S. Mathias has been appointed physician to the Carroll County jail. —Dr. Josiah S. Bowen, Mt. Washington, has been recently elected president of the medical and pharmaceutical fraternity, "Kappi Psi." —Dr. Joseph Clement Clark, Sykesville, has been elected president of the section on neurology and psychiatry of the Medical and Surgical Faculty of Maryland.

Medical Society Election.—The annual meeting of the Carroll County Medical Society was held at Springfield Hospital for the Insane, Sykesville, December 16. The following officers were elected: President, Dr. James H. Billingslea, Westminster; vice-president, Dr. George H. Brown, New Windsor; secretary-treasurer, Dr. Charles R. Foutz, Westminster; delegate to Medical and Surgical Faculty of Maryland, Dr. James H. Billingslea, Westminster; alternate, Dr. Milton D. Norris, Eldersburg, and censors, Drs. Joseph T. Hering, Westminster; Clotworthy Birnie, Taneytown, and Joseph C. Clark, Sykesville.

Baltimore.

Pneumonia Again Leads.—Pneumonia has again taken the lead in the weekly report of deaths, 25 having died from it last week.

Personal.—Dr. L. McLane Tiffany has returned from his country home. —Dr. Thomas S. Cullen has gone on a trip to the Gulf of Mexico. —Dr. Isidore Mueller, an aurist of Vienna, Austria, visited Baltimore last week. —Dr. Ernest C. Lehnert contracted blood poisoning while operating at the Northeastern Dispensary and was operated on by Dr. John T. Finney at the Union Protestant Infirmary, and is now recovering.

NEW JERSEY.

Physician Wins Suit.—A verdict in favor of the defendant by order of the court was given in the case of Seth Roberts against Dr. George W. Laws. The plaintiff claimed \$5,000 damages for alleged improper treatment of an injured arm.

Camden Health Report.—The report of the health officer for the month ended December 15 shows a decrease in contagious diseases of 12 over the preceding month. There were 20 less cases of diphtheria and an increase of 13 of scarlet fever. In all there were 66 cases of contagious disease reported, with 20 deaths. Tuberculosis has now been placed on the contagious disease list.

Library Association Entertainments.—The William Pier-son Medical Library Association of Essex County announces the following program for this winter:

December 6, Dr. Howard A. Kelly, Baltimore, "Appendicitis." January 10, Dr. James E. Newcombe, New York City, "Manifestations of Rheumatism in the Upper Air Tract."

February 7, Dr. Lewis S. Pilcher, Brooklyn, N. Y., "The Operative Treatment of the Hypertrophied Prostate."

March 7, Dr. F. LeRoy Satterlee, New York City, "The Treatment of Rheumatism."

April 4, Dr. Simon Flexner, New York City, director of the Rockefeller Institute, "Some Parasitic Conditions of the Blood with Especial Reference to Tropical Diseases."

May 1, Clinical night.

NEW YORK.

Asylum Changes.—Dr. Charles H. North, who has been assistant physician at the Danmora State Hospital since 1900, has been made superintendent of that institution. Dr. Robert B. Lamb, late superintendent of Danmora State Hospital, has been transferred to the Matteawan Hospital, vice Dr. Henry E. Allison, deceased.

Reckless Use of Fireworks.—The New York State Court of Appeals recently handed down a decision which should have a far-reaching influence in the suppression of the reckless use of fireworks in public celebrations. On the night of November 12, during a Democratic parade on Madison avenue, New York City, there was a premature explosion of bombs and rockets which injured a large number of people, in some cases fatally. A test case for damages was instituted against the city of New York, but in the lower courts the complaint was dismissed. The Court of Appeals now reverses the judgment of the lower court and orders a new trial.

Buffalo.

Insanitary Tenements.—The health commissioner has directed the district attorney to proceed against several tenement house owners for violating the tenement ordinances.

Eye and Ear Hospital Report.—The thirteenth annual report of the Charity Eye, Ear and Throat Hospital of Erie County shows the total number of new patients, 1,817; total number of old patients, 8,339; of the 1,967 new cases 1,221 were diseases of the eye, 257 diseases of the ear and 489 diseases of the nose and throat. The number of patients treated since the opening of the hospital was 22,439. The hospital received an appropriation of \$1,850 last year from the county.

Report of Health.—The monthly report of the Department of Health for November shows a death rate of 13.70 per 1,000 per annum. The principal causes of death were as follows: Consumption, 38; diphtheria, 15; measles, 9; typhoid fever, 5; debility, 43; alcoholism, 5; cancer, 19; apoplexy, 10; meningitis, 12; valvular heart disease, 21; pneumonia, 50; appendicitis, 5; gastroenteritis, 6; acute nephritis, 26, and violence, 30. Total deaths for November, 434, as compared to 438 for November, 1903.

New York City.

Large Sum for Hospital Assured.—The board of managers of the Seney Hospital, Brooklyn, has announced that the conditional \$300,000 has been raised and that it is now assured of the gift of \$125,000 offered.

Contagion Hospital Christmas.—The health commissioner has asked for funds and gifts for the patients in the hospitals for contagious diseases, namely, the Willard Parker, the Riverside, the North Brother Island and the Kingston Avenue Hospital in Brooklyn.

"Physician" or "Doctor."—The Society of Medical Jurisprudence at its last meeting took action leading toward the stricter and more exact use of words, which ought to be commended by all people interested in good English. Hereafter the society is to designate its medical members as "physicians" and not as "doctors."

Contagious Diseases.—There have been reported to the sanitary bureau for the week ending December 10, 368 cases of diphtheria and croup, with 31 deaths; 345 cases of tuberculosis, with 160 deaths; 208 cases of scarlet fever, with 14 deaths; 138 cases of measles, with 8 deaths; 87 cases of typhoid fever, with 19 deaths; 112 cases of chickenpox, and 13 deaths from cerebrospinal meningitis.

Continued Work for Pure Milk.—The Health Department inspectors who have been investigating the up-state dairies have reported that the Blooming Grove dairy in Orange County is in an unsanitary condition. As a result the permit of the Metropolitan Milk and Cream Company, which has been dispensing milk from this source, has been revoked by Health Commissioner Darlington.

Tuberculosis Dispensary.—A new dispensary for the special treatment of pulmonary tuberculosis was opened December 19 by the New York Throat, Nose and Lung Hospital. The patients will live at home and will visit the dispensary three or more times weekly for treatment, advice, medicines, etc. By this plan it is believed that each person will be made a center for disseminating information for controlling and stamping out the disease.

Health Department and the Subway.—At a meeting of the advisory board of the Health Department the condition of the subway was discussed. This body was inclined to agree with Dr. Chandler, who has continued his researches which have resulted in confirming his first statements, that there is no lack of oxygen in the tunnels. However, it was the opinion of the majority that a change in the roadbed would be advisable. This change would consist in altering the present rock ballast roadbed for one of asphalt or concrete at the stations and for 50 feet on either side, as this would insure cleanliness.

The Mosquito Must Go.—At the meeting of the National Mosquito Extermination Society, held December 14 and 15, it was decided to change the name of this association, and it will henceforth be known as the American Mosquito Extermination Society. Among those who contributed interesting papers were Dr. E. Porter Felt, New York state entomologist; Dr. Walter Wyman, surgeon general of the United States Public Health and Marine-Hospital service; Dr. M. J. Rosenau, director of the Hygienic Laboratory at Washington, D. C.; Dr. Bramley, and Dr. Quitman Kohne, president of the health board of New Orleans. It was very clearly demonstrated that the mosquito is a menace to health with which we should not temporize, and it was the conviction that the time would come when those in authority would act against the mosquito as they now do against smallpox.

PENNSYLVANIA.

Personal.—Dr. Maurice B. Oberholtzer has been appointed Burgess of Soudertown.—Dr. J. Frank Shaw, health officer of York, has resigned.

Smallpox Situation.—The report of the State Board of Health for November shows that there were 219 cases of the disease, with no deaths, as compared with 745 cases and 74 deaths in November, 1903, and 1,248 cases and more than 100 deaths last December. Of the whole number of cases reported last month 45 occurred in Harrisburg, 50 in Morris Run, Tioga County, and 50 in Dover Township, York County. Allegheny County, where the disease was prevalent last winter, reported only one case, and the only places other than those already named where more than three cases were reported were as follows: North Lebanon Township, 15 cases; York, 9 cases; Philadelphia, 8 cases; Butler County, 7 cases; Conewago Township, York County, 6 cases; Cole's Patch, Schuylkill County, 4 cases; Johnstown and Blossburg, and Covington Township, Tioga County, 3 cases each.

Philadelphia.

Desire Consumptive Camp.—At the last meeting of the County Medical Society Dr. Robert N. Willson, Jr., introduced a resolution petitioning the legislature to appropriate \$50,000 for the establishment of camps for consumptives. The resolution will be acted on at the regular meeting, December 27.

Personal.—Dr. Orem M. Deems has been appointed resident surgeon to the Wills Eye Hospital.—Dr. M. P. Sewall has been appointed resident physician in Girard College to succeed Dr. Sidney J. Repplicher, resigned.—Dr. W. J. Wanless, principal of the Miraj Medical School and superintendent of the Miraj Leper Asylum, in India, addressed the students of the University of Pennsylvania, December 15.

Typhoid Fever.—During October there were 335 cases reported to the Bureau of Health, equivalent to an average weekly rate of approximately 6.3 cases per 100,000 population. During this period not a single case of typhoid was reported from that section of the city in West Philadelphia, with a population of 46,805, which is supplied with filtered water from the Belmont plant, while the weekly average of cases in the same section which has unfiltered water, with a population of 101,566, was 7.84 per 100,000 population.

Many Unvaccinated Infants.—During a recent vaccination campaign the health authorities discovered in one section of the city about 550 unvaccinated people. Of this number the largest proportion were of infants less than six or seven months old, who were born after the last systematic vaccination canvass. This is significant from the fact that of eight patients who have been admitted to the Municipal Hospital with smallpox during November two had never been vaccinated and were less than seven months old. Efforts are being made by the Health Department to have infants vaccinated.

North Branch Society Election.—The North Branch of the Philadelphia County Medical Society, the pioneer "branch" in the new movement of organizing the medical profession of American cities, is now completing its fourth year. The officers for 1905 are: Dr. A. Birn Ilirsch, chairman; Dr. T. Turner Thomas, clerk; Drs. W. Harsey Thomas, W. Harnar Good and Anna M. Reynolds, committee on scientific business; Drs. William E. Parke, H. Brooker Mills, Clara T. Dereum, Wilbur C. Hammond, Carle L. Felt, Rose Hirschler, Samuel P. Gerbard and Wendell Reber, committee on membership.

Blockley Dinner.—The annual dinner of the Association of Ex-Residents and Resident Physicians of the Philadelphia Hospital (Blockley), was held December 3, and 72 members were present, including 17 of the present resident physicians. Dr. James B. Walker presided and the following officers were elected: President Dr. Edward L. Duer; vice-presidents, Drs. Horatio C. Wood and Dr. Roland G. Curtin; secretary, Dr. Edward R. Stone, and executive committee, Drs. Alfred Stengel, Richard C. Norris, Thomas C. Potter, J. Chalmers DaCosta, Augustus A. Eshner, George Y. MacCracken and H. B. Calhoun.

Health Report.—The total number of deaths recorded for the week numbered 519, as compared with 453 for last week and 579 for the corresponding period of last year. Pneumonia was responsible for the largest number of deaths, 70 being due to this disease, while 33 more deaths were due to acute inflammation of the respiratory tract. Seventy-two deaths were due to pulmonary tuberculosis, 26 to apoplexy, 50 to heart disease, 42 to Bright's disease, 12 to cancer and 15 to diphtheria. The contagious disease cases reported numbered 213, with 26 deaths, as compared with 260 cases and 27 deaths for the previous week. Contagious disease is present as follows: Diphtheria, 90 cases; scarlet fever, 53 cases; typhoid fever, 69 cases; and smallpox, 1 case.

FOREIGN.

Virchow Fund for Combating Infant Mortality.—The heirs of Rudolf Virchow have presented to the city of Berlin \$12,500, to serve as an endowment fund to aid in the campaign against infant mortality.

Tuberculosis Museums in Germany.—Carlsruhe is planning a still more elaborate tuberculosis museum than the one now established at Charlottenburg. Arrangements are being made by which parties of working people will be enabled to visit the museum from all parts of the country.

Proposed Memorial to Riegel.—Friends and former pupils of Prof. Franz Riegel of Giessen, who died last August, are invited to contribute toward a memorial to be erected on the scene of his labors to perpetuate the memory of the great clinician to future generations. Contributions are received by Drs. Volhard and von Tabora, privat docents at Giessen. The appeal is signed by the dean of the medical faculty and others.

Zurich Votes in Favor of Restriction on Medical Practice.—The popular vote cast in the canton of Zurich on the question whether to abolish or maintain the regulations restricting the practice of medicine to registered practitioners resulted in a victory for regular medicine. The proposal to abolish the restrictions—mentioned on a page 1882—was voted down by a vote of 51,319 against 22,881.

Nursing Consultations in Berlin.—The Berlin authorities have recently established four stations where mothers can bring their babies for advice and obtain milk or other food

for the child. Berlin now has three kinds of the Fürsorgestellen as the Germans call them, some for tuberculous, some for infants and one for cancer subjects. They aim to watch over the applicants not only on the spot, but in their homes, and to improve their environment at need. Hamburg has six salaried women whose duties are to watch over the infants in the city asylums.

Correspondence.

The Relation of the Physician to Proprietary Remedies.

St. Louis, Dec. 13, 1904.

To the Editor:—In your issue of December 3, under the heading "The Relation of the Physician to Proprietary Remedies," Dr. William J. Robinson indirectly assails the integrity of two houses with which I am connected. I feel it my duty to call your attention to a number of errors and gross misrepresentations, and in justice to these concerns, reputable manufacturers and patrons of your advertising pages for fifteen years, you should place this matter in its proper light before your readers.

I would not undertake to answer this article as a whole, because its labored efforts are apparent and its inconsistency answers itself. Nor would I take the time to correct any statement emanating from Dr. Robinson were it not given space in THE JOURNAL of the American Medical Association. I do not question the right of Dr. Robinson or of any physician to approve or to disapprove any chemical or pharmaceutical product, but I do protest against the malicious way Dr. Robinson speaks of seng and chionia as "quack nostrums," classifying them with pain-killers and cure-alls, and their manufacturers among "ignoramuses" and "saloon-keepers," "without the slightest idea of chemistry, materia medica or therapeutics." In point of fact, seng and chionia are manufactured by the Sultan Drug Company and the Peacock Chemical Company, respectively; houses whose reputation and standing have never been questioned. Their manufactory is in the hands of an experienced pharmaceutical chemist, and their exploitations are strictly ethical. Never in their entire existence have they deviated one iota from their chosen field, as manufacturers of ethical pharmaceuticals. Their advertisement has never been seen by anyone excepting in reputable medical journals. It is true that the working formulae for seng and chionia are not published, but this is done to protect those physicians who are daily employing them from the very inconvenience that Dr. Robinson has with the iron and manganese product he speaks of. If he were to prescribe our Peacock's bromids, the formula for which we plainly give, he would, no doubt, experience the same trouble. We have examined substitutes for this product, even some that were made by manufacturers whose business it is to make these substitutes for unscrupulous druggists, and who should know better, and found them to contain absolutely no bromid of lithium, and in some cases they were merely mixtures of bromids of potassium and sodium. In the case of chionia and seng, the physician, the patient and the manufacturer have some protection against this evil. Many physicians who wish to employ *Chionanthus virginica* when it is indicated, prescribe chionia, because it best represents the true therapeutic action of that drug. Its dose is well known, just as is the dose of a tincture, without knowing or caring whether it is two, four or six ounces of the drug to the pint. And again, seng, a pleasant elixir of the *Panax schinseng*, has many friends in the profession as a digestive tonic—and we feel satisfied that the practicing physician does not want its working formula any more than he would want to refer to his textbook to ascertain its exact composition each time he wished to prescribe compound tincture of cinchona.

The products of the Sultan Drug Company and of the Peacock Chemical Company have been endorsed by more than forty thousand practicing physicians in this country and England, and to these and others who may still become prescribers of their preparations, I repeat the pledge of these

concerns, to maintain the strict ethical bearing toward the physician, which they have always sustained.

FRED W. SULTAN,

President Sultan Drug Company.

Secretary-Treasurer Peacock Chemical Company.

Duplicate Twins and Double Monsters.

NORTHAMPTON, MASS., Dec. 15, 1904.

To the Editor:—As I have recently become interested in a line of investigation which requires the careful examination of all forms of double monsters, I would be extremely grateful for the gift or loan of fetal or new-born specimens exhibiting any grade of this phenomenon.

As such cases are rare, there is a natural tendency to store them up as museum specimens, in which condition the benefit to be derived from them is inconsiderable; while a thorough anatomic investigation would yield far more important results. As I am working on a definite problem, I do not care at present for other forms of monsters, such as those of microcephalous, acephalous or amorphous types, but only for those which exhibit a doubling of any axial part, ranging from single individuals with doubled median parts to two complete individuals united at a single point. Similar cases occurring among the lower mammals, or, in fact, any vertebrate, will be of nearly equal interest. For fresh material, the best preservative for my purpose is 5 per cent. formalin; i. e., the commercial article mixed with water in proportion of 1—20 or thereabouts, although material preserved by any other method will be of value. In specimens larger than four-months embryos the thoracic and abdominal cavities should be freely opened to insure complete preservation.

For a more detailed description of the types of monster I especially desire, I may refer the reader to the enumeration of the various forms, grouped under diplogai, in my article¹ in the *American Journal of Anatomy*, vol. iii., No. 4, September, 1904.

HARRIS HAWTHORNE WILDER.

Zoological Laboratory, Smith College.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PATHOLOGIC LABORATORIES.

LINCOLN, NEB., Dec. 9, 1904.

To the Editor:—Wishing to obtain information in regard to the states in which hygienic or pathologic laboratories have been established where pathologic material can be sent for examination without charge, I would esteem it a great favor to receive answers to the following questions: 1. In what states have such laboratories been established? 2. What appropriations have been made in the several states by their legislatures for carrying on this? 3. How many men have been required in each case to do the work? 4. How much of each appropriation was used in the payment of salaries?

H. H. WAITE.

ANSWER.—1. Chapin, in "Municipal Sanitation in the United States," names the following states as equipped with bacteriologic laboratories: Colorado, Louisiana, Delaware, Maryland, Massachusetts, Minnesota, New Jersey, Ohio, Rhode Island, Tennessee and Vermont. Answers to questions 2, 3 and 4 can be best obtained by application to the secretaries of the respective boards of health. The expenditure doubtless varies from year to year as do the number of persons engaged in the work and their respective salaries. The salaries paid in municipal laboratories range all the way from \$3,000 a year to a small fixed sum (e. g., \$1) for each examination made.

OPPORTUNITIES FOR PRACTICE IN THE PHILIPPINES.

COLUMBIA, MO., Dec. 14, 1904.

To the Editor:—1. To whom must application be made for the position of contract surgeon in the United States Army in the Philippines? 2. Do you think it advisable for a young physician to go there? 3. Is it necessary for a graduate of an American College to pass an examination to practice medicine in Porto Rico?

J. M. SANTIAGO.

ANSWER.—1. Surgeon General, U. S. A., Washington, D. C. 2. Yes, if assured of a position, as the experience will be valuable. Otherwise no, as too many physicians are there already who have no work. 3. No.

1. EDITOR'S NOTE: See editorial in this issue.

Marriages.

GEORGE W. CHABOT, M.D., Otway, Ohio, to Mrs. Sadie Taner of Peebles, Ohio, December 7.

CLEMENT ANDARIESE PENROSE, M.D., to Miss Helen Stowe, both of Baltimore, December 14.

GEORGE R. TUBBS, M.D., Stearns, Ky., to Miss Beulah Alford of Alfordville, Ind., December 25.

ARTHUR F. STOTTS, M.D., Ehrenfeld, Pa., to Miss Caroline A. Greene, of Easton, Pa., December 7.

FRANK J. WAGNER, M.D., Scranton, Pa., to Miss Anna Lulu Diaz of Homestead, Pa., December 20.

JOHN EDGAR FRETZ, M.D., to Miss Frances Josephine Rodenbough, both of Easton, Pa., December 7.

Deaths.

John W. Porter, M.D. Kentucky School of Medicine, Louisville, 1833, of Pittsburg, Kan., a member of the American Medical Association, Kansas State Medical Society, one of the organizers of the Southeast Kansas Medical Society, and health officer of Crawford County, died at Mount Carmel Hospital from peritonitis following an operation for appendicitis, December 14, aged 49.

Alloysius G. Blincoe, M.D. University of Louisville, 1868, a member of the American Medical Association; state, district and county societies; one of the best-known physicians of central Kentucky, and an ophthalmologist of renown; a Confederate veteran, died at his home in Bardstown, Ky., from appendicitis, after a brief illness, December 10, aged 60.

Bickerton L. Winston, M.D. New York University, New York City, 1885, a member of the American Medical Association; twice a member of the state legislature and a member of the Democratic committee of Virginia, died at his home in Hanover Court House, Va., December 11, after a long illness, aged 42.

Cary Judson Gill, M.D. Rush Medical College, Chicago, 1866, a member of the American Medical Association, a veteran of the Civil War, and a resident of Riverside, Cal., since 1876, died suddenly from paralysis, December 6, while driving near his home, after an illness of two years, aged 67.

James M. Carden, M.D. Medical Department of the University of Tennessee, Nashville, 1887, of La Follette, Tenn., at one time representative from Anderson and Knox counties in the state senate, died one day after an operation, at the Knoxville General Hospital, December 8, aged 50.

Jesse Jackson Jacobs, M.D. Medical Department Arkansas University, Little Rock, 1898, a member of the American Medical Association and a prominent physician of Franklin County, Arkansas, died at his home in Webb City from hematuria, December 7, after a brief illness.

Levi Curtis, M.D. Jefferson Medical College, Philadelphia, 1847, a surgeon in the Army during the Civil War and a member of the Philadelphia County Medical Society and the Northern Medical Society, died at his home in Philadelphia from heart disease, December 12, aged 82.

Oliver L. Hutzel, M.D. Jefferson Medical College, Philadelphia, 1903, of King's Mills, Ohio, interne in the Williamsport (Pa.) Hospital, died at Comfort, Texas, from chronic ulcerative phthisis, December 9, after an illness of one year, aged 24.

W. S. McMurry, M.D. University of Louisville Medical Department, 1844, a veteran of the Mexican War; once state senator; for 55 years a resident of California, died at his home in Los Gatos, December 8, after a long decline, aged 86.

Howard T. Smith, M.D. Michigan, 1900, of Bridgman, Mich., who was struck by a train at Stevensville, Mich., while driving across the Pere Marquette tracks, December 2, died at Mercy Hospital, Benton Harbor, Mich., December 4, aged 36.

Arch. E. McNeal, M.D. Medical Department of the University of Iowa, Keokuk, 1868, surgeon of the Ninety-ninth Illinois Volunteer Infantry during the Civil War, died at his home in Quincy, Ill., December 14, aged 78.

Samuel S. Turner, M.D., acting assistant surgeon United States Army since 1869, died from Bright's disease, December 11, while on his way from his station at Fort Columbia, Wash., to Washington, D. C., aged 70.

W. M. Carney, M.D. Hospital College of Medicine, Louisville, 1903, was shot six times in a street fight with his former part-

ner, Dr. Edward C. Courtney, at Neave, Ky., December 9, and died half an hour later.

Robert J. Barry, M.D. College of Physicians and Surgeons in the City of New York, 1890, city health officer of Ansonia, Conn., died at his home in that city, November 15, from meningitis, aged 35.

David Kirkpatrick, M.D. Rush Medical College, Chicago, 1860, one of the oldest practitioners of Whitley County, Indiana, died at his home in Larwill, December 5, after a lingering illness, aged 68.

Lorenzo W. Whitney, M.D. Medical Department of Western Reserve University, Cleveland, 1885, of Chicago, died suddenly from heart disease, on an elevated train in Chicago, December 15, aged 56.

Richard H. Barber, M.D. Royal College of Physicians and Surgeons, Edinburgh, Scotland, 1887, of Gardiner, Douglas County, Ore., was drowned while making a professional call, December 4.

John T. Watson, M.D. Jefferson Medical College, Philadelphia, 1850, formerly a practitioner of Nash County, N. C., died at the home of his daughter in Norfolk, Va., December 6, aged 81.

William Kroeger, M.D. University of Wooster Medical Department, Cleveland, 1881, a noted priest and physician of Epiphany, S. D., died at his home in that place, December 8, aged 51.

Martin L. Yost, M.D., twice coroner of Lehigh County, Pa., one of the oldest physicians of Allentown, while driving, December 3, was struck by a trolley car and instantly killed, aged 71.

Charles F. Norton, M.D. Medical Department University of Texas, Galveston, 1899, died at his home in Asheville, N. C., from tuberculosis, December 14, after an illness of two years.

Harry J. Strack, M.D. Medical College of Ohio, Cincinnati, 1901, a district physician of Cincinnati, died suddenly at his office in Cincinnati, December 10, from heart disease, aged 24.

Joseph Albert Starr, M.D. University of Georgetown (D. C.) Medical Department, 1902, was recently found dead in his room in Washington, D. C., from gas asphyxiation, aged 30.

Solomon K. Barndt, M.D. Jefferson Medical College, Philadelphia, 1863, died at his home in Alburts, Pa., December 6, after an illness of three days, from heart disease, aged 62.

Jacob Schaefer, M.D. University of Heidelberg, Germany, 1848, once coroner of Meigs County, Ohio, died at his home in Rock Springs, December 3, after a brief illness, aged 77.

Henry S. Babbitt, M.D. Berkshire Medical College, Pittsfield, Mass., 1848, died at his home in Dorchester, Boston, Mass., December 10, after an invalidism of five years, aged 78.

Melvin Wheeler, M.D. Medical College of Ohio, Cincinnati, 1884, died at his home in Covington, Ky., from hemiplegia, November 8, after an illness of four years, aged 52.

Charles K. Law, M.D. New York University, New York City, 1893, died at his home in Jersey City, N. J., December 13, from peritonitis, after a short illness, aged 40.

James F. Kidder, M.D. Indiana, 1897, a pioneer practitioner of Jay County, Ind., died at his home in New Mount Pleasant, December 2, from chronic gastritis, aged 65.

Frank A. Thorne, M.D. College of Physicians and Surgeons of Chicago, 1891, died suddenly at his home in Seattle, Wash., November 26, from heart disease, aged 44.

Charles E. Birtwell, M.D. New York University, New York City, 1884, of Lawrence, Mass., died at the home of his sister in Providence, R. I., December 8, aged 43.

David W. Birge, M.D. Cleveland Medical College, 1848, who retired from practice in 1894, died at his home in Hector, N. Y., November 24, aged 82.

George E. Butcher, M.D. Jefferson Medical College, Philadelphia, 1864, died at his home in Mauricetown, N. J., from heart disease, December 13.

John Taylor Wells, M.D. Indiana, of Indianapolis, died at the Indiana Central Hospital for the Insane, Indianapolis, December 4, aged 65.

John Moon, M.D. University of Buffalo (N. Y.) Medical Department, 1872, died at his home in Dolgeville, N. Y., December 6, aged 79.

John F. Fisher, M.D. Jefferson Medical College, Philadelphia, 1872, died at his home in Philadelphia from apoplexy, December 9, aged 60.

Frederick Fisher, M.D. University of Leipzig, Germany, 1882, formerly of Alameda, Cal., died at Santa Cruz, Cal., December 5, aged 59.

Francis L. Foscue, M.D. Jefferson Medical College, Philadelphia, 1884, of Demopolis, Ala., was robbed and murdered, December 17.

William H. Bigler, M.D. Pennsylvania, 1871, died suddenly on the street in Philadelphia from heart disease, December 10, aged 64.

Eliphalet E. Houghton, M.D. Castleton (Vt.) Medical College, 1853, died at his home in Schuylkill, N. Y., December 2, aged 73.

Franz Simon, M.D. University of Giessen, Germany, 1848, died at his home in Manitowoc, Wis., December 13, aged 81.

R. M. Wade, M.D. University of Maryland School of Medicine, 1875, died at his home in Athens, Ga., December 7, aged 64.

John J. Garrigus, M.D. Indiana, 1897, died suddenly at his home in Tangier, Ind., from heart disease, November 27.

William E. Gallagher, M.D. Detroit Medical College, 1884, fell dead at his home in Milwaukee, November 14.

Zebina Z. Bryant, M.D. Illinois, 1881, died at his home in Hennepin County, Minn., November 28, aged 63.

John T. Austin, M.D., died at his home in Nixon, Texas, December 4, from pneumonia, after a short illness.

W. S. Barrett, M.D., of Social Circle, Ga., died at his home, December 11, aged 84.

THE PURE-FOOD BILL.

Abstract of Discussion of This Important Bill in the United States Senate.

We quote and abstract from the *Congressional Record* the following account of the daily proceedings in Congress concerning the Pure-Food Bill:

Thursday, December 8.

Senator Heyburn of Idaho asked leave to call up the bill, and Senators Cullom of Illinois and Aldrich of Rhode Island asked that the bill be read in full. To call up the bill at that time required unanimous consent. Senator Tillman of South Carolina objected, because of other business which he desired to have considered, and the request of Senator Heyburn was therefore not granted.

Monday, December 12.

The Senate took up the consideration of the bill, which was read with the amendment reported from the committee on manufactures. The bill was printed in *THE JOURNAL* April 2, 1904, page 910. The amendment is to strike out all after the enacting clause and to insert new matter which, in the opinion of that committee, covers the desired ground to better advantage. Senator Heyburn explained that the House bill proposes to establish a new bureau to execute the provisions of the bill, and that the Senate bill contemplates this work being done by the existing departments of the government. He made the general observation that every state had passed some law on the subject of pure food, and said that since no one would defend the fraudulent manufacturer in his adulteration it only remained to determine the character of the bill to be enacted.

Senator Carmack of Tennessee asked the reason for the provision prohibiting exportation of adulterated goods to foreign countries.

Senators McCumber of North Dakota, Spooner of Wisconsin and Heyburn gave the following reasons: 1. Reciprocity: that is, we should prevent our citizens from doing to other countries what we do not want their citizens to do to us. 2. Protection of industry: that is, we should protect our honest exporters from unjust competition with those who adulterate their goods. 3. Reputation of American goods: that is, our name in foreign markets should stand for purity and integrity. 4. Increase of trade: that is, a good reputation will increase our commerce.

PHYSICIANS AND MEDICAL ASSOCIATIONS HEARD FROM.

Senator Heyburn said: "The demand for this class of legislation comes from those who have most nearly at heart the health and welfare of the people. I have here something like

3,000 requests from physicians of good standing; I have hundreds of petitions from medical associations; I have on my desk here the petition of the American Medical Association asking for the enactment of this legislation. They had the bill before them when they passed those resolutions."

NEED OF PUBLICITY CONCERNING ADULTERATIONS.

Senator Stewart of Nevada expressed the fear that the bill will not pass, but agreed that something ought to be done. He suggested that the Secretary of Agriculture be given \$200,000 to make and publish analyses of adulterated foods, etc., and that the resultant awakening of the people on the subject would make it easy for the states and Congress to legislate. Continuing, he said:

"I do not think the country has any idea of the extent of the poisons that are administered in the food that is sold and eaten in this country. I think it is sapping the foundation of the constitutions of our people. If we had to raise soldiers now as we did in 1861 I do not believe that throughout the country we would find as large a percentage of young men fit for hard service as there were at that time, and I believe the degenerated condition of many of the young men results in a great measure from the poisonous food that they eat—the alum in the bread, the formaldehyd in the milk, the meats, and so on. I need not go on to enumerate them now. Those things are destroying the stomachs and injuring the health of the people."

"But in order to apply the remedy we first want to have the evil thoroughly exhibited. An individual can not publish the list; no professor, or doctor, or other man can publish it. The press will not publish it. The patronage is on the other side. They will cry him down if he attempts it. No individual can do it. But it can be done effectively by the Department of Agriculture through its Bureau of Chemistry, where they have a man at the head who understands the subject and who has done a good deal of good so far. What we want to do is to give him money enough, so that he can go forth and analyze and publish the result, and the people will find the remedy for this evil."

"I am afraid my friend from Idaho can not get his bill through, and I am afraid if he does it will not be exactly fitted to the condition of things. If we had all the facts the country would no doubt demand a remedy for such a great evil. I believe the first thing to do is to put in the agricultural appropriation bill a lump sum and tell the Secretary of Agriculture to look into the question, and he will do it in a way that will induce legislation in the states and in Congress, so far as necessary. I have no doubt of that."

REASONS FOR PASSING THE BILL.

Senator Heyburn gave the following vigorous and most pertinent answer:

"Mr. President, the demand for the passage of this legislation, or this class of legislation, comes to us from the states—from the legislatures of the various states. They demand that we shall co-operate with them in carrying out the principle they have undertaken to deal with. They have undertaken, in several states, to the extent and limit of their jurisdiction, to prevent the introduction and use of deleterious foods and drugs, and they complain that they can not enforce their laws; that their laws are not effective because of the fact that other states and countries may force on them without their present knowledge or will substances that they do not permit to be manufactured and sold within the state. That is the difficulty. They are not asking us to inaugurate the subject of legislation upon pure food. They are asking us to co-operate with them. They have already spoken through their legislatures as Congress spoke when it had the matter before it."

"It seems to me that the subject is one which should receive consideration and ultimate action, because it is impossible for the states to prevent, under the unbroken-package law, the importation within their borders of the very substances which their own people are prohibited from manufacturing or selling within their states."

"If this proposed law is found to be insufficient, if it is found to be open to objection, let us amend it here and har-

monize it with the House bill. Let us enact some law on the subject. That is the important thing to do. . . .

"We have ample time to consider the question and all the proposed objections and amendments that may be offered to the bill. Let us act. Let us heed the call of the states and the people and protect them not only against their own weakness, as exhibited by the manufacture and sale of these articles among ourselves, but let us protect them against the importation of these substances from other countries. Let us protect each state against the cupidity and greed and fraud that come into it over the borders from its neighbor or from some other state."

Senator Heyburn then closed, because the time had arrived for other business.

Senator McCumber made the following appeal:

"I sincerely hope, Mr. President, that those even who are opposed to this bill will at least co-operate with us in assisting us to secure a vote during the present session. In the last four years this bill, or substantially the same bill, has passed the House on two different occasions. By the manipulation of appropriation and other bills, especially by those who have been opposed to the enactment of this proposed law, we have been unable to secure a vote in the four years. It does seem to me that after the House has twice expressed itself strongly on this subject by an overwhelming majority we should at least have the opportunity in this body during the present session of securing an expression of the Senators on a question which affects every state in the Union and every individual in every state in the Union."

Tuesday, December 13.

On motion the House agreed to the consideration of the bill, and Senator McCumber spoke at length. After using the pointed argument which we have quoted editorially, he urged the magnitude of the evil, and stated that the value of the adulterated and misbranded goods sold annually in the United States is about \$3,000,000. He said:

NEED OF PROTECTING THE STATES.

"The fact that nearly every state in the Union has passed stringent pure-food and pure-drug laws is evidence of the existence of the necessity for that character of legislation. The fact of their inability to enforce those laws makes it evident to us that there is some reason outside of the authority of the state whereby the state is not enabled to enforce its own territorial laws.

"Now, is the state entitled to this protection? By the silence of Congress on the subject we impliedly say that the state shall be the dumping ground of all spurious, adulterated and misbranded goods, and the state itself is absolutely at the mercy of manufacturers and shippers of that character of goods; and why? Because by the construction of the interstate commerce clause of the Constitution it has been held that the failure of Congress to pass on the subject of what may be imported into a state is evidence of the desire of Congress that any goods that can be said to be marketable may be shipped into any state in unbroken packages, and in that condition may be sold. Therefore, the state itself can not reach the goods until they have become lost in the mass of the property of the state; and when they have so become lost, I submit that the state power to reach and punish the real offender is absolutely gone. The evil is rooted in soil outside of the state and over which the state has absolutely no jurisdiction."

Continuing Senator McCumber gave illustrations of the handicap on state authorities at present. He urged that the honest manufacturer is worthy of protection, and said further:

"The bill as it is drafted injures no legitimate business: it does not determine what shall be shipped into any state. It does not determine what shall be done with it in the state. It neither prohibits nor interferes with any commerce whatever. It simply says that all goods must be unmasked before they cross the state line. No legitimate dealer can object to a law of that character. It does not prevent a man from buying what he desires to eat or what he desires for a drug. It simply declares that he shall be protected in buying what he does want

either for food or in the drug line. I anticipate that no person could urge any objection to a law of that kind.

"It is not partisan in any sense. It does not in the least degree infringe state rights or interfere with them in any way. The Federal law will stop exactly where the state law begins, and it will not attempt to interfere in the slightest degree with the police power of the state. The provisions add no new machinery of government. They add no additional expense in order to carry out the law. There is a wrong impression, as I have suggested, that this is a law to fix standards of foods, and that in some man is placed the power to determine what may be sold and what may not be sold in the country. On the contrary, it is nothing of the kind. It is simply a bill to provide that all articles shall be sold for exactly what they are, and if the state itself has a power to declare, and if it is proper for it to declare, what shall not be sold within its boundaries, then the nation has the power to declare, and it is also proper for it to declare, under the power given in the interstate commerce clause of the Constitution, what shall not pass the borders of a state. That is all this bill seeks to do—to supplement the power of the state to prevent the sale of adulterated and misbranded goods in the state. . . .

"Now, as I have stated, this proposed law keeps entirely outside of the state itself. The definitions are somewhat voluminous, it may be, but they are all clear; they are all concise. They are designed simply to protect those who are innocent and to punish those who are guilty. There has been no change in the measure as it came from the House in the matter of definitions. They have been rearranged so as to conform more particularly to their headings, 'adulterated' and 'misbranded,' and nothing further than that."

THE RESPONSIBILITY OF THE DEALER.

Senator Platt of Connecticut then asked an explanation of one provision of the bill. He said:

"The object of this bill is a good one, but its terms are so involved that I am not sure I understand just what it does provide and mean, and therefore I wish to ask the Senator from North Dakota whether he understands that this bill provides that any person who orders goods from another state, and to whom they are shipped, does, by receiving them only, make himself liable to prosecution and penalty unless the goods are accompanied by a guaranty from the person of whom he buys them that they are pure? Does the bare receiving of them make him liable? To illustrate, suppose a grocery merchant, a retailer, in Connecticut orders from a wholesale grocery store in New York some packages of coffee. Now, does he, by receiving those packages of coffee, make himself liable to prosecution unless they are accompanied by the guaranty of the person from whom he buys them that they are pure?"

Then followed a long discussion as to the interpretation of the words of the clause referred to. Senator Spooner joined Senator Platt in the view that the bill would make innocent recipients liable to arrest and prosecution for even receiving adulterated or misbranded goods unless a guaranty from the manufacturer accompanied the goods. Senator McCumber admitted that the change of one word might be advisable to remedy this.

Senators Platt and Spooner further contended that the importer should be protected by the passage of the articles through the customs house, where, supposedly, the government had examined them, and, further, that since the bill makes it an offense for any one to receive impure goods, the importer may innocently receive such goods, and therefore a provision in the bill ought to be made excepting from prosecution the importer who has a guaranty from the foreign merchant.

Senator McCumber showed the fallacy of this by explaining that, if such a provision were added, the importer could be protected in selling adulterated goods by simply having a guaranty from a foreign merchant, and that the United States has no power to prosecute the foreign merchant.

It was further explained that the expression "knowingly receive adulterated goods" can not be used, because experience in the state shows that the majority of offenders can escape when such language provides a loophole.

Senator Spooner said: "Then are we not put to the alternative of not regulating on the one hand or on the other regulating in this way, to the obvious injustice of a great body of honest American citizens?"

Senator McCumber said: "I can not see where any injustice will necessarily or even probably be done them under a law of this kind. We have a great many cases of like character. It is made a criminal offense probably in every state in the Union to sell a minor liquor. A man may be absolutely innocent of the fact that he is a minor when he sells it, but nevertheless he is compelled to know what he is doing; it is considered necessary that he should know."

Attention was called to the fact that the bill puts the burden on the dealer of knowing that he is handling genuine products. This was the intention.

Senator Platt objected to the bill on the ground of its complications. He considered that it required much study to ascertain just what was intended by it. He thought a simpler way would be to define "adulterated" or "misbranded" goods, and to require all goods shipped between states to have on them a guaranty as to purity, etc. He said this was only an opinion, as he had not studied the subject deeply.

Senator McCumber declared that general views make a matter appear simple, but that to draft a law to guard the rights of citizens under those general provisions becomes often a very complex matter. So it had been in this case. He stated further that the bill covered the points laid down by Senator Platt. It defines adulterated and misbranded goods, and it requires all such goods to be correctly labeled.

Wednesday, December 14.

The bill was taken up, on motion, and the discussion resumed. Senator McCumber quoted from a statement by the food commissioner of North Dakota concerning the adulteration of ham, sausage, canned eelken, salmon, peas, mushrooms, tomatoes, etc., which showed that 80 to 90 per cent. of such goods were adulterated or had preservatives in them.

Senator Aldrich of Rhode Island brought up the protection to the innocent dealer who purchases goods supposedly genuine.

Senator McCumber showed that he is protected by the guaranty of the manufacturer in this country, but that he must himself see to the purity of the goods that he buys of a foreign merchant. He said:

"The object of requiring a guaranty in the states is that we may follow up the article to the manufacturer and may hold the manufacturer of the article responsible. Such a provision could not apply, of course, where the article is imported from a foreign country. This country has no jurisdiction, of course, over the producer in a foreign country, and for that reason it was deemed unnecessary and improper even to have the same provision in reference to the importation of foreign products. In addition to this, we now have a national law which provides for the inspection of all these imported articles, and I believe it is working very well. There is very little complaint."

Discussion by Senators Aldrich, Platt, McCumber, Spooner and Money of Mississippi was on alleged imported goods. The so-called French peas are, to a large extent, put up in this country and are highly colored by chemicals. Cottonseed oil was formerly shipped abroad and reshipped to this country as olive oil. The governments of this and of other countries have largely stopped this. The substitution and the use of foreign labels is now done in this country, and is one of the evils at which the bill is aimed.

Senator Aldrich argued that because of the uncertainty of analysis and the difficulty of the importer securing evidence that the goods he imports are not contrary to the provisions of the bill, the importer in some instances would be liable to unjust prosecution. He declared that the bill was not just, in so far as it would allow this to occur.

Senator McCumber urged that it was right to put the burden of proof on the importer, because he is the first man who handles the goods on whom the government can lay its hand. He is the responsible party.

Senator Spooner urged that since goods pass through the United States Customs Department they should there be examined, and that the certificate of entry should be a guaranty to the importer and from him to the retailer as to the innocence of any one thereafter handling the goods thus guaranteed. He said further that in passing this legislation Congress should industriously see to it that no innocent person could be punished.

The time having come for other business, the discussion ended.

Friday, December 16.

The bill was called up, but was suspended by other business on motion of Senator Lodge of Massachusetts.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Dec. 17, 1904:

Cox, Walter, and Marrow, Chas. E., asst.-surgeons, advanced to rank of captain Dec. 12, 1904.

Mearns, E. A., surgeon, sick leave of absence further extended thirty days.

Reidy, Wm. W., asst.-surgeon, relieved from duty at Louisiana Purchase Exposition, St. Louis, and ordered to Fort Myer, Va., for duty.

Buck, Carroll D., asst.-surgeon, relieved from duty with Philippine scouts, Louisiana Purchase Exposition, St. Louis, and ordered to Fort Des Moines, Iowa, for duty.

Stark, Alexander N., asst.-surgeon, granted two months' leave at expiration of present sick leave of absence.

Ives, Francis J., surgeon, granted three months' leave of absence about Dec. 20, 1904.

Banta, Wm. P., asst.-surgeon, relieved from duty at Fort Sam Houston, Texas, and ordered to duty as surgeon, transport *Sheridan*, during the voyage to Philippine Islands, relieving Asst.-surgeon De Lancy; on arrival at Manila to report for assignment to duty.

De Lancy, M. A., asst.-surgeon, relieved from duty on transport *Sheridan* and ordered to report in person to the Surgeon General of the Army at meeting of Pan-American Medical Congress, Panama, Washington, D. C.

Gorgas, Wm. C., asst.-surgeon general, and La Garde, L. A., surgeon, detailed to represent the Medical Department of the Army, at meeting of Pan-American Medical Congress, Panama, Jan. 3-6, 1905.

Ashford, E. K., asst.-surgeon, detailed to represent the Medical Department of the Army at the meeting of the American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

Ewing, Charles B., surgeon, granted twenty-one days' leave of absence about Jan. 2, 1905.

Mans, Louis M., deputy surgeon general, granted four months' sick leave of absence at expiration of present leave.

Hallwood, James B., contract surgeon, returned to duty at Fort Leavenworth, Kan., December 7 from leave of absence.

Brewer, Isaac W., contract surgeon, granted an extension of fifteen days in his leave of absence.

Hays, Melville A., contract surgeon, granted an extension of one month to his leave of absence.

Roak, S. Davis, dental surgeon, arrived at Fort Myer, Va., Dec. 11 for duty.

Foster, Douglas E., dental surgeon, left Fort Monroe, Va., December 12 for his proper station, Fort Slocum, N. Y.

Wing, Franklin F., dental surgeon, left Fort Des Moines, Iowa December 10 for duty at Fort Washakie, Wyo.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Dec. 14, 1904:

McIntosh, W. P., surgeon, granted leave of absence for one day, December 10.

Stouer, J. B., surgeon, to proceed to Delaware Breakwater Quarantine and assume temporary charge during absence, on leave, of medical officer in command.

Wertenbaker, C. P., surgeon, detailed to represent the Service at meeting of American Public Health Association at Havana, Cuba, Jan. 9-12, 1905.

Blue, Rupert, P. A. surgeon, granted leave of absence for five days from December 13.

Oakley, J. H., P. A. surgeon, granted leave of absence for one day, December 12.

Wickes, H. W., P. A. surgeon, granted leave of absence for one month from December 23.

Greene, J. B., P. A. surgeon, granted leave of absence for fourteen days from December 19.

Von Ezdorf, R. H., P. A. surgeon, granted leave of absence for six days from December 12.

Anderson, J. F., P. A. surgeon, detailed to represent the Service at meeting of the Laboratory Section of American Public Health Association at Havana, Cuba, Jan. 9-13, 1905.

Rehrenburg, L. P. H., asst.-surgeon, granted leave of absence for twenty-one days.

Burkhalter, J. F., asst.-surgeon, granted leave of absence for twelve days from December 24.

Jackson, J. M., Jr., A. A. surgeon, Department letter of Oct. 10, 1904, granting leave of absence for thirty days from October 26, amended to read thirty days from November 26.

Kestley, H. W., A. A. surgeon, granted leave of absence for eighteen days from December 10.

Primrose, R. S., A. A. surgeon, granted leave of absence for eighteen days from December 5.

Hanraff, F. R., pharmacist, relieved from temporary duty at Cleveland, Ohio.

RESIGNATION.

Harris, B. Y., A. A. surgeon, resigned, to take effect Dec. 15, 1904.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Dec. 16, 1904:

SMALLPOX—UNITED STATES.

Illinois: Dec. 3-10, Chicago, 7 cases, 1 death; Danville, 1 case.

Kentucky: Louisville, Dec. 1-8, 3 cases.

Louisiana: New Orleans, Dec. 3-10, 4 cases, 2 imported.

Maine: Nov. 1-30, Cape Elizabeth, 1 case; Eagle Lake Plantation, 1 case; New Sweden, 1 case; St. Agatha, 1 case; St. Francis Plantation, 1 case.

Michigan: At 75 places, Nov. 26-Dec. 3, present.

Missouri: St. Louis, Dec. 3-10, 15 cases, 2 deaths.

Nebraska: Omaha, Dec. 3-10, 1 case.

Ohio: Cincinnati, Dec. 2-9, 3 cases; Toledo, Nov. 26-Dec. 10, 3 cases.

Pennsylvania: Dec. 3-10, Johnstown, 3 cases; Philadelphia, 1 case.

South Carolina: Greenville, Nov. 26-Dec. 3, 2 cases.

Tennessee: Nashville, Dec. 3-10, 5 cases.

Wisconsin: Milwaukee, Dec. 3-10, 18 cases.

SMALLPOX—INSULAR.

Philippine Islands: Oct. 29, Marinduque Province, epidemic; Siguir Province, epidemic; Surigao Province, epidemic.

SMALLPOX—FOREIGN.

Austria: Vienna, Nov. 19-26, 1 death.

Brazil: Bahia, Oct. 29-Nov. 12, 36 cases, 3 deaths; Para, Nov. 15, epidemic.

Denmark: Copenhagen, Nov. 5-12, 1 case.

France: Nov. 19-26, Lyon, 1 case; Paris, 11 cases.

Germany: Munich, Nov. 19-26, 2 cases, 2 deaths.

Great Britain: Glasgow, Nov. 25-Dec. 2, 1 case; Nov. 19-26, Manchester, 1 case; Newcastle-on-Tyne, 4 cases; South Shields, 1 death.

India: Bombay, Nov. 8-15, 7 deaths.

Italy: Palermo, Nov. 12-26, 36 cases, 9 deaths.

Mexico: City of Mexico, Oct. 1-Nov. 19, 15 cases, 5 deaths.

Russia: Odessa, Nov. 19-26, 1 case; St. Petersburg, Nov. 12-26, 8 cases, 1 death; Warsaw, Oct. 22-29, 9 deaths.

Spain: Barcelona, Nov. 20-30, 7 deaths.

YELLOW FEVER.

Mexico: Nov. 20-Dec. 3, Marida, 2 cases; Textistepec, 21 cases, 2 deaths.

CHOLERA.

India: Calcutta, Oct. 29-Nov. 5, 11 deaths.

Persia: Nov. 26, Gilan Province, epidemic; Mazenderon Province, epidemic; October, Resht, 10 cases daily; Tabriz, 400 cases daily.

Russia: Nov. 4-8, Baku, 6 cases; Balachany, 5 cases; Erivan, 132 cases, 62 deaths; Samara, Oct. 17-24, 65 cases, 14 deaths; Tiflis, Nov. 7, 1 case.

Turkey in Asia: Mesopotamia, Oct. 22-29, 96 cases, 89 deaths.

PLAGUE—INSULAR.

Hawaii: Honolulu, Dec. 10, 1 death.

PLAGUE—FOREIGN.

Arabia: Aden, Nov. 4, 1 death.

Argentina: Salta, Nov. 21, epidemic.

Brazil: Bahia, Nov. 5-12, 8 deaths.

Egypt: Nov. 5-12, Achmou District 1 case, 1 death; Tukh District, 4 cases, 1 death.

India: Bombay, Nov. 8-15, 75 deaths; Calcutta, Oct. 29-Nov. 5, 9 deaths; Karachi, Oct. 31-Nov. 6, 11 cases, 9 deaths.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Western Surgical and Gynecological Association, Milwaukee, Wis., December 28-29.

Pan-American Medical Congress, Panama, Jan. 2-6, 1905.

American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Seventeenth Annual Meeting, Held at Birmingham, Ala., Dec. 13-15, 1904.

The Second Vice-President, Dr. J. Shelton Horsley of Richmond, Va., in the chair.

Addresses of Welcome were made by Mayor Drennan and

Dr. L. G. Woodson, and were responded to by Dr. W. P. Nicolson of Atlanta, Ga.

Officers elected: President, Dr. Lewis C. Boshier, Richmond, Va.; vice-presidents, Drs. John D. S. Davis, Birmingham, Ala., and I. S. Stone, Washington, D. C.; secretary, Dr. W. D. Haggard, Nashville, Tenn., re-elected; treasurer, Dr. Charles M. Rosser, Dallas, Texas, re-elected.

Louisville, Ky., was selected as the place for the next annual meeting, in December, 1905.

Intestinal Obstruction.

DR. DYER F. TALLEY, Birmingham, Ala., pointed out two difficulties in the way of early operation for intestinal obstruction: 1. It is hard to make a positive diagnosis in the first 24 hours. Indeed, in some cases it is impossible to do so, unless an exploratory laparotomy is made. 2. There is a tendency on the part of his patient and his friends, and also on the part of the physician, to wait until to-morrow and see what purgatives and enemata will accomplish. Dr. Talley reported 8 cases of intestinal obstruction that have come under his care during the last 15 months. One case showed that a laparotomy can be done without anesthesia, and many cases that are seen late and are too weak for an anesthetic may be operated on and relieved without a general anesthetic. The results of operation in the 8 cases were 5 recoveries and 3 deaths.

DISCUSSION.

DR. GUY LEROY HUNNER, Baltimore, said that he would rather err on the side of operating occasionally unnecessarily than to commit the error of not interfering and be too late. He cited cases in point.

DR. W. P. CARR stated that the more he sees of cases of intestinal obstruction, the more he is convinced that whenever there is a strong suspicion of it an exploratory operation should be made. There are so many cases that have little or no symptoms for quite a while, and others that have considerable fecal movements in the lower bowel after obstruction has taken place, that one is apt to be misled. He has been misled a number of times.

DR. J. GARLAND SHERRILL, Louisville, Ky., advocates early operation in these cases. Whenever a patient has intra-abdominal pain, which is not properly relieved, an exploration should be made. Whenever a patient has a severe pain in the abdomen that ceases suddenly, it is likely to be the result of gangrene of the gut, and for that reason such a case demands very prompt operation. Many of these patients can be saved by opening the abdomen at once, even in the presence of shock, and in this way inflammation of the peritoneum may be avoided.

DR. CHAS. L. BONIFIELD, Cincinnati, recommends changing to ether when patients cannot stand chloroform, particularly in children.

DR. W. O. ROBERTS, Louisville, Ky., narrated the case of a child, 9 months old, on which he had operated. The child had been treated for dysentery. When he saw the patient there was a considerable amount of distention of the abdomen, great straining on the part of the child, and bloody mucus passed by the bowel. He introduced his finger into the rectum and found an intussusception. The intussusception was within two inches of the anus. Laparotomy was performed, and he found that the intussusception began at the ileocecal opening, and extended to within two inches of the anus. It was relieved; but the child died in the course of 12 hours from shock. He thinks it important in all cases of intestinal obstruction to examine the rectum carefully.

DR. WM. E. PARKER, Hot Springs, Ark., said that the general practitioner should be impressed with the importance of early diagnosis in these cases, and if there is any question, to call in a general surgeon or some one who has had experience in this class of cases. After the diagnosis is made, one should get into and out of the abdomen as quickly as is consistent with good work.

DR. W. P. NICOLSON, Atlanta, Ga., said that we should always bear in mind that the location of pain in the abdomen

in many cases bears practically no relation to the site of the lesion.

DR. SAMUEL J. MIXTER said that a patient who has had intestinal obstruction for days, and is in a very critical condition, can be saved, if too much is not attempted. Many of these patients die because surgeons attempt too much. In a case of gangrene following intussusception, if a simple opening is made in the distended loop of bowel, a tube tied in, and the intestine drained, a later operation can be done, and the patient probably be saved, whereas if one attempts to do a resection or a serious operation at the time, the patient will almost surely die.

DR. A. PALMER DUDLEY stated that the surgeon is at a great disadvantage when he is called to a patient to whom morphin has been administered for pain, because it masks the symptoms. Peristalsis is arrested, and the obstruction goes on more rapidly. He has not given a dose of morphin in 15 years to any patient on whom he has performed an abdominal section.

A Review of One Thousand Operations for Gallstone Disease.

This joint paper by DRs. WILLIAM J. MAYO and CHARLES H. MAYO, Rochester, Minn., was read by the latter. In 1,000 operations for gallstone disease there were 50 deaths—5 per cent.—counting as a death every patient operated on who died in the hospital without regard to cause of death or length of time thereafter; 960 for benign disease, with 4.2 per cent. mortality. More than one procedure through a single incision, only the major was counted, therefore 101 cholecystostomies, and 44 cholecystectomies in connection with common duct operations were not included. Of 673 cases operated on by cholecystostomy there was a mortality of 2.4 per cent. This group included most of the acute infections. In no case did the stones re-form in the gall bladder. This is the operation of choice in the average uncomplicated case, and especially if there is or has been cholangitis.

Of cholecystectomy, there were 186 operations, with a mortality of 4.3 per cent. This operation was employed for special indications, such as cystic duct obstruction, thick-walled gall bladders suspicious of malignant disease, and cholecystitis without calculi. There were 137 operations for stone in the common duct, with a mortality of 11 per cent., 7 per cent. from the operation, and 4 per cent. from secondary complications after more than three weeks. Of the cases operated on during the quiescent period, with little jaundice and slight infection, all recovered. There were 4 cases with extreme icterus from obstruction, who had subcutaneous hemorrhages at the time of operation (purpura). All of these died; 4 cases of complete biliary obstruction in which the common and hepatic ducts were filled with clear cystic fluid and no bile; all died. Including malignant disease, 14.6 per cent. of the total were of the common duct; 40 cases of malignant disease, with 22.5 per cent. mortality; 2 cases with cancer of the gall bladder now alive and well, more than two years after operation; 2 additional favorable cases of more recent date. Of the remaining malignant cases, a few received marked palliation, but the majority were but little benefited.

Enterostomy.

DR. J. W. LONG, Greensboro, N. C., reported 8 cases of enterostomy occurring in 22 years of practice, with 5 recoveries, or 62.5 per cent. He drew the following conclusions:

1. Enterostomy is a life-saving measure and never an operation of choice.
2. It is not indicated where a more ideal surgical procedure is feasible.
3. In the hands of an experienced, carefully trained, competent surgeon, capable of dealing with grave emergencies, enterostomy need rarely be resorted to, but the better the surgeon the more quickly he will adopt any measure which will rescue his patient.
4. Every abdominal surgeon must, according to the abundance of his material, find cases in which only enterostomy can with propriety be done.
5. When an enterostomy is indicated, to hesitate is to lose the patient; to operate promptly and with delicate means to tide the patient over the imminent peril and spare him for future consideration.

DISCUSSION.

DR. JAMES A. GOGGANS, Alexander City, Ala., said that

drainage of the distended intestines is very important. He makes it a rule, if possible, when he does a laparotomy for any trouble whatever, to drain the intestine in order to let it regain its elasticity and to move the fecal current along as it should go.

DR. J. GARLAND SHERRILL believes that enterostomy has a place in surgery in those cases in which complete surgery can not be done; but whenever a surgeon sends a patient away from the operating table with an open intestine, he subjects the profession and himself to criticism from the laymen who do not understand the condition. Therefore, he would lay it down as a rule that no enterostomy should be done in any case where it is possible to do complete surgery, and instead of widening the field for enterostomy, surgeons should strive to contract it.

DR. I. S. STONE, Washington, D. C., said that Dr. Long must have got hold of a number of very difficult and delayed cases for operation. He thinks his idea is that rather than let a patient die from obstruction, he would catch up a loop of bowel and make an artificial anus. This is the old-fashioned way of doing enterostomy, and Dr. Long obtained as good a mortality as most surgeons would have gotten under the same circumstances.

DR. LONG said that he has, unfortunately, had quite a number of cases in which it seemed proper to do enterostomy. These 8 cases were spread over a period of more than 22 years' practice. He doubts if any surgeon has a better percentage of recoveries in cases of acute intestinal obstruction by any method than that which he had reported, namely, 62.5 per cent.

(To be Continued.)

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Nov. 16, 1904.

The President, Dr. John B. Murphy, in the Chair.

The Advantage of Muscle-Splitting and Muscle-Retraction Incisions in the Prevention of Ventral Hernia.

DR. MARTIN B. TINKER, Ithaca, N. Y., read a paper (by invitation) on this subject, saying that the very considerable number of ventral hernias, following clean, uncomplicated abdominal operations, should furnish ground for reflection as to the necessity for their occurrence. The number of these cases which have come to him during the past year has formed almost 4 per cent. of his total number of cases. He believes that the patients seldom return for the cure of their hernia to the surgeon who performed the original operation causing the hernia. The state of many of these patients, with their constant discomfort from wearing some form of abdominal support, with pain from adhesions about the hernial opening, and with the not infrequent occurrence of symptoms of strangulation, often makes their condition but little preferable to that for which the original operation was undertaken.

To avoid the disadvantages of the rectus incision, especially the paralyzing of the median side of the muscle, and in opening the abdomen for pelvic operations of any kind, Dr. Tinker usually employs the Pfannenstiel supra-symphysis cross incision, which gives free access to the pelvis and organs near the median line of the body, although if freer exposure is desirable, the Lennander rectus retraction incision is preferable. The Pfannenstiel incision has the possible additional advantage of placing the scar below the pubic hair line, where it is not noticeable. It will be found very satisfactory for myomectomy; operations on the tubes or ovaries; advancement of the round ligaments for backward displacement, or other operations near the median line of the lower part of the abdomen. For abdominal hysterectomy the Lennander incision is better, and also for exploration of the right iliac fossa, where involvement of the pelvic organs is suspected. Where simple appendectomy is to be performed, the McBurney muscle-splitting incision is prefer-

able, but when appendectomy is combined with work in the pelvis, the Lemander incision is the better. Operations in the upper abdomen are less likely to be followed by post-operative hernia, but the muscle-splitting incisions in the treatment of diseases of the gall passages afford far greater security against the occurrence of ventral hernia.

Healing by first intention is of great importance in the prevention of ventral hernia; the careful arrest of hemorrhage, to prevent accumulation of blood in the wound, not only lessens the danger of infection, but favors firm healing. The prevention of strain after operation, by distention, postoperative nausea and vomiting is also very important, as is also the prevention of strain on the wound by the patient exerting himself too early. The accumulation of intestinal gases can be greatly lessened, if not entirely prevented, in most cases by thoroughly emptying the intestinal tract before operation, and by careful attention to the bowels afterward.

The possibility of getting the patient out of bed at an early date following operation with a feeling of absolute security from hernia, and without the necessity for wearing a binder, is a great satisfaction and sufficient reward for the extra pains and few additional minutes of time required to open and close the abdomen by any one of these methods.

DISCUSSION.

DR. L. L. MCARTHUR stated that the lines of cleavage described by Kocher bear a relationship to three factors: to those lines in which the least tension would occur; to those in which the least destruction of muscular fiber or actual paralleling of muscular fiber will occur; and, finally, to those incisions in which the innervation of the muscles involved shall not be disturbed. He said that he was very much surprised that in any man's statistics, in uncomplicated cases, where drainage has not been necessary, that so large a per cent. as one in five, or 20 per cent. of hernias, should occur. It may be applicable on the basis that patients do not return to the surgeon who has been the cause of the hernia. He thinks a very decided improvement is an incision at the edge of the rectus, where occasionally one finds it necessary to go into the pelvis for complications in operations which are associated with appendical work, as ovarian tumor, suppurative tubes, twisted ovarian pedicle, etc.

DR. ARTHUR DEAN BEVAN agreed with Dr. Tinker as to the importance of planning incisions so as to reduce the danger of resulting postoperative hernia to a minimum. First, plan the incision so as to give free and sufficient exposure to do the operation. Second, plan the incision so as to give the least possible danger of a resulting hernia. In opening the abdomen to remove a large fibroid of the uterus, one could not employ the Pfannenstiel incision, and, in opening the abdomen to remove a large spleen, one can not employ the muscle-splitting incision. In opening the abdomen posteriorly, to remove a large tumor of the kidney, the muscle-splitting incision is out of the question. Furthermore, in opening the abdomen to operate on the common duct, the muscle-splitting incision should not be considered. An incision can be planned for the exposure of the kidney, which is parallel with the nerves of the region of the abdominal wall, yet not a muscle-splitting incision, and in which there will be very little danger of hernia. An oblique incision, parallel with the costal arch in the upper abdomen, which divides nerves, muscle fibers, or fibrous tissue transversely, is not nearly so apt to be followed by hernia as a muscle-splitting incision in the lower portion of the abdominal wall. It is rare to have a hernia following an incision parallel with the costal arch for gall-bladder work. He does not think, however, that the muscle-splitting operation should be employed where other factors are more weighty. An incision in the linea alba is a very safe and useful one, and he employs it quite extensively. He thinks that the statistics of 7 per cent., or 20 per cent., are altogether too great. Why should there be a hernia in a median incision of from three to six inches in length which heals by primary intention, and where the pa-

tient has been allowed to remain in the recumbent position until wound healing is complete? German surgeons have more hernias following their operations than American surgeons. Statistics of operations from the Heidelberg Clinic, by Czerny, which have been extensively reported in the *Beiträge zur Klinische Chirurgie* for the last four or five years, show the proportion of hernias to be from 20 to 25 per cent. in suppurative cases. This percentage would be considered large in America. The length of the incision is of comparatively small importance as compared with primary wound healing. The recumbent position should be maintained until wound healing is complete. He does not approve of a patient getting up on the second day, after a muscle-splitting incision or not.

DR. E. WYLLYS ANDREWS said he had supposed that the Pfannenstiel incision is a skin incision only. He has only used it a few times. He goes one-half or three-quarters of an inch out from the median line and secures muscular wall for the incision. He attaches a good deal of importance to the imbrication idea, even in ordinary celiotomy.

DR. A. J. OCHSNER said that whoever has witnessed the German clinics knows that several things are done which must result in bad unions. First, the incision usually is made very long; second, the tissues are handled roughly; third, the stitches are applied with the least possible amount of care and accuracy; fourth, they are tied so tightly that they tend to cause pressure necrosis. All those factors are bound to cause ventral hernia. He said that there is not .25 per cent. of ventral hernia possible provided the conditions he mentioned are carried out. He has followed many hundreds of his cases, and in those in which there was no drainage nor suppuration there was no ventral hernia. There can not be a ventral hernia if the different layers are accurately and properly approximated. He places a silkworm-gut suture down through the transversalis fascia as an emergency suture, so that if the patient should sneeze severely at the time when the catgut has become softened, there will be a safety suture on the outside to hold it. He sutures the peritoneum and transversalis fascia together; he passes a second catgut suture through the muscle, and a third catgut suture through the aponeurosis of the external and internal oblique, and ties the silkworm-gut suture sufficiently loosely to guard against pressure necrosis. Furthermore, he applies, for emergency's sake again, broad adhesive strips, so that if the patient should strain, vomit severely, or sneeze, the soft tissues will not be torn. He takes the additional precaution of always emptying the bowels thoroughly before operation, and of keeping them moved always so as not to cause a great amount of intraabdominal pressure.

DR. E. C. DUDLEY said that the probabilities are that the most practical single incision for exploration is one that is made near the median line. He makes his so-called median incision through the right rectus muscle, parallel with the fibers of the muscle, somewhere near the inner margin of the muscle. This is done in order to avoid ventral hernia or to get a more accurate closure. For many years he has abandoned the through-and-through suture and has used chromicized catgut, suturing layer by layer, first the peritoneum, the posterior fascia, the anterior fascia over the rectus muscle, and then, if there is a great deal of subcutaneous structure, sutures through that and then inserts a buried suture for the skin.

DR. WILLIAM CUTHBERTSON stated that Pfannenstiel recognizes the limitations of his own incision, which is applicable to the removal of large tumors or of appendices complicated by some pelvic difficulty where there may be a short meso-appendix or oecum. He agreed with Dr. Bevan in reference to the after-treatment. Experiments which he has made on dogs have directed his attention particularly to the fact that, after having opened the abdomen of a dog, forty-eight hours later it was quite easy to open the wound by simply pressing the finger through the line of incision. In from four to five days it was hard to open the skin incision with the finger, and it usually required the handle of a scalpel,

a Kocher dissector, or a moderately sharp instrument to re-open the skin incision. After getting through the skin, it is an easy matter, with the finger, to separate the abdominal muscles and to re-enter the abdominal cavity. In abdominal operations we should not be in such a great hurry to get patients out of bed unless they are old and feeble, but to give them a longer time to let wound healing be complete. Furthermore, to have thorough hemostasis before closing the abdominal wound, and not leave a blood clot between the surfaces of the wound to become organized.

DR. CARL BECK stated that German surgeons publish a larger number of statistics than do Americans, because they keep more exact clinical records. If patients in America have hernia they do not return to the clinics as do the patients in Germany, but they go to other surgeons. The percentage of hernia, therefore, following operations in America is much greater than would appear from what has been said. Secondary union is due in many instances to poor hemostasis in closing the abdomen. He has removed large tumors through a small transverse incision because one can stretch the incision. The muscles are not split, but simply the fascia. The disadvantage of this method is that we open large surfaces, and if exact hemostasis is not secured secondary union is invited, which can be avoided in the other incision by putting in a number of sutures of catgut or of silk. He avoids sup-puration by putting in drainage in the septic cases clear down to the surfaces that had been divided. With the addition of tubal drainage, one can employ this incision satisfactorily and can avoid hernia.

DR. ALBERT GOLDSPOHN said that his belief is that the percentage of hernia is far less than that mentioned, and he is inclined to regard it as almost a closed chapter. The cardinal principles of closure of wounds must be carried out, or there will be a hernia. He described a technic similar to that of Dr. Ochsner, except that he does not find it necessary to open the sheaths of both recti, but severs one rectus muscle and opens one sheath only, not splitting the muscle, but separating it from the linea alba, and then uniting it with a few through-and-through sutures to guard against the accumulation of serum or of blood between the layers of the wound.

DR. TINKER said that he would not have any one believe that he advocates these incisions for all kinds of surgical work. No one recognizes their limitations any more clearly than he does. It is not his custom to allow his patients to get up in less time than a week, and usually not until ten days after operation. Healing is not likely to be complete until that time; but he does feel perfect confidence in allowing a patient with one of these incisions to get up at the end of two weeks, at the latest, without the use of any binder, and he has yet to see any evil results following it.

Travel Notes.

GRANT MEDICAL COLLEGE AND THE HOSPITALS OF BOMBAY.

NICHOLAS SENN, M.D.
CHICAGO.

(Concluded from Page 1895.)

PREVALENT DISEASES.

Tropical abscesses are very common in Bombay. They affect most frequently the thighs and gluteal regions. They do not give rise to serious constitutional symptoms and the local symptoms are likewise mild. Speedy healing after incision and drainage may confidently be expected. Tetanus is most frequently met with during the two hottest months of the year, April and May. The serum treatment has not had an extensive trial, and the mortality is large, more than 50 per cent. In one case an intracerebral injection of the antitetanic serum was made. The patient died. On postmortem

the serum was found at the site of injection, no absorption having taken place. In the treatment of tetanus, hydrate of chloral and potassic bromid in very large doses are relied on. Hydrophobia is quite prevalent in India. Bombay sent last year 65 cases of suspected dog bite to the Pasteur Institute at Simla. Elephantiasis of the scrotum is much more common among the Parsees than among the Hindus. Patients thus affected now seek surgical relief before the weight of the swelling becomes a source of great inconvenience, as the former objections to the operation have been overcome by the better operative results. Many cases of hydrocele in young men develop during the hottest months of the year. About from fifty to sixty cases of stone in the bladder apply for relief every year.

Hernia in women is very rarely met with in India, and the surgeons believe that this is due to their spare bodies and the vigorous exercise incident to the hard work the common women are required to undergo. Several cases of Madura foot and ainhum find their way into the hospital every year. Actinomycosis and blastomycosis are not known here. In the coolies gonorrhoea pursues a very mild course. No local treatment is used. Under internal use of an alkaline mixture, the disease subsides in the course of ten days.

HOMELESS LEPER ASYLUM, MATUNGA, BOMBAY.

One of the most creditable and beneficial of the hundreds of charity institutions of Bombay is the Homeless Leper Asylum in the suburb Matunga. It is the largest leper asylum in India, and at present it is the home of 370 lepers. The inmates are well cared for, and instead of living the lives of outcasts in misery, beggary and much suffering, are well housed, kindly treated, and their discomforts and pains alleviated to a remarkable degree. Segregation has never been carried into effect, and there are now about 150 vagrant lepers roaming the streets of Bombay. Mr. H. A. Acworth, I.C.S., C.I.E., municipal commissioner for the city of Bombay from 1890 to 1895, is the founder of this model institution, as it was through his influence that the necessary funds were obtained. Rich merchants and native princes responded to his appeal and made liberal contributions. The many tile-roofed, one-story brick pavilions are situated in grounds embracing 11½ acres of fertile land, advantageously located, enclosed and unenclosed; municipal and leased from the government at a nominal rent. On the morning of Nov. 7, 1890, about fifty vagrant lepers were collected by the health department and the police at various centers and, after medical examination, were sent to the asylum under police escort and, after thorough cleansing and change of clothes, were entered as the first installment of patients of the leper home. The poor lepers have since learned from experience and observation the full extent of the benign and humane intentions of the asylum and now enter it voluntarily in increasing numbers, happy in the thought that by doing so their short lives will be made more endurable by the care and kind treatment which awaits them there. The grounds are beautifully laid out and ornamented with trees and flowers. The garden of roses is one of the finest in Bombay. In the grounds there is a school for children, a Roman Catholic Church, a Hindu temple and Mohammedan mosque. All the Hindus that die in the asylum are cremated by the inmates, according to the Hindu custom. After appropriate ceremony, in a place set apart at the extreme east corner of the grounds, the rites incidental to cremation are performed by the patients themselves, and one khandi (28 maunds) of firewood is allowed for each corpse, at a cost of 8¼ rupees (\$2.72). A bier and pall are provided for the Mohammedans and the corpses are removed to the cemetery at Marine Lines by bearers, who are sent from the city and are paid at the rate of about 7 rupees (\$2.24) per corpse, to defray the charges of conveyance and all incidental expenses. A Mohammedan priest, who has been the subject of the anesthetic form of leprosy for 11 years and an inmate of the asylum for 5 years, attends to the spiritual needs of those inmates of the asylum who are of the same religious belief and receives a small salary for his services. A Roman Catholic priest from Bombay visits the

asylum regularly every week. The Roman Catholic dead are removed from the asylum for burial at the expense of their fund, all arrangements being made for the purpose by the Rev. Father Peters, S.J. The Protestants have a pauper funeral at the expense of the asylum funds. The Protestant missionaries do not seem to be aware of the existence of the Homeless Leper Asylum or its contingent of protestant inmates. One of the most interesting features of the asylum is the small sewage farm connected with it, and which is fertilized with sterilized sewage. The sterilization is effected by collecting all the sewage and passing it through a series of open tanks. This method of sterilization and utilization of sewage has been found entirely satisfactory and has been a source of no inconsiderable income to the asylum. The report of the asylum shows about the following proportion of the various religious beliefs of the inmates:

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There are about twice as many men as women, and the children constitute about 2.5 per cent. of all the inmates. One of the touching instances among the many I saw in visiting this great institution was a group of children, numbering about 15, who had just left the schoolroom and had congregated near the gate of entrance to the grounds to bid the visitors good-bye. They ranged in their ages from 6 to 12 years and were all lepers.

The anesthetic and tubercular forms of the disease are about equally represented, and the mixed form affects about 12.63 per cent. of all cases. The dispensary is well supplied with medicines, the hospital is scrupulously clean and supplied with comfortable cots. A physician visits the asylum every day, and his assistant resides in the institution, always ready to render necessary medical and surgical aid.

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This institution owes its origin to Mr. W. M. Haffkine, C.I.E., a Russian scientist, who has rendered India such signal service since 1893, first by his prophylactic treatment of cholera by serum inoculations and later by his discovery of a serum against the plague. I was very anxious to meet Mr. Haffkine, but unfortunately he was absent on a visit to Europe, but I met in his place Lieut. Col. W. B. Bannerman, M.D., B.S.C., I.M.S., who temporarily filled his place as director-in-chief of the laboratory and who holds the permanent position as superintendent. The former residence of the governor of Bombay, at Parel, a beautiful suburb, has been converted into a laboratory and the former ballroom is now the place where the anti-plague serum is brewed, and halls and bedrooms where fashion reigned are now occupied by dozens of cages containing animals for experimental use.

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During the height of the epidemic as many as 30 patients a day were admitted from the city and nearby villages. The mortality has been very great. Many die from the general sepsis, others from pulmonary and other complications. After a period of incubation of from five to seven days, the disease is ushered in abruptly with very high temperature and other symptoms indicative of a profound constitutional disturbance. The inguinal glands are most frequently involved, next the glands of the axillary spaces. The cervical glands are very seldom affected. Enucleation of the suppurating glands has been tried, but was abandoned, as it was found that after such attempts to cut short the local infection, the general infection usually became aggravated.

The local treatment resorted to now consists in the use of poultices until fluctuation is distinct when the abscesses are incised and the antiseptic gauze dressings take the place of the poultices. The general treatment is supporting and stimulating. Large abscesses frequently develop remotely from the infected glandular regions. At the time of my visit about 25 patients remained in all stages of the disease. Some of them were in the height of the primary fever, more of them were slowly recovering from extensive glandular abscesses in the inguinal regions. I only saw two patients in which the axillary glands were also involved. In all the inguinal abscesses that had been incised the enlarged glands partially isolated from the surrounding tissues presented a grayish appearance with no indications of any attempt at repair.

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by the appearance of the late visitors, were roused from their dormant condition and displayed an activity begotten by fear. We finally came to the door of a large room in which darkness was complete. The moment we entered a fearful hissing from every part of the room greeted us, mingled with short raps resembling the tapping sound made by striking a wire screen with a small hammer. I was in a cobra den, in the midst of 150 of these terrible reptiles, imprisoned in cages, it is true, but wide awake and roused to anger by our untimely intrusion. They were assisted in their hissing and striking against the wire screen which guarded the open end of their cages by 50 other snakes still more venomous, Russell's viper. (*Daboia russellii*.) Through the meshes of the wire screen shot the forked tongues of 200 of the most venomous reptiles known. Add to the hissing and striking noises the 200 forked red tongues, 400 staring, deceptive and treacherous eyes, the snaky odor that pervaded the atmosphere of their dungeon and you will have a good idea of what is meant by a cobra den. The cobra (*Naja tripidians*) is about four feet in length, and when angered the flat head and neck expand into wing-like projections on each side, increasing their width to the size of the palm of the hand. The color is almost black, the tail tapering into a sharp point. The viper is of about the same size, but has circular stripes. I know of no more ugly sight than a cobra in striking attitude. Every snake in the room was in a fighting mood, hissing and striking the wire screen with a thud-like noise; at short intervals red forked tongues shot out through the meshes of the wire screen on all sides, and the situation was made more horrible by the revolting snake smell issuing from so many cages.

The snake, the most despised animal in creation, is an object of fear and horror to all who are familiar with his damnable record in the Garden of Eden and with the curses imposed on him by the Almighty. I did not know but some of these terrible beasts might be at liberty in that large imperfectly lighted room, and only breathed easy again after we had left the room and the door was shut and securely locked.

It was prearranged that I should become more familiar with the dangerous part of the anatomy of cobra and viper. We ascended the broad staircase leading to the second floor and entered the office of the superintendent of the laboratory, Lieut.-Col. Bannerman, who on this occasion extended so many courtesies to me. He sent for the "snakeman," and in a very short time three coolies made their appearance with so many snakes in their cages, one cobra and two vipers. I was to witness the "milking" of their poison sacs. I begged to be informed beforehand how this was to be done in order that I might make my own plans of conduct for safety during the ordeal. The superintendent smiled and said: "You must see for yourself." The snakes were in an offensive attitude, as they had undergone this procedure repeatedly and had learned by experience to dread it. I could see no opening in the boxes through which the snakes could be made *hors de combat*.

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1. Snake Venoms: Their Physiological Action and Antidote. Journal Bombay Natural History Society, p. 220, vol. xlv.

2. The Use of Calmette's Antivenene in Snakebite in India. Journal Bombay Natural History Society, vol. xv.

tapeworm. The latter is much more common in this country, while the former is more common in the continental countries of Europe. The presence of either in the intestinal canal of man may cause no symptoms whatever, and knowledge of their presence is made manifest only when a segment or series of segments appear in the stool. In other cases they give rise to an abnormal and ravenous appetite on account of their interference with digestion and assimilation of food. In other cases still reflex nervous disturbances may arise. Before outlining a treatment of tapeworm the general condition of the patient must be considered. If heart lesions are present and the patient has reached the age when changes in the heart muscle have taken place, care must be observed not to give those preparations which tend to depress and to produce too strong irritation to the gastrointestinal mucous membrane. Where marked arteriosclerosis is present those preparations which tend to produce the least amount of vomiting should be administered. It must also be remembered that those tœniifuges which produce the greatest subjective disturbances do not, in most cases, constitute the best treatment. On the other hand, it is sometimes necessary to employ these drastic measures before the entire worm can be removed. After the patient's physical condition has been ascertained he should be put on a modified diet for two days, during which time the intestinal tract must be cleared, and on the evening previous to administering the vermifuge a good cathartic must be given and the following morning the preparation given while fasting, as the head is then in a state of least protection. This should be followed in a few hours by another laxative. The patient may then be allowed to eat food which will tend to increase intestinal peristalsis. Herring salad combined with onions and garlic is recommended by some authors, given the evening before the administration of the tœniifuge. No breakfast should be taken and the medicine should be given while the patient is still in bed and repeated as necessary. The recumbent condition is in most cases necessary in order to prevent nausea and vomiting as well as the vertigo which frequently accompanies their administration. The purgative to be used after giving the anthelmintic depends to a great extent on the physical condition of the patient. Senna, jalap, calomel, saline laxatives or castor oil, any one of these, as a rule, may serve the purpose. The infusion of senna made up as follows has been recommended:

R. Pulv. sennæ fol. ʒiiss-iii 10-12 |
 Aquæ ʒiiii 90 |

M. Fiat infusum. Sig.: The entire amount sweetened with an ounce of the syrup of bitter orange peel, to be taken at one dose one hour after the anthelmintic.

Should this fail to act within one or two hours, a purgative enema should be given. For this purpose Bérenger-Feraud recommends the following combination:

R Pulv. sennæ ʒiiss-ʒiiii 10-12 |
 Sodii sulph. ʒx 40 |
 Aquæ ʒviii 240 |

M. Sig.: To be given as an enema.

Frequently a large enema of the normal saline solution will take the place of the foregoing and will prevent the worm from attaching itself to the intestinal wall after it has reached the large intestine.

The following preparations have been found to be the most successful in getting rid of tenie: Pomegranate, male fern, kousoo, pelletierin sulphate or tannate (the alkaloid of pomegranate), kamala, turpentine, pumpkin seeds and thymol.

POMEGRANATE.

Pomegranate or granatum is a bark which contains two alkaloids possessing teniacidal properties—pelletierin and isopelletierin. The bark given in the form of a decoction is, as a rule, better than its alkaloids given alone. The decoction is prepared as follows: Macerate two ounces (60.) of the pomegranate root, chopped up fine, in water for twelve hours. Then add one and a half pints (720.) of cold water, boil and macerate for twelve hours and evaporate to one pint (480.)

and administer in divided doses within one hour. If no purgative effects are obtained in one or two hours, a dose of castor oil should be given.

Bamberger recommends the following combination:

R. Granati rad. cort. ʒiiss-ii 45-60 |
 Macerate for 24 hours, then boil in
 Aquæ dest. ʒxii 360 |
 Evaporate to 6 ounces and add
 Extracti filicis maris ether. ʒiii 8 |

M. Sig.: One-third the amount to be taken (fasting) every half-hour. Take a saline aperient the night before, and no food other than soup or tea, or a salt herring.

The following combination has been recommended by Fleischmann in *Clin. Ther.* in the treatment of tapeworm:

R. Ext. granati rad. gr. xl 2 | 65
 Ext. filicis maris. gr. xl 2 | 65
 Pulv. radicis granati. gr. viii 50 |

M. Fiat pil. No. xl. Sig.: One-half hour after giving the child a cup of milk, give ten of these pills every half-hour, keeping others in reserve in case some are vomited. A few hours afterward give a dose of castor oil.

The taste of the decoction of granatum is extremely nauseating and for this reason its active principle, pelletierin, is substituted. The dose of the latter ranges from two to five grains (.12-.30). The addition of tannic acid prevents its absorption and toxic symptoms without altering its effect on the worm. Therefore, the tannate is the best preparation of this alkaloid and it is tasteless. French speaks of giving one-half an ounce of magnesium sulphate, followed in twenty minutes by the pelletierin dissolved in lemonade, and this in turn followed in twenty minutes by another dose of magnesium sulphate.

The following is an old-time but serviceable combination:

R. Granati radicis ʒss 15 |
 Seminis péponis ʒi 30 |
 Ext. filicis maris ether. ʒi 4 |
 Pulv. ergotæ ʒss 2 |
 Pulv. acaciæ ʒiii 8 |
 Olei tigllii gtt. ii 12 |

M. The pomegranate and pumpkin seed should be thoroughly mixed in a mortar with the ergot and boiled for fifteen minutes in water and strained. The croton oil is first mixed with the acacia and male fern and then formed into an emulsion with the decoction.

The following combinations are serviceable in some instances:

R. Olei terebinthinæ ʒss 2 |
 Olei ricini ʒss 15 |
 Mucil. acaciæ q. s. |

M. Fiat emulsio. Sig.: To be taken at one dose after fasting. Or:

R. Ext. granati rad. cort. ʒiiii 90 |
 Sodii bicarb. ʒi 4 |
 Aquæ Oi 480 |

M. Macerate six hours in hot water. Sig.: Take in the morning after fasting in three equal doses, following the last with oleum ricini, ounce one (30.).

PEPO.

The use of pumpkin seeds in the removal of tapeworm is as effective as it is simple. Like too many preparations, however, their efficiency depends to a great extent on where they are purchased. They should be obtained from a reliable seed firm in order to insure their strength. About two ounces should be hulled, thoroughly crushed to a fine powder, mixed with a small amount of honey and spread on a thin piece of bread and eaten as an ordinary sandwich. This should be followed in one or two hours by one of the cathartics previously mentioned. Some authors recommend an infusion or decoction of pumpkin seed instead of the foregoing preparation. This is a mild teniacide and can be given to children in one or two ounce doses. Pumpkin seed is dependent on a resinous principle, peporesin, as supposed by some, but this has not been definitely proved. It is a harmless remedy and can be repeated without danger in case of failure on first trial.

KAMALA.

Kamala is another preparation recommended. It is a fine granular powder, inodorous and tasteless. It can be administered in one to two-dram (4-8.) doses of the powder, or in the form of the tincture. Age impairs its efficiency. It is sometimes given combined as follows:

R. Kamala	gr. xx	1	30
Pelletierini tannatis	gr. ii	12	
Confect. sennæ	ʒss	2	

M. Sig.: The entire amount at one dose after fasting. This amount may be given to a child of 8 to 10 years.

MALE FERN (ASPIDIUM).

This preparation is usually the one relied on for the removal of tapeworm. The crude drug is never used, but in its stead the oleoresin, given in doses ranging from dram one-half to two (2-8.). The ethereal extract is less frequently given. This is prepared by evaporating the oleoresin at a very moderate heat in the oven; therefore, its dose is somewhat less than the oleoresin. The latter is best given dropped in capsules and administered in divided doses fifteen minutes apart. It is very essential that a fresh preparation be used. The fresh oleoresin is greenish in color.

Male fern may be given combined with oil of turpentine as follows:

R. Oleoresin aspidij	ʒiss	6	
Olei terebinthinae (rect.)	gtt. xx	1	30
Spts. chloroformi	m. x	65	
Mucil. acaciae q. s. ad.	ʒi	30	

M. Sig.: Shake well and take one-half the amount at night after fasting, and the remainder the following morning, followed in one hour by a brisk purge. Or:

R. Oleoresina aspidij	ʒiss	6	
Olei peponis express.	ʒiv	15	
Olei terebinthinae	gtt. xx	1	30

M. Sig.: To be taken at one dose after fasting, followed by a purgative. Or:

R. Ext. filicis ether.	ʒiss	6	
Pulv. kamala	ʒiij	8	
Mucil. acaciae			
Syr. simplicis, aa q. s.			
Aq. cinnamoni q. s. ad.	ʒiij	90	

M. Sig.: To be taken at one-half the amount to be taken at bedtime and the remainder in the early morning.

CUSSO.

Cusso is recommended, given in the form of the infusion, two or three drams (8-12.) to four ounces (120.) of boiling water and allowed to cool. It may be given in the powder form combined with male fern as follows:

R. Pulv. cusso (koussou)	ʒiij	8	
Ext. filicis maris ether.	ʒi	4	

M. Fiat capsule No. xxiv. Sig.: Four to be taken every fifteen minutes.

Pregnancy is a positive contraindication to the administration of cusso.

THYMOL.

Thymol is recommended by some authors as a very efficient tennicide, given in capsules or combined as follows:

R. Thymol	ʒiss	6	
Sacchari	ʒiij	8	

M. Fiat chart. No. xii. Sig.: One powder every thirty minutes, followed by castor oil.

Medicolegal.

Validity of Notice Required for Health Insurance.—The Supreme Judicial Court of Maine says, in Whalen vs. Equitable Accident Company, that the former was insured against loss resulting from sickness caused by various diseases, among which was dysentery. The policy provided that failure to give written notice as therein provided within 10 days of the

date of the beginning of any sickness should invalidate any and all claims under it. The insured fell sick October 17, and no notice was given to the company or its agents of the sickness until December 30. Within 30 days after the insured became sick with dysentery, but not within the first 10 days of his being sick, he became insane. The court holds that the condition in the policy was a valid one, and by its terms the failure to give notice within 10 days of the date of the beginning of the insured's sickness invalidated all claims under the policy. The provisions of the Maine statute to the effect that notice of accident, injury, or death may be given to a foreign or domestic casualty or accident insurance company insuring at any time within 30 days after the happening of an accident or injury or death, and shall be valid and binding on the company, do not extend to cases of health insurance. Where a health insurance company, after the expiration of 10 days from the time a party insured became ill, but before it knew the date when he did become ill, sent blank forms for proof of claim to him to be filled out, such conduct did not constitute a waiver on its part of the provision requiring the insured to notify it within 10 days from the beginning of the sickness.

Skill and Care Required of Physician and Surgeon.—The Supreme Court of Rhode Island says, in the malpractice case of Bigney vs. Fisher, that whether the defendant used proper skill and care in setting the broken bone in the plaintiff's leg and his subsequent professional treatment of the case were necessarily questions to be determined by the testimony of experts in the science of medicine and surgery. Barker vs. Lane, 23 R. I. 224. "The implied contract of a physician or surgeon is not to cure—to restore a fractured limb to its natural perfectness" (McCandless vs. McWha, 22 Pa. 261), but to treat the case with that degree of diligence and skill which are ordinarily possessed by the average of the members of the profession in good standing, in similar localities, regard being always had to the state of the medical profession at the time. If more than this is expected, it must be expressly stipulated for. S. & R. Neg. (5th Ed.), sec. 605; Am. & Eng. Ency. Law, vol. 22 (Rev. Ed.) 799-801; Smothers vs. Hanks, 34 Iowa, 286; Almond vs. Nugent, 34 Iowa, 300; Small vs. Howard, 128 Mass. 131. In short, a physician or surgeon must apply the skill and learning which belong to his profession (Higgins vs. McCabe, 126 Mass. 13); and, if he do this, he discharges his full liability. The law relating to malpractice is well stated in the late case of Pike vs. Honsinger, 155 N. Y. 201. Under the evidence submitted in this case the court thinks it was clear that the defendant possessed all of the qualifications called for by the rule stated in that case, that he used his best judgment in the case, and that he exercised at least an ordinary, if not, indeed, a high, degree of care and skill in his professional treatment of the plaintiff, so that the verdict of the jury (apparently for the plaintiff) was clearly wrong, and must be set aside, and a new trial granted.

Right to Determine Physical Examination.—The Court of Civil Appeals of Texas says that, in International & Great Northern Railroad Co. vs. Gready, a personal injury case brought by the latter party, who had suffered injuries to his head, back, spine, kidneys, etc., that he consented to an examination by three physicians appointed by the court, which was made; the court adjourning at 11 a. m. for that purpose. The court convened at 2 p. m., and waited three hours. At that time two of the physicians appeared and testified. On cross-examination they stated that they had applied all the tests except chloroform and the electric battery, whereon the company's counsel made a motion to have these tests applied, whereon the court asked one of the physicians how long it would take, and he answered, "I don't know." On further inquiry the physician stated that it was "very difficult to say. For instance, we must get the battery in good working order, which is not always the case. The battery is not used all the time, and it has a trick of getting out of order, and there you are." Whereon counsel for the plain-

tapeworm. The latter is much more common in this country, while the former is more common in the continental countries of Europe. The presence of either in the intestinal canal of man may cause no symptoms whatever, and knowledge of their presence is made manifest only when a segment or series of segments appear in the stool. In other cases they give rise to an abnormal and ravenous appetite on account of their interference with digestion and assimilation of food. In other cases still reflex nervous disturbances may arise. Before outlining a treatment of tapeworm the general condition of the patient must be considered. If heart lesions are present and the patient has reached the age when changes in the heart muscle have taken place, care must be observed not to give those preparations which tend to depress and to produce too strong irritation to the gastrointestinal mucous membrane. Where marked arteriosclerosis is present those preparations which tend to produce the least amount of vomiting should be administered. It must also be remembered that those taeniifuges which produce the greatest subjective disturbances do not, in most cases, constitute the best treatment. On the other hand, it is sometimes necessary to employ these drastic measures before the entire worm can be removed. After the patient's physical condition has been ascertained he should be put on a modified diet for two days, during which time the intestinal tract must be cleared, and on the evening previous to administering the vermifuge a good cathartic must be given and the following morning the preparation given while fasting, as the head is then in a state of least protection. This should be followed in a few hours by another laxative. The patient may then be allowed to eat food which will tend to increase intestinal peristalsis. Herring salad combined with onions and garlic is recommended by some authors, given the evening before the administration of the taeniifuge. No breakfast should be taken and the medicine should be given while the patient is still in bed and repeated as necessary. The recumbent condition is in most cases necessary in order to prevent nausea and vomiting as well as the vertigo which frequently accompanies their administration. The purgative to be used after giving the anthelmintic depends to a great extent on the physical condition of the patient. Senna, jalap, calomel, saline laxatives or castor oil, any one of these, as a rule, may serve the purpose. The infusion of senna made up as follows has been recommended:

R. Pulv. sennæ fol. ʒiiss-iii 10-12 |
 Aquæ ʒiii 90 |

M. Fiat infusum. Sig.: The entire amount sweetened with an ounce of the syrup of bitter orange peel, to be taken at one dose one hour after the anthelmintic.

Should this fail to act within one or two hours, a purgative enema should be given. For this purpose Brénger-Peraud recommends the following combination:

R Pulv. sennæ ʒiiss-ʒiii 10-12 |
 Sodii sulph. ʒx 40 |
 Aquæ ʒviii 240 |

M. Sig.: To be given as an enema.

Frequently a large enema of the normal saline solution will take the place of the foregoing and will prevent the worm from attaching itself to the intestinal wall after it has reached the large intestine.

The following preparations have been found to be the most successful in getting rid of tenia: Pomegranate, male fern, koussou, pelletierin sulphate or tannate (the alkaloid of pomegranate), kamala, turpentine, pumpkin seeds and thymol.

POMEGRANATE.

Pomegranate or granatum is a bark which contains two alkaloids possessing teneicidal properties—pelletierin and isopelletierin. The bark given in the form of a decoction is, as a rule, better than its alkaloids given alone. The decoction is prepared as follows: Macerate two ounces (60.) of the pomegranate root, chopped up fine, in water for twelve hours. Then add one and a half pints (720.) of cold water, boil and macerate for twelve hours and evaporate to one pint (480.)

and administer in divided doses within one hour. If no purgative effects are obtained in one or two hours, a dose of castor oil should be given.

Bamberger recommends the following combination:

R. Granati rad. cort. ʒiiss-ii 45-60 |
 Macerate for 24 hours, then boil in
 Aquæ dest. ʒxii 360 |
 Evaporate to 6 ounces and add
 Extracti filicis maris ether. ʒiii 8 |

M. Sig.: One-third the amount to be taken (fasting) every half-hour. Take a saline aperient the night before, and no food other than soup or tea, or a salt herring.

The following combination has been recommended by Fleischmann in *Clin. Ther.* in the treatment of tapeworm:

R. Ext. granati rad. gr. xl 2/65
 Ext. filicis maris gr. xl 2/65
 Pulv. radicis granati. gr. viii 5/0

M. Fiat pil. No. xl. Sig.: One-half hour after giving the child a cup of milk, give ten of these pills every half-hour, keeping others in reserve in case some are vomited. A few hours afterward give a dose of castor oil.

The taste of the decoction of granatum is extremely nauseating and for this reason its active principle, pelletierin, is substituted. The dose of the latter ranges from two to five grains (.12-.30). The addition of tannic acid prevents its absorption and toxic symptoms without altering its effect on the worm. Therefore, the tannate is the best preparation of this alkaloid and it is tasteless. French speaks of giving one-half an ounce of magnesium sulphate, followed in twenty minutes by the pelletierin dissolved in lemonade, and this in turn followed in twenty minutes by another dose of magnesium sulphate.

The following is an old-time but serviceable combination:

R. Granati radicis ʒss 15 |
 Seminis peponis ʒi 30 |
 Ext. filicis maris ether. ʒi 4 |
 Pulv. ergotæ ʒss 2 |
 Pulv. acaciæ ʒiii 8 |
 Olei tiglii gtt. ii 12 |

M. The pomegranate and pumpkin seed should be thoroughly mixed in a mortar with the ergot and boiled for fifteen minutes in water and strained. The croton oil is first mixed with the acacia and male fern and then formed into an emulsion with the decoction.

The following combinations are serviceable in some instances:

R. Olei terebinthinæ ʒss 2 |
 Olei ricini ʒss 15 |
 Mucil, acaciæ q. s.

M. Fiat emulsiõ. Sig.: To be taken at one dose after fasting. Or:

R. Ext. granati rad. cort. ʒiii 90 |
 Sodii bicarb. ʒi 4 |
 Aquæ Oi 480 |

M. Macerate six hours in hot water. Sig.: Take in the morning after fasting in three equal doses, following the last with oleum ricini, ounce one (30.).

PEPO.

The use of pumpkin seeds in the removal of tapeworm is as effective as it is simple. Like too many preparations, however, their efficiency depends to a great extent on where they are purchased. They should be obtained from a reliable seed firm in order to insure their strength. About two ounces should be hulled, thoroughly crushed to a fine powder, mixed with a small amount of honey and spread on a thin piece of bread and eaten as an ordinary sandwich. This should be followed in one or two hours by one of the cathartics previously mentioned. Some authors recommend an infusion or decoction of pumpkin seed instead of the foregoing preparation. This is a mild teneicide and can be given to children in one or two ounce doses. Pumpkin seed is dependent on a resinous principle, peporesin, as supposed by some, but this has not been definitely proved. It is a harmless remedy and can be repeated without danger in case of failure on first trial.

KAMALA.

Kamala is another preparation recommended. It is a fine granular powder, inodorous and tasteless. It can be administered in one to two-dram (4-8.) doses of the powder, or in the form of the tincture. Age impairs its efficiency. It is sometimes given combined as follows:

R. Kamala	gr. xx	1	30
• Pelletierii tannatis	gr. ii	12	
• Confect. sennæ	ʒss	2	

M. Sig.: The entire amount at one dose after fasting. This amount may be given to a child of 8 to 10 years.

MALE FERN (ASPIDIUM).

This preparation is usually the one relied on for the removal of tapeworm. The crude drug is never used, but in its stead the oleoresin, given in doses ranging from dram one-half to two (2-8.). The ethereal extract is less frequently given. This is prepared by evaporating the oleoresin at a very moderate heat in the oven; therefore, its dose is somewhat less than the oleoresin. The latter is best given dropped in capsules and administered in divided doses fifteen minutes apart. It is very essential that a fresh preparation be used. The fresh oleoresin is greenish in color.

Male fern may be given combined with oil of turpentine as follows:

R. Oleoresin aspidii	ʒiiss	6	
• Olei terebinthina (rect.)	gtt. xx	1	30
Spts. chloroformi	ʒm. x	65	
Mucil. acaciae q. s. ad	ʒi	30	

M. Sig.: Shake well and take one-half the amount at night after fasting, and the remainder the following morning, followed in one hour by a brisk purge. Or:

R. Oleoresina aspidii	ʒiiss	6	
Olei peponis express	ʒiv	15	
Olei terebinthina	gtt. xx	1	30

M. Sig.: To be taken at one dose after fasting, followed by a purgative. Or:

R. Ext. filicis ether	ʒiiss	6	
Pulv. kamala	ʒiij	8	
Mucil. acaciae			
Syr. simplicis, āā q. s.	ʒiij	90	
Aq. cinnamonii q. s. ad	ʒiij	90	

M. Fiat emulso. Sig.: One-half the amount to be taken at bedtime and the remainder in the early morning.

CUSSO.

Cusso is recommended, given in the form of the infusion, two or three drams (8-12.) to four ounces (120.) of boiling water and allowed to cool. It may be given in the powder form combined with male fern as follows:

R. Pulv. cusso (koussou)	ʒiij	8	
Ext. filicis maris ether	ʒi	4	

M. Fiat capsule No. xxiv. Sig.: Four to be taken every fifteen minutes.

Pregnancy is a positive contraindication to the administration of cusso.

THYMOL.

Thymol is recommended by some authors as a very efficient teneicide, given in capsules or combined as follows:

R. Thymol	ʒiiss	6	
Sacchari	ʒiij	8	

M. Fiat chart. No. xii. Sig.: One powder every thirty minutes, followed by castor oil.

Medicolegal.

Validity of Notice Required for Health Insurance.—The Supreme Judicial Court of Maine says, in *Whalen vs. Equitable Accident Company*, that the former was insured against loss resulting from sickness caused by various diseases, among which was dysentery. The policy provided that failure to give written notice as therein provided within 10 days of the

date of the beginning of any sickness should invalidate any and all claims under it. The insured fell sick October 17, and no notice was given to the company or its agents of the sickness until December 30. Within 30 days after the insured became sick with dysentery, but not within the first 10 days of his being sick, he became insane. The court holds that the condition in the policy was a valid one, and by its terms the failure to give notice within 10 days of the date of the beginning of the insured's sickness invalidated all claims under the policy. The provisions of the Maine statute to the effect that notice of accident, injury, or death may be given to a foreign or domestic casualty or accident insurance company insuring at any time within 30 days after the happening of an accident or injury or death, and shall be valid and binding on the company, do not extend to cases of health insurance. Where a health insurance company, after the expiration of 10 days from the time a party insured became ill, but before it knew the date when he did become ill, sent blank forms for proof of claim to him to be filled out, such conduct did not constitute a waiver on its part of the provision requiring the insured to notify it within 10 days from the beginning of the sickness.

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Right to Determine Physical Examination.—The Court of Civil Appeals of Texas says that, in *International & Great Northern Railroad Co. vs. Greedy*, a personal injury case brought by the latter party, who had suffered injuries to his head, back, spine, kidneys, etc., that he consented to an examination by three physicians appointed by the court, which was made; the court adjourning at 11 a. m. for that purpose. The court convened at 2 p. m., and waited three hours. At that time two of the physicians appeared and testified. On cross-examination they stated that they had applied all the tests except chloroform and the electric battery, whereon the company's counsel made a motion to have these tests applied, whereon the court asked one of the physicians how long it would take, and he answered, "I don't know." On further inquiry the physician stated that it was "very difficult to say. For instance, we must get the battery in good working order, which is not always the case. The battery is not used all the time, and it has a trick of getting out of order, and there you are." Whereon counsel for the plain-

tiff said, "We think there ought to be some limit to this thing, and we don't propose to submit to the pain of it," whereon the court said, "Well, we won't go any further, then." This all occurred in the presence of the jury, and was taken advantage of in argument by both sides. The Court of Civil Appeals holds that the court did not err in not ordering a second or further examination against the will of the plaintiff. It says that the court was without power to require him to submit to an examination. *Railway vs. Cluck* (Tex. Sup.), 77 S. W. Rep. 403. Such an examination being subject to the consent of the plaintiff, he could, the court thinks, have terminated an examination while same was being conducted.

Can Not Be Cross-Examined as to Opinions in Other Cases.—The Supreme Court of Illinois says, in *Chicago & Eastern Illinois Railroad Co. vs. Schmitz*, a personal injury case brought by the latter party against the railroad company and others, that a certain physician was put on the stand as a witness for the plaintiff to testify in regard to her injuries, and on the cross-examination it was attempted to discredit the witness by asking him questions in regard to the professional opinions he had given in other suits brought to recover damages for personal injuries against one or more of the defendants in this case. It was also sought by the defendants to show by direct examination of certain witnesses that the physician in question was interested as a medical man in a large number of personal injury suits against corporations. The court holds that there was no error in refusing to admit this class of testimony. It says that cross-examination on independent cases of the same character, and about the same time as the principal case, is not allowed. The rule is more strict against the use of this kind of testimony in direct examination. The acts and declarations either of strangers, or of one of the parties to the action in his dealings with strangers, are irrelevant. There is nothing in the case of *Chicago City Railway Co. vs. Carroll*, 206 Ill. 318, which is opposed to the view here expressed. In that case it was held to be proper to ask a physician on cross-examination in a personal injury case by whom he was paid, etc. But the testimony whose introduction is there justified, applies directly to the relation of the witness to the party in interest and to the particular case, and not to his relation with other parties and other cases. It was there said: "It is always competent on cross-examination to ask a witness if he is not in the employ of a party, or if, at the time he rendered the particular service, he was in the employ of such party, for the purpose of showing his relation in the case and his interest in it, as affecting his credibility and weight of his evidence."

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia. December 10.

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 - 2 Has a Persistence of the Mullerian Ducts Any Relation to the Condition of Crypt Orchidism? A. G. Pohman.
 - 3 *Carbohydrate Metabolism: Relation of the Different Tissues to the Destruction of Sugar. Frederick A. Rhodes.
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 - 6 Fibroma of the Uterus, Complicated by Disorders of the Heart and Kidneys. Cremia Without Nephritis from Tumor Pressure. George E. Shoemaker.
 - 7 *The Relation of the So-called Piroplasma Heminis and Certain Degenerative Changes in the Urethrocytes. Charles F. Craig.
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animals killed immediately after the taking of a heavy carbohydrate diet and after they had been starved for some time. He found that all the organs contain enzymes which may be extracted and which cause the destruction of grape sugar. The pancreas showed this action more positively than any other organ. The extract which gives the best results is one made by using glycerin and alcohol. Rhodes found by experiment that this extract shows the presence of pronounced diastatic enzymes as well as the glycolytic. Clinically, good results were obtained by the administration of the glycerin-alcohol extracts of pancreas, spleen and muscle. The best results were by hypodermic injections of combined pancreas and muscle. Judging from the peculiar action at times in the different experiments, Rhodes believes that it is quite possible that there is more than one enzyme concerned in the sugar-destruction and that at times other enzymes interfere with the glycolytic action.

4. **Dangers of the Microscope in Tuberculosis.**—In consonance with a number of other writers, Clapp decries implicit reliance on the microscopic findings for a diagnosis of incipient pulmonary tuberculosis. He says a skilled auscultator (and all physicians should be skilled auscultators) can very often recognize an incipient case before tubercle bacilli appear in the sputum. Very often, not by physical examination alone, but by a thoughtful consideration of symptoms and physical signs, in connection with a close study of the personal and family history of the patient, aided, if necessary, by the tuberculin test, a satisfactory conclusion can be reached weeks and months before the bacilli appear in the sputum or even before the sputum itself appears, and thus gain time enough, perhaps, to save the patient.

7. **So-Called "Piroplasma Hominis."**—A most careful study of this subject has convinced Craig that Chowning, Wilson and Anderson, who investigated the etiology of a fever prevailing in the Bitter Root Valley for a number of years, and who concluded that it was due to a minute parasite which inhabited the red blood corpuscles, have mistaken areas devoid of hemoglobin in the red cell, which occur frequently in disease, for a protozoan parasite. He also refers to a report by Stiles, Chief of Division of Zoology, which details the results of his study of ten cases of spotted fever, in none of which Stiles succeeded in finding any structure in the blood which he could interpret as a protozoan organism.

Medical Record, New York.

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 - 9 Rheumatism. George E. Mansbury.
 - 10 *Treatment of Pneumonia in Adults. Morris Manes.
 - 11 A Question in Gall-bladder Surgery: Cholecystotomy or Cholecystectomy? Harris F. Brownlee.
 - 12 *Foreign Bodies in the Vermiform Appendix Met with in 1,600 Necropsies. Louis J. Mitchell.
 - 13 A Case of Crypt Orchidism. John M. France.
8. **Problems in Diabetics.**—Thompson attempts to solve some of the complex problems in the matter of dieting that frequently confront us and in which regulation of the food is of special importance. On the other hand, there are a number of nutritional disorders the etiology of which is still so obscure that the formulation of proper dietetic principles becomes unusually difficult. In typhoid, he deprecates the undue prolongation of the milk diet, as it is liable to produce scurvy, it protracts convalescence and, by impoverishing nutrition, makes the patient more liable to serious complications. He makes it a rule to commence the feeding of semi-solid food, in ordinary cases, on the day when the body temperature first reaches normal. Soft cooked eggs, baked custard, junket, milk toast, mutton or chicken broth, thickened with rice or crackers, plain, delicate foods like blanc mange and wine jelly, and light farinaceous foods may then be given. On the third day, if convalescence be uninterrupted, a scraped beef sandwich is given. Thompson recommends early increase in the dietary in very mild cases in general, but not if there be much tympanites, diarrhea or recent severe hemorrhage. In asthenic cases the maintenance of better nutrition is imperative. When much tympanites exists during a milk diet, beef juice and egg albumin or broths should be substituted for

the milk for two or three days. Cases of arthritis deformans are treated very much as if they had chronic phthisis, or chronic sepsis—by forced feeding—using largely fat foods, such as butter, cream, eggs, oils, bone marrow, bacon, etc. With a little care this dietary is well tolerated. The ordinary meals should be supplemented by two or three luncheons during the day. The use of simple bitters before meals or of dilute hydrochloric acid with *nux vomica* after meals, and the promotion of elimination of waste are of value in most cases. In nephritis the problem is a very complex one, and although in acute cases the conventional diet is demanded, in chronic cases there is occasion for greater latitude. In these cases the danger of meat eating is overrated considerably, and there are some cases in which its moderate use is positively demanded. Such cases are (1) those of very long standing, in which the chief symptom is a moderate albuminuria; (2) those in which anemia and loss of strength and weight are the prominent features, and (3) those in which some associated disease makes the use of animal food desirable. In diabetes, the author is convinced that a routine dietary may beget more harm than good. Each case should be given separate dietetic study. Mild cases do well on a diet chiefly proteid. Serious cases should be given more fats, such as butter (one-quarter pound or more a day), cream diluted with water and drunk as a beverage (one pint or more a day), the fats of cod-liver oil, olive oil on salads, sardines, etc.; olives, oily nuts, eggs, bacon and ham fat, bone marrow, suet and lard; rich cheese, soups, enriched with "dripping" and fat fish, mackerel and salmon, fat meats, goose and duck and the tender fat of corned beef. Potato is given best in the form of "Saratoga chips." Lithemia requires more or less abstinence from proteid food, the copious use of water (60 or 70 ounces a day), plenty of fresh air and rest, especially before the principal meal of the day. The dietetic treatment of arteriosclerosis is somewhat similar to that of lithemia, though the quantity of water to be allowed must be judged carefully, so as not to overburden a weak heart or to encourage inadequacy in damaged kidneys. In gout, the following general principles are of prime importance: 1. To reduce the consumption of food as a whole; 2, to increase the consumption of water; 3, to eliminate entirely sugars and sweets of every kind, as well as alcohol; and 4, to reduce the consumption of red meats to a minimum. The dietetic treatment of rheumatism should, in general, resemble that of gout, a milk diet during the acute attack and restriction of meat and sweets in the interval. In closing, Thompson enters a word of protest against the common practice of basing dietetic and other treatment of stomaehic disease on the results of a single gastric analysis. At least half a dozen tests should be made before any definite conclusions are justifiable, dietetic or otherwise.

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little to the patient's comfort. The suffering incident to the pleuritic pain and the distressing cough is best relieved by the hypodermic injection of small doses of morphin, grain 1/10 to 1/8, or heroin hydrochlorid, grain 1/8 to 1/6. The Paquelein cauterly often acts magically in quieting pleuritic irritation. All administration of drugs, etc., should be done at stated times; during the intervals between them, rest or sleep should be procured. The complications require the treatment pursued ordinarily. Manges warns against routine or "schedule" plans of treatment.

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New York Medical Journal.

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tiff said, "We think there ought to be some limit to this thing, and we don't propose to submit to the pain of it," whereon the court said, "Well, we won't go any further, then." This all occurred in the presence of the jury, and was taken advantage of in argument by both sides. The Court of Civil Appeals holds that the court did not err in not ordering a second or further examination against the will of the plaintiff. It says that the court was without power to require him to submit to an examination. *Railway vs. Cluck* (Tex. Sup.), 77 S. W. Rep. 403. Such an examination being subject to the consent of the plaintiff, he could, the court thinks, have terminated an examination while same was being conducted.

Can Not Be Cross-Examined as to Opinions in Other Cases.—The Supreme Court of Illinois says, in *Chicago & Eastern Illinois Railroad Co. vs. Schmitz*, a personal injury case brought by the latter party against the railroad company and others, that a certain physician was put on the stand as a witness for the plaintiff to testify in regard to her injuries, and on the cross-examination it was attempted to discredit the witness by asking him questions in regard to the professional opinions he had given in other suits brought to recover damages for personal injuries against one or more of the defendants in this case. It was also sought by the defendants to show by direct examination of certain witnesses that the physician in question was interested as a medical man in a large number of personal injury suits against corporations. The court holds that there was no error in refusing to admit this class of testimony. It says that cross-examination on independent cases of the same character, and about the same time as the principal case, is not allowed. The rule is more strict against the use of this kind of testimony in direct examination. The acts and declarations either of strangers, or of one of the parties to the action in his dealings with strangers, are irrelevant. There is nothing in the case of *Chicago City Railway Co. vs. Carroll*, 206 Ill. 318, which is opposed to the view here expressed. In that case it was held to be proper to ask a physician on cross-examination in a personal injury case by whom he was paid, etc. But the testimony whose introduction is there justified, applies directly to the relation of the witness to the party in interest and to the particular case, and not to his relation with other parties and other cases. It was there said: "It is always competent on cross-examination to ask a witness if he is not in the employ of a party, or if, at the time he rendered the particular service, he was in the employ of such party, for the purpose of showing his relation in the case and his interest in it, as affecting his credibility and weight of his evidence."

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ing 80 per cent. of all the patients admitted to the Craig Colony up to that time. After the first year there was a very decided and continuous decline in the number of cases up to the sixth year, when there was a decided rise, lasting for three years, during the period of second dentition. During the first year of life the greatest number of cases occurred during the seventh month, which marks the beginning of the influence of the first dentition period. It is evident, then, that difficult dentition may, in suitable subjects, constitute a sufficient irritant to cause convulsions, and these may ultimately lead to epilepsy. By suitable subjects, Sprattling means infants who inherited a neuropathic tendency to disease; whose parents had epilepsy or insanity, or who were alcoholic or suffered from some other general vice that could be transmitted to the offspring in some form capable of vitiating its powers of resistance to disease. He does not believe, however, that difficult dentition alone, in a child who inherited no ancestral taints, and who at its birth is free from a tendency to nervous disease, can cause epilepsy. He advises the exercise of caution in laying the true cause in cases of this kind where it belongs, for the reason that gastrointestinal disorders, the sequelae of the eruptive fevers and other factors common at this age may produce similar results.

25. **New Method for Staining Capsules of Bacteria.**—The method described by Buerger depends on the rapid fixation of the bacteria while still alive and when spread in a medium which prevents dissolution of their capsules. The necessary solutions are: Mueller's fluid, saturated with bichlorid of mercury (ordinarily about 5 per cent.). 2. Beef, human or other blood serum, diluted with an equal amount of normal salt solution; or acetic or pleural fluid. 3. Eighty to 95 per cent. alcohol. 4. Tincture of iodine, U. S. P. 5. Freshly prepared stain, anilin water gentian violet made up as follows: Anilin oil, 10; water, 100; shake, filter and add 5 c.c. saturated alcoholic solution of gentian violet; or, 10 per cent. watery fuchsin. 6. Two per cent. watery salt solution. The culture is thinly and carefully spread over a perfectly clean slip by means of a drop of diluted serum. Just as the edges begin to dry, the fixing fluid, solution No. 1, is poured on, the cover gently warmed over the flame for about three seconds, rapidly washed in water, flushed once with alcohol, and then treated with iodine for from one to two minutes. The iodine is in turn thoroughly washed off with alcohol and the specimen dried in the air. Staining for two to five seconds, and washing with salt solution completes the procedure. The specimen is mounted in the salt solution and ringed with vaselin. Sputum and pus can be stained in a similar manner, the addition of serum being unnecessary, except in very mucoid, stringy, purulent exudates.

27. **Intracerebral Injections of Antitetanic Serum.**—Hopkins reports two cases of traumatic tetanus treated successfully by intracerebral injections of antitetanic serum, which he considers the correct method of treatment for the disease. The first patient stepped on a rusty nail, and symptoms of tetanus supervened on the fourth day following. Through a small trephine opening in the right frontal bone, 20 c.c. of antitetanic serum were injected into the right frontal lobe of the cerebrum. The trismus and spasms, which were constant before the serum was injected, ceased 72 hours after the operation, and the patient made a complete recovery. The second patient had a blank cartridge explode in his hand, and 19 days later marked trismus was present. Roux's point was selected for injecting the serum into the brain substance. The needle of the syringe was introduced to a depth of two inches, with the point directed downward and inward toward the median line, and 10 c.c. of antitetanic serum were slowly injected during the withdrawal of the needle. Ten more c.c. were injected in the same manner, with the point of the needle directed forward and downward and not toward the median line. All the symptoms subsided after 43 hours, the patient made an uneventful recovery. In a third case, an exploding blank cartridge entered the right knee. Fourteen days after the accident the symptoms were so alarming that medical aid was sought. The spasms occurred so frequently that it

became necessary to use chloroform. The pulse was 150, temperature 101, respiration 50. Twenty c.c. of antitetanic serum were injected into the right frontal convolution, but the patient died two hours after operation. Hopkins believes that the success of this method of treatment depends on the use of large quantities of the serum.

Boston Medical and Surgical Journal.

December 8.

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St. Louis Medical Review.

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Journal of Medical Research, Boston.
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44. **Plaster-of-Paris and Elastic Traction in Foot Deformities.**—Nancrede presents a feasible and convenient combination of the most essential factors of older methods for the treatment of deformities of the feet. After the forcible correction under anesthesia, preceded or not by tenotomy or the Phelps open operation, extreme care in padding is required, perhaps protecting the parts exposed to extra pressure by soap plaster spread on leather. In the Phelps operation Nancrede omits the division of the posterior part of the capsule and the internal lateral ligament of the ankle joint. The foot is then put in the best attainable position with plaster, incorporating in the dressing, a light wooden sole with crosspiece, and a few links of chain in the upper part of the leg portion. He says it is advisable to incorporate a strip of wire gauze in the healed portion of the splint to serve as a hinge and prevent breaking of this part of the dressing. After a proper interval, in from five to ten days, according to the nature of the operation on the foot, a segment should be sawed out of the superior aspect of the dressings over the medio-tarsal joint, and rubber bands be adjusted so as to make slight traction, which is to be increased from time to time. After the hiatus produced by the removal of the plaster has been brought into contact, Nancrede advises the application of an entirely new dressing, which in twenty-four hours should have a segment removed and traction is then recommended and maintained until the correction desired is secured, or it is plain that fresh operative measures are requisite, such as an open operation where none such has been done, or some form of osseous excision, where a Phelps incision has been made. Nancrede has never had to resort to osteotomy after the combined Phelps and elastic traction dressing. Careless padding or too rapid and severe traction will, as in all methods where fixed dressings are em-

ing 80 per cent. of all the patients admitted to the Craig Colony up to that time. After the first year there was a very decided and continuous decline in the number of cases up to the sixth year, when there was a decided rise, lasting for three years, during the period of second dentition. During the first year of life the greatest number of cases occurred during the seventh month, which marks the beginning of the influence of the first dentition period. It is evident, then, that difficult dentition may, in suitable subjects, constitute a sufficient irritant to cause convulsions, and these may ultimately lead to epilepsy. By suitable subjects, Spratling means infants who inherited a neuropathic tendency to disease; whose parents had epilepsy or insanity, or who were alcoholic or suffered from some other general vice that could be transmitted to the offspring in some form capable of vitiating its powers of resistance to disease. He does not believe, however, that difficult dentition alone, in a child who inherited no ancestral taints, and who at its birth is free from a tendency to nervous disease, can cause epilepsy. He advises the exercise of caution in laying the true cause in cases of this kind where it belongs, for the reason that gastrointestinal disorders, the sequelæ of the eruptive fevers and other factors common at this age may produce similar results.

25. **New Method for Staining Capsules of Bacteria.**—The method described by Buerger depends on the rapid fixation of the bacteria while still alive and when spread in a medium which prevents dissolution of their capsules. The necessary solutions are: Mueller's fluid, saturated with bichlorid of mercury (ordinarily about 5 per cent.). 2. Beef, human or other blood serum, diluted with an equal amount of normal salt solution; or acetic or pleural fluid. 3. Eighty to 95 per cent. alcohol. 4. Tincture of iodine, U. S. P. 5. Freshly prepared stain, anilin water gentian violet made up as follows: Anilin oil, 10; water, 100; shake, filter and add 5 c.c. saturated alcoholic solution of gentian violet; or, 10 per cent. watery fuchsin. 6. Two per cent. watery salt solution. The culture is thinly and carefully spread over a perfectly clean slip by means of a drop of diluted serum. Just as the edges begin to dry, the fixing fluid, solution No. 1, is poured on, the cover gently warmed over the flame for about three seconds, rapidly washed in water, flushed once with alcohol, and then treated with iodine for from one to two minutes. The iodine is in turn thoroughly washed off with alcohol and the specimen dried in the air. Staining for two to five seconds, and washing with salt solution completes the procedure. The specimen is mounted in the salt solution and ringed with vaselin. Sputum and pus can be stained in a similar manner, the addition of serum being unnecessary, except in very mucoid, stringy, purulent exudates.

27. **Intracerebral Injections of Antitetanic Serum.**—Hopkins reports two cases of traumatic tetanus treated successfully by intracerebral injections of antitetanic serum, which he considers the correct method of treatment for the disease. The first patient stepped on a rusty nail, and symptoms of tetanus supervened on the fourth day following. Through a small trephine opening in the right frontal bone, 20 c.c. of antitetanic serum were injected into the right frontal lobe of the cerebrum. The trismus and spasms, which were constant before the serum was injected, ceased 72 hours after the operation, and the patient made a complete recovery. The second patient had a blank cartridge explode in his hand, and 19 days later marked trismus was present. Roux's point was selected for injecting the serum into the brain substance. The needle of the syringe was introduced to a depth of two inches, with the point directed downward and inward toward the median line, and 10 c.c. of antitetanic serum were slowly injected during the withdrawal of the needle. Ten more c.c. were injected in the same manner, with the point of the needle directed forward and downward and not toward the median line. All the symptoms subsided after 48 hours, the patient made an uneventful recovery. In a third case, an exploding blank cartridge entered the right knee. Fourteen days after the accident the symptoms were so alarming that medical aid was sought. The spasms occurred so frequently that it

became necessary to use chloroform. The pulse was 150, temperature 101, respiration 50. Twenty c.c. of antitetanic serum were injected into the right frontal convolution, but the patient died two hours after operation. Hopkins believes that the success of this method of treatment depends on the use of large quantities of the serum.

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ployed, be productive of blisters, sloughs, etc., but constant supervision, timely relaxation of tension and removal of portions of the plaster over points of pressure, will usually prevent any serious trouble. When the operator is in doubt it is advisable to remove the whole dressing, protect the projecting points with soap plaster, carefully pad, employ improvised rings of barness felt, or corn or bunion plasters, and remove portions of the wooden sole—in other words, adopt the usual methods employed to prevent undue pressure.

Northwestern Lancet, Minneapolis.

December 1.

- 47 *Surgical Diseases of the Sigmoid. H. D. Niles.
48 Arteriosclerosis. Herbert W. Jones.
49 Milk Infection. E. W. Humphrey.

47. **Surgical Diseases of the Sigmoid.**—Niles operated on two cases of complete obstruction of the bowel due to volvulus of the sigmoid, the diagnosis being confirmed by operation, and attended two other patients suffering from incomplete stricture of the bowel, resulting, he believes, either from a twist or from some inflammatory lesion of the sigmoid. These two cases were not operated on and consequently the diagnosis was not positively confirmed. As a result of this work Niles carried on some investigations on the surgical anatomy of the sigmoid. The various pathologic changes to which the physiologic functions and anatomic structure and relations of the sigmoid render it especially susceptible, Niles regards as successive steps or stages of one morbid process, rather than as so many different diseases. An impartial study of the various successive pathologic changes that precede, accompany and follow inflammatory obstructions and malignant diseases of the sigmoid, furnishes convincing evidence of how little can reasonably be expected of medical treatment, and how much reliance must be placed on timely operative interference to correct disease in this region. Advanced malignant disease of the sigmoid is always preceded by pathologic processes which should be recognized early and corrected by timely operative procedures. Acute obstruction due to volvulus, unless relieved promptly by inflation of the rectum with water or gas, is always an indication for operative interference. So, too, are all torsions of the bowel with partial or complete stricture. All inflammatory or necrotic processes that include the peritoneal coat of the gut, with or without angulation, or stricture of the bowel, should be regarded as surgical conditions. Finally, says Niles, the known frequency of cancer and all forms of intestinal ulcers in this region, the occasional occurrence of volvulus, a practical consideration of the anatomic structure and relations of the sigmoid, all tend to confirm the belief that inflammatory lesions and obstructive distortions of the sigmoid are by no means rare, and that their rational treatment should be based on the surgical conception of the condition.

Canadian Journal of Medicine and Surgery, Toronto.

December.

- 50 Complications of Fracture and Amputations. Thomas H. Manly.
51 The Medical Society; Its Place and Equipment. John Hunter.
52 *An Extraordinary Anemia—Report of a Case. F. V. Trebilcock.
53 Urinary Antisepsis in Gonorrhoeal Urethritis. E. Reinhardt.

52. **Extraordinary Anemia.**—The history of Trebilcock's case, in brief, is as follows: The patient, a young woman, unmarried, showed the most intense air hunger. Her hair was exceedingly sparse and coarse, her face uniformly broadened, and, with the exception of the under eyelids which were noticeably bagged and soft, was very firm under pressure. All expression was lost. The countenance was a pale yellow white without the faintest trace of pink, even on the severest pinching and friction; the ears were translucent so that heavy newspaper print was distinguishable through the lobes. The bulbar conjunctiva was slightly muddy. The neck was uniformly enlarged, with no special swelling at any one point. The thyroid was not palpable; no marked pulsation was visible anywhere. The trunk was also uniformly enlarged and the abdomen more prominent. Careful examination showed no displacement of any organ. The cardiac impulse was forcible. The arms and legs were also swollen and hard. The skin was exceedingly

inelastic and dry; no perspiration for months; no rash, only a diffuse scurfiness and occasionally tense itching. The muscular system was normal. Pulse, 160; respiration, 70; temperature, 101. Digestive system normal, except for a marvelously large appetite. Under strict hygiene, simple food, abundance of fresh air, and daily alcohol baths, compound syrup of hypophosphites, with gradually increasing doses of arsenic and thyroid extract, the patient improved slowly but steadily. An interesting feature in this case is the fact that for six months the patient dressed every day a sloughing epithelioma, the odor from which was so obnoxious that she made a bag to cover her own nose and mouth—a sort of respirator—in which she kept pieces of gummed camphor. The camphor fumes would often cause her mouth and nose to be quite sore, and it was during this time that the anemia began to manifest itself.

Annals of Otolaryngology and Rhinology, St. Louis.

September.

- 54 The Epithelial Concrescence in the Larynx of the Fetal Pig. Dean D. Lewis.
55 An Operation for the Correction of External Deformities of the Bridge of the Nose. T. Passmore Berens.
56 Inferior Ethmoidal Turbinate Bone. Howard A. Lothrop.

Medical Sentinel, Portland, Ore.

November.

- 57 Posterior Gastrostomy for Simple Conditions of the Stomach. T. W. Huntington.
58 Notes on a Case of Cerebral Hemorrhage. W. J. May.
59 Some Painful Conditions of the Feet. S. C. Baldwin.
60 The Measurements of the Trigone. George S. Whiteside.

The Mobile Medical and Surgical Journal.

October.

- 61 The Physiological Action and Morbid Effects of the Cold Tar Products, and the Contrast Action of Cold in Fever. F. W. Galloway.
62 The Early Recognition and Essential Features of the Treatment of Pulmonary Tuberculosis. C. A. Mohr.
63 Report of a Case of Enlarged Spleen Successfully Treated with Adrenalin Chlorid. J. B. Tarry.

Southern California Practitioner, Los Angeles.

November.

- 64 European Sanitation Observations. R. L. Wilbur.
65 A Surgical Vacation. W. W. Beckett.
66 Extrophy, Pregnancy, Delivery. R. F. Clark.
67 Remarks on Anesthol. J. L. Hagadorn.
68 Medical Inspection of Schools. E. von Adelung.

The Texas Medical Journal, Austin.

November.

- 69 Notes on Pernicious Malarial Fever. J. D. Jordan.
70 Prohibition—Its Definition, Object, Feasibility and Consequences, with Other Considerations of the Subject, from the Standpoint of a Physician. C. H. Wilkinson.

The Old Dominion Journal, Richmond.

November.

- 71 The Theories of Serum Therapy. C. R. Grandy.
72 Antitoxic Serum Therapy. Sera of Diphtheria, Tetanus, etc. J. S. Davis.
73 Other Sera, Including Those of Typhoid Fever, Cholera, Dysentery and Tuberculosis. E. G. Williams.
74 Organo-Therapy. L. G. Pedigo.

The Medical and Surgical Monitor, Indianapolis.

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Dominion Medical Monthly, Toronto.

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ployed, be productive of blisters, sloughs, etc., but constant supervision, timely relaxation of tension and removal of portions of the plaster over points of pressure, will usually prevent any serious trouble. When the operator is in doubt it is advisable to remove the whole dressing, protect the projecting points with soap plaster, carefully pad, employ improvised rings of harness felt, or corn or bunion plasters, and remove portions of the wooden sole—in other words, adopt the usual methods employed to prevent undue pressure.

Northwestern Lancet, Minneapolis.

December 1.

- 47 *Surgical Diseases of the Sigmoid. H. D. Niles.
48 Arteriosclerosis. Herbert W. Jones.
49 Milk Infection. E. W. Humphrey.

47. **Surgical Diseases of the Sigmoid.**—Niles operated on two cases of complete obstruction of the bowel due to volvulus of the sigmoid, the diagnosis being confirmed by operation, and attended two other patients suffering from incomplete stricture of the bowel, resulting, he believes, either from a twist or from some inflammatory lesion of the sigmoid. These two cases were not operated on and consequently the diagnosis was not positively confirmed. As a result of this work Niles carried on some investigations on the surgical anatomy of the sigmoid. The various pathologic changes to which the physiologic functions and anatomic structure and relations of the sigmoid render it especially susceptible, Niles regards as successive steps or stages of one morbid process, rather than as so many different diseases. An impartial study of the various successive pathologic changes that precede, accompany and follow inflammatory obstructions and malignant diseases of the sigmoid, furnishes convincing evidence of how little can reasonably be expected of medical treatment, and how much reliance must be placed on timely operative interference to correct disease in this region. Advanced malignant disease of the sigmoid is always preceded by pathologic processes which should be recognized early and corrected by timely operative procedures. Acute obstruction due to volvulus, unless relieved promptly by inflation of the rectum with water or gas, is always an indication for operative interference. So, too, are all torsions of the bowel with partial or complete stricture. All inflammatory or necrotic processes that include the peritoneal coat of the gut, with or without angulation, or stricture of the bowel, should be regarded as surgical conditions. Finally, says Niles, the known frequency of cancer and all forms of intestinal ulcers in this region, the occasional occurrence of volvulus, a practical consideration of the anatomic structure and relations of the sigmoid, all tend to confirm the belief that inflammatory lesions and obstructive distortions of the sigmoid are by no means rare, and that their rational treatment should be based on the surgical conception of the condition.

Canadian Journal of Medicine and Surgery, Toronto.

December.

- 50 Complications of Fracture and Amputations. Thomas H. Manly.
51 The Medical Society: Its Place and Equipment. John Hunter.
52 An Extraordinary Anemia—Report of a Case. F. V. Trebilcock.
53 Urinary Antisepsis in Gonorrhoeal Urethritis. E. Reinhardt.

52. **Extraordinary Anemia.**—The history of Trebilcock's case, in brief, is as follows: The patient, a young woman, unmarried, showed the most intense air hunger. Her hair was exceedingly sparse and coarse, her face uniformly broadened, and, with the exception of the under eyelids which were noticeably bagged and soft, was very firm under pressure. All expression was lost. The countenance was a pale yellow white without the faintest trace of pink, even on the severest pinching and friction; the ears were translucent so that heavy newspaper print was distinguishable through the lobes. The bulbar conjunctiva was slightly muddy. The neck was uniformly enlarged, with no special swelling at any one point. The thyroid was not palpable; no marked pulsation was visible anywhere. The trunk was also uniformly enlarged and the abdomen more prominent. Careful examination showed no displacement of any organ. The cardiac impulse was forcible. The arms and legs were also swollen and hard. The skin was exceedingly

inelastic and dry; no perspiration for months; no rash, only a diffuse scurfiness and occasionally tense itching. The muscular system was normal. Pulse, 160; respiration, 70; temperature, 101. Digestive system normal, except for a marvelously large appetite. Under strict hygiene, simple food, abundance of fresh air, and daily alcohol baths, compound syrup of hypophosphites, with gradually increasing doses of arsenic and thyroid extract, the patient improved slowly but steadily. An interesting feature in this case is the fact that for six months the patient dressed every day a sloughing epithelioma, the odor from which was so obnoxious that she made a bag to cover her own nose and mouth—a sort of respirator—in which she kept pieces of gummed camphor. The camphor fumes would often cause her mouth and nose to be quite sore, and it was during this time that the anemia began to manifest itself.

Annals of Otolaryngology and Rhinology, St. Louis.

September.

- 54 The Epithelial Concrescence in the Larynx of the Fetal Pig. Dean D. Lewis.
55 An Operation for the Correction of External Deformities of the Bridge of the Nose. T. Passmore Berens.
56 Inferior Ethmoidal Turbinate Bone. Howard A. Lothrop.

Medical Sentinel, Portland, Ore.

November.

- 57 Posterior Gastroenterostomy for Simple Conditions of the Stomach. T. W. Huntington.
58 Notes on a Case of Cerebral Hemorrhage. W. J. May.
59 Some Painful Conditions of the Feet. S. C. Baldwin.
60 The Measurements of the Trigone. George S. Whiteside.

The Mobile Medical and Surgical Journal.

October.

- 61 The Physiological Action and Morbid Effects of the Cold Tar Products and the Contrast Action of Cold in Fever. F. W. Galloway.
62 The Early Recognition and Essential Features of the Treatment of Pulmonary Tuberculosis. C. A. Mohr.
63 Report of a Case of Enlarged Spleen Successfully Treated with Adrenalin Chloride. J. B. Tarry.

Southern California Practitioner, Los Angeles.

November.

- 64 European Sanitation Observations. R. L. Clark.
65 Medical Vacation. W. W. Beckett.
66 Exstrophy, Pregnancy, Delivery. R. F. Wilbur.
67 Remarks on Anesthol. J. L. Hagadorn.
68 Medical Inspection of Schools. E. von Adelung.

The Texas Medical Journal, Austin.

November.

- 69 Notes on Pernicious Malarial Fever. J. D. Jordan.
70 Prohibition—Its Definition, Object, Feasibility and Consequences, with Other Considerations of the Subject, from the Standpoint of a Physician. C. H. Wilkinson.

The Old Dominion Journal, Richmond.

November.

- 71 The Theories of Serum Therapy. C. R. Grandy.
72 Antitoxic Serum Therapy. Sera of Diphtheria, Tetanus, etc. J. S. Davis.
73 Other Sera, Including Those of Typhoid Fever, Cholera, Dysentery and Tuberculosis. E. G. Williams.
74 Organo-Therapy. L. G. Pedigo.

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woman, aged 54 years, on whom a partial gastrectomy was performed, at the same time as removal of the gall bladder, both organs being cancerous, is well in the fifth year after operation. A woman, aged 50 years, is well nearly four years after the removal of the center of a cancerous hour-glass stomach, the proximal and distal healthy portions having been joined over a decalcified bone bobbin. One case of cancer of the tongue is well seven years after operation, another five years and others over three years, and in all these cases very good power of speech is retained. Of 21 operations for cancer of the bowel done in private there were 17 recoveries. Of these one is alive and well ten years after resection of the sigmoid flexure; one after four and a half years; 3 after three and a half years; 2 after three years, and one after one year. Others lived, one for three years; 3 for two years, and 5 for lesser periods and died from recurrence. One patient is living and well, with good control of the bowel, from whom Robson removed a cancer of the rectum by proctectomy twelve years ago; another after eight years, and others are well and enjoying life several years after operation. Of 12 cases of cancer of the gall bladder and liver, 10 recovered from the operation, 5 being alive at five and a half, 5 four and a half, four, and one and a quarter years after operation. Of 26 cases of cancer of the uterus operated on in private, 12 were total hysterectomies without a death, 5 of the patients being alive and well from five to eight and a half years after operation. Fourteen cases were very free supravaginal amputations of the cervix without a death, 5 cases being alive and well six, nine, ten, ten and a half and eleven and a half years after operation. One lived for five years and died from heart disease, without recurrence of the cancer. One lived four years and recurred, and five lived one year or less and recurred. Robson emphasizes the value of early diagnosis and early radical operative interference, and gives a place to palliative operations.

Journal of the Royal Army Medical Corps, London.

October.

- 11 Report of Enteric Fever Cases Admitted Into the Medical Division of No. 7 General Hospital, Pretoria. R. C. Cottell.
- 12 Report of an Outbreak of Epidemic Disease Occurring Among Bethune's Column at Stanger, Natal, October, 1901. W. W. O. Beveridge.
- 13 *The Treatment of Malarial Fever by Injections of Quinin. C. M. Fleury.
- 14 Enlargement of the Spleen in Lower Bengal. J. McKenzie.
- 15 Curious Habit of the African Cobra (Naga Haje). C. R. Bartlett.
- 16 Rapid Ambulance for Mounted Troops. W. Merchant.
- 17 A Visit to Leylin, Switzerland. H. R. Whitehead.
- 18 The Southern Soudan—Its Climates and Diseases. W. Bray.
- 19 Travel in Somaliland. J. D. Edge.
- 20 Gunshot Wounds Implicating the Larger Joints, Especially the Knee and Shoulder. G. A. Moore.
- 21 The Expansion of the Royal Army Medical Corps in Time of War. William Coates.

November.

- 22 *The Nasal Treatment of Asthma. Alexander Francis.
- 23 The Piroplasma Bigeminum of the Immune Ox. A. Theller.
- 24 Notes on the Sudanese Tribes of the White Nile. S. L. Cummins.
- 25 The Working of an Out-patient Department in Military Hospitals. F. E. Gunter.
- 26 Hints on Service in Ceylon. F. W. Begbie.
- 27 The Water Supply and Sanitation of Camps in India. H. S. McGill.
- 28 The Causation of Enteric Fever at Quetta, with Special Reference to Camp Sanitation. J. Rattersby.
- 29 An Undescribed Eruptive Fever. W. Mould.
- 30 With the Sikkin Tibet Mission Force. C. W. Mainprize.

13. Quinin Injections in Malaria.—Because a number of men failed to react to quinin when administered by the mouth, Fleury resorted to hypodermic injection of acid quinin hydrochlorid of the B. P., as this preparation of quinin is readily soluble in distilled water when warm, and one minim of distilled water takes up one grain of the drug. It does not cause any irritation. Arguing on the assumption that the nearer to the spleen the injection is made the better the result, he determined to inject deep into the structures below the rib, just behind the midaxillary line on the left side, so placing the injection as near to the spleen as is consistent with safety. The parts were carefully washed and rendered as aseptic as possible. A 10-minim syringe with a fairly long and fine needle was used. The solution to be injected was prepared at the time, or not more than three days beforehand, the strength of the solution being such that the syringe when filled with 10

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woman, aged 54 years, on whom a partial gastrectomy was performed, at the same time as removal of the gall bladder, both organs being cancerous, is well in the fifth year after operation. A woman, aged 50 years, is well nearly four years after the removal of the center of a cancerous hour-glass stomach, the proximal and distal healthy portions having been joined over a decalcified bone bobbin. One case of cancer of the tongue is well seven years after operation, another five years and others over three years, and in all these cases very good power of speech is retained. Of 21 operations for cancer of the bowel done in private there were 17 recoveries. Of these one is alive and well ten years after excision of the sigmoid flexure; one after four and a half years; 3 after three and a half years; 2 after three years, and one after one year. Others lived, one for three years; 3 for two years, and 5 for lesser periods and died from recurrence. One patient is living and well, with good control of the bowel, from whom Robson removed a cancer of the rectum by proctectomy twelve years ago; another after eight years, and others are well and enjoying life several years after operation. Of 12 cases of cancer of the gall bladder and liver, 10 recovered from the operation, 5 being alive at five and a half, 5 four and a half, four, and one and a quarter years after operation. Of 26 cases of cancer of the uterine operated on in private, 12 were total hysterectomies without a death, 5 of the patients being alive and well from five to eight and a half years after operation. Fourteen cases were very free supravaginal amputations of the cervix without a death, 5 cases being alive and well six, nine, ten, ten and a half and eleven and a half years after operation. One lived for five years and died from heart disease, without recurrence of the cancer. One lived four years and recurred, and five lived one year or less and recurred. Robson emphasizes the value of early diagnosis and early radical operative interference, and gives a place to palliative operations.

Journal of the Royal Army Medical Corps, London.

October.

- 11 Report of Enteric Fever Cases Admitted Into the Medical Division of No. 7 General Hospital, Pretoria. R. C. Cortell.
- 12 Report of an Outbreak of Epidemic Disease Occurring Among Bethune's Column at Stanger, Natal, October, 1901. W. M. O. Beveridge.
- 13 *The Treatment of Malarial Fever by Injections of Quinin. C. M. Fleury.
- 14 Enlargement of the Spleen in Lower Bengal. J. McKenzie.
- 15 Curious Habit of the African Cobra (Naga Haje). C. R. Bartlett.
- 16 Rapid Ambulance for Mounted Troops. W. Merchant.
- 17 A Visit to Lersin, Switzerland. H. R. Whitehead.
- 18 The Southern Soudan—Its Climates and Diseases. W. Bray.
- 19 Travel in Somaliland. J. D. Edge.
- 20 Gunshot Wounds Implicating the Larger Joints, Especially the Knee and Shoulder. G. A. Moore.
- 21 The Expansion of the Royal Army Medical Corps in Time of War. William Coates.

November.

- 22 *The Nasal Treatment of Asthma. Alexander Francis.
- 23 The *Plroplasma* Bigemium of the Immune Ox. A. Theller.
- 24 Notes on the Sndanese Tribes of the White Nile. S. L. Cummings.
- 25 The Working of an Out-patient Department in Military Hospitals. F. E. Gunter.
- 26 Hints on Service in Ceylon. F. W. Beagle.
- 27 The War Supply and Sanitation of Camps in India. H. S. McGill.
- 28 The Causation of Enteric Fever at Quetta, with Special Reference to Camp Sanitation. J. Rattersby.
- 29 An Undescribed Eruptive Fever. W. Mond.
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95 (No. 46.) ***Ueber Spinalanästhesie.** M. Silbermark.
96 **Die hämolytische Wirkung des Sublimats.** L. Detre und J. Sella.
97 (No. 47.) **Schwerer Fall von traumatischem Tetanus geheilt durch Durahl-Infusion von Behring'schem Tetanusserum.** J. Goblet.
98 ***Vaccination Under Red Light.—Impfreaktion unter Rotlicht.** C. Rosler.

64. **Hygiene of Tuberculosis.**—This article was presented by Hueppe at the English Hygienic Congress last July. He emphasizes the impetus given to a tuberculous process by inhalation of dust, citing the experiences at Vienna, which seems to be the "Windy City" of Europe. During the last decade the deaths from tuberculosis per 10,000 inhabitants were 46.4, in contrast to the 23.1 at Berlin and 17.7 at London. He states that as long ago as 1887 he called attention to the way in which when one disease seems to be diminishing in frequency another may vicariously increase. As the mortality from pulmonary tuberculosis has declined in Prussia, for example, the deaths from other lung affections have increased, raising the total proportion to 49 and to 50.4 for the German empire. By strengthening the resisting powers we not only combat tuberculosis, but all other lung affections. The importance of this, however, does not seem to be realized by the very short-sighted bacteriologic orthodoxy. Social hygiene should combat the three factors of tuberculosis—the predisposition, the germ and the environment—all variable quantities. The semicentennial of the pioneer Breher sanatorium assembled numbers of old patients, permanently cured for years, long before the tubercle bacillus had been discovered. He adds that he has succeeded in inducing a hypersensitive reaction in animals, so intense that fatal tuberculosis with infiltration and tubercularization of the tissues occurs in twenty hours, instead of the protracted process hitherto observed. He is confident that this will aid in the study of the various factors of immunization. He has further established that bacteria can remain latent and viable in the interior of the organism for a much longer period than hitherto admitted. Pathogenic bacteria can persist latent a long time even after specific immunization of the organism. The greatest danger for infection and acquirement of the predisposition to tuberculosis lies in the blossoming time of life.

66. **Tuberculous Spondylitis.**—Jehle reports several cases to illustrate the various clinical pictures that may be presented in this disease. It may occur in children in an unrecognized, latent form. In one case a slight deviation of the head to one side was long the only symptom.

68. **Modern Pediatrics.**—This address was read at the St. Louis Congress of Sciences last September. Escherich expatiated on the pathology of the child as it varies at different periods of growth. The first period is distinguished by the intensity of cell proliferation. The skin, mucose, organs, etc., are still undeveloped and are easily traversed by germs, so that the newborn infant is peculiarly susceptible to pyogenic and other infections. The high infant mortality is mainly due to the functional weakness of the still imperfectly developed vital organs. The rapid growth of the brain during the first year is frequently accompanied by abnormal sensitiveness of the nervous system. The skin and mucose are likewise still extremely sensitive, and the tendency to pyogenic infections still persists. From two to five the pathology is largely the result of defective ossification and of the habit of creeping on the floor and putting things in the mouth. Local and miliary tuberculosis and acute poliomyelitis are peculiarly frequent during this period of growth, and defective development of the

bels, iodine can be injected subcutaneously. Two cases of cerebral arteriosclerosis are reported in which remarkable improvement was noted under potassium iodid, .9 gm. a day for thirteen days; the blood findings in regard to the viscosity kept pace with the improvement noted. Romberg thinks that iodine is liable to be directly harmful in cases of arteriosclerotic contracted kidney with cardiac asthma and in goiter accompanied by cardiac disturbances. The action of the iodine salts is strikingly favorable in incipient cerebral arteriosclerosis, in moderately severe angina pectoris, in case of moderate heart weakness with dyspnea after exertion, and occasionally in cardiac asthma and intermittent limping.

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94 Experiences with Artificial Delivery.—Einleitung der künstlichen Frühzucht bzw. des Abortus in den Jahren 1908 bis 1. Juli 1904. E. Gallata (Lahsch).
95 (No. 46.) *Ueber Spinalanästhesie. M. Silbermark.
96 Die hämolytische Wirkung des Sublimats. L. Detre und J. Sellaer. (Commenced in No. 45.)
97 (No. 47.) Schweizer Fall von traumatischem Tetanus geheilt durch Dural-Infusion von Lehrsingschem Tetanusserum. J. Goblet.
98 *Vaccination Under Red Light.—Impfreaktion unter Rotlicht. C. Rosler.

64. **Hygiene of Tuberculosis.**—This article was presented by Hueppe at the English Hygienic Congress last July. He emphasizes the impetus given to a tuberculous process by inhalation of dust, citing the experiences at Vienna, which seems to be the "Windy City" of Europe. During the last decade the deaths from tuberculosis per 10,000 inhabitants were 46.4, in contrast to the 23.1 at Berlin and 17.7 at London. He states that as long ago as 1887 he called attention to the way in which when one disease seems to be diminishing in frequency another may vicariously increase. As the mortality from pulmonary tuberculosis has declined in Prussia, for example, the deaths from other lung affections have increased, raising the total proportion to 49 and to 50.4 for the German empire. By strengthening the resisting powers we not only combat tuberculosis, but all other lung affections. The importance of this, however, does not seem to be realized by the very short-sighted bacteriologic orthodoxy. Social hygiene should combat the three factors of tuberculosis—the predisposition, the germ and the environment—all variable quantities. The semicentennial of the pioneer Brehmer sanatorium assembled numbers of old patients, permanently cured for years, long before the tubercle bacillus had been discovered. He adds that he has succeeded in inducing a hypersensitive reaction in animals, so intense that fatal tuberculosis with infiltration and tubercularization of the tissues occurs in twenty hours, instead of the protracted process hitherto observed. He is confident that this will aid in the study of the various factors of immunization. He has further established that bacteria can remain latent and viable in the interior of the organism for a much longer period than hitherto admitted. Pathogenic bacteria can persist latent a long time even after specific immunization of the organism. The greatest danger for infection and acquirement of the predisposition to tuberculosis lies in the blossoming time of life.

66. **Tuberculous Spondylitis.**—Jehle reports several cases to illustrate the various clinical pictures that may be presented in this disease. It may occur in children in an unrecognized, latent form. In one case a slight deviation of the head to one side was long the only symptom.

68. **Modern Pediatrics.**—This address was read at the St. Louis Congress of Sciences last September. Escherich expatiated on the pathology of the child as it varies at different periods of growth. The first period is distinguished by the intensity of cell proliferation. The skin, mucosæ, organs, etc., are still undeveloped and are easily traversed by germs, so that the newborn infant is peculiarly susceptible to pyrogenic and other infections. The high infant mortality is mainly due to the functional weakness of the still imperfectly developed vital organs. The rapid growth of the brain during the first year is frequently accompanied by abnormal sensitiveness of the nervous system. The skin and mucosæ are likewise still extremely sensitive, and the tendency to pyrogenic infections still persists. From two to five the pathology is largely the result of defective ossification and of the habit of creeping on the floor and putting things in the mouth. Local and miliary tuberculosis and acute poliomyelitis are peculiarly frequent during this period of growth, and defective development of the

brain becomes apparent. From 6 to puberty the pathology is that of school life, contact infections and traumatic affections; it is possible that the vigorous play of the muscles at this age may set up inflammation of the appendix. Tuberculosis becomes less frequent, but a new, dangerous infectious disease appears, acute articular rheumatism with its sequelae. The pathology of puberty is generally restricted to females, chlorosis, hysteria, psychoses, heart affections. In other respects the morbidity is that of adults. Study of the pathology of each of these five periods of growth permits intelligent prophylaxis.

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 120 Pteriosiola infusa.—Contributo allo studio dell' feroicismo nell' infezione malarica. B. Ferruccio.
 121 Spodilosi Rizomelica. A. Curcio.

99. Utero-Ovarian Sympathectomy.—Ruggi attributes to the pelvic plexus many of the disturbances in the gynecologic sphere, trophic, motor and sensory. This plexus transmits the peripheral stimuli to the brain, and if this transmission can be interrupted, then the severe pains in many instances can be abolished. Partial resection of the pelvic plexus is indicated, in his opinion, when severe pains persist after surgical intervention has proved ineffectual to cure, or the organs are apparently entirely or nearly sound. Up to 1900 he had performed this operation, on one or both sides, on 9 women who had previously submitted to various mutilating gynecologic operations without relief from their severe pains in the pelvic viscera. Cavazzani has also performed the operation five times, and Foschini here reports 3 additional cases. The results in every instance have been the permanent relief of patients from their sufferings, as, he remarks, was to be expected from the anatomy, physiology and pathology of the parts. In his 3 patients a constant symptom was the exacerbation of the pain when the abdomen was palpated along the psoas muscle. In one other case on record the pain here was spontaneous and severe. He is convinced that this operation of sympathectomy should supplant ovariectomy in many cases in which the latter is supposed to be indicated. Experimental research has rendered it probable that the genital function is gradually lost after bilateral resection of the pelvic plexus, but the pain—which frequently persists after ovariectomy—is cured, and the patient is spared useless mutilation of organs. His patients were 18, 25 and 44 years old. The first patient presented pelvic neuralgia, the viscera normal. The second—a hysteric epileptic—had been treated by ovariectomy and later by hysterectomy, but the pains persisted until relief was obtained by bilateral resection of the plexus. Examination was negative in the third patient, but the attacks of pain in the pelvis recurred with progressive intensity, and were completely conquered by bilateral resection of the plexus.

110. Treatment of Epilepsy with Brain Substance.—Soleri has been using in 7 cases of epilepsy and in a larger number of neurasthenics an oily extract of brain substance (cephalopin), as a therapeutic measure. He found that it had an unmistakable and effectual action in reducing the nervous excitability, even after failure of other extracts of brain substance. There were never any symptoms of intolerance; all the patients felt better and increased in weight. He injected from 1 to 2 or even 5 c.c. every second day, for nearly two months. The extract is prepared with oil; it is stable and free from albumin to coagulate while it contains a large proportion of lecithin. It is prepared at Maragliano's Institute for Infectious Diseases at Genoa, and is standardized with 1,000 anticonvulsion units per c.c.

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 117 La spondilite infettiva. L. Fracasini.
 118 (No. 130.) Fevers of Unknown Origin.—Sulle febbri di origine nascosta. C. Bozzolo. See page 1731.
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 120 Pernicosa tifosa.—Contributo allo studio dell' fagocitismo nell' infezione malarica. B. Ferruccio.
 121 Spondilosi Rizomelia. A. Curcio.

99. **Utero-Ovarian Sympathectomy.**—Ruggi attributes to the pelvic plexus many of the disturbances in the gynecologic sphere, trophic, motor and sensory. This plexus transmits the peripheral stimuli to the brain, and if this transmission can be interrupted, then the severe pains in many instances can be abolished. Partial resection of the pelvic plexus is indicated, in his opinion, when severe pains persist after surgical intervention has proved ineffectual to cure, or the organs are apparently entirely or nearly sound. Up to 1900 he had performed this operation, on one or both sides, on 9 women who had previously submitted to various mutilating gynecologic operations without relief from their severe pains in the pelvic viscera. Cavazzani has also performed the operation five times, and Foschini here reports 3 additional cases. The results in every instance have been the permanent relief of patients from their sufferings, as, he remarks, was to be expected from the anatomy, physiology and pathology of the parts. In his 3 patients a constant symptom was the exacerbation of the pain when the abdomen was palpated along the psoas muscle. In one other case on record the pain here was spontaneous and severe. He is convinced that this operation of sympathectomy should supplant ovariectomy in many cases in which the latter is supposed to be indicated. Experimental research has rendered it probable that the genital function is gradually lost after bilateral resection of the pelvic plexus, but the pain—which frequently persists after ovariectomy—is cured, and the patient is spared useless mutilation of organs. His patients were 18, 25 and 44 years old. The first patient presented pelvic neuralgia, the viscera normal. The second—a hysteric epileptic—had been treated by ovariectomy and later by hysterectomy, but the pains persisted until relief was obtained by bilateral resection of the plexus. Examination was negative in the third patient, but the attacks of pain in the pelvis recurred with progressive intensity, and were completely conquered by bilateral resection of the plexus.

110. **Treatment of Epilepsy with Brain Substance.**—Soleri has been using in 7 cases of epilepsy and in a larger number of neurasthenics an oily extract of brain substance (cephalopin), as a therapeutic measure. He found that it had an unmistakable and effectual action in reducing the nervous excitability, even after failure of other extracts of brain substance. There were never any symptoms of intolerance; all the patients felt better and increased in weight. He injected from 1 to 2 or even 5 c.c. every second day, for nearly two months. The extract is prepared with oil; it is stable and free from albumin to coagulate while it contains a large proportion of lecithin. It is prepared at Maragliano's Institute for Infectious Diseases at Genoa, and is standardized with 1,000 anticonvulsion units per c.c.

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Address.

ANTOINE FRANCOIS SAUGRAIN (DE VIGNI).

"THE FIRST SCIENTIST OF THE MISSISSIPPI VALLEY."*

N. P. DANDRIDGE, M.D.

CINCINNATI, OHIO.

In presenting my address, which custom has made one of the duties of the presiding officer, I shall depart somewhat from the practice of my predecessors, and instead of bringing before you some medical question based on my own work, or attempting a discussion of some topic now of active interest, I shall take you to the backwoods and try and interest you in the life and exploits of a pioneer physician, a life whose fine moral and intellectual fiber, I venture to assert, has much that is worthy of our consideration and respect.

I shall not be able to point out any such monumental work as was left behind by Daniel Drake in his "Diseases of the Mississippi Valley." Indeed, I have little to tell that is strictly medical or surgical history, but I hope to depict one of high scientific attainments and true culture with all the elements of character which become the physician and the man. Our wandering course will be a long one, and you will find yourself far afield as we cross over mountains and through the wilderness, and float down rivers whose banks conceal the danger of ever-hostile Indians, until at last our winding way will lead to the small French village of St. Louis, under its last French Governor, Zenon Trudeau. The courage of our hero in danger, his resourcefulness in difficulties, and his unflinching amiability and sweetness of character made him beloved by all who came in contact with him—and makes him a worthy predecessor of the great profession of this great city—a worthy son of France, the great country which gave him birth, and certainly entitles him to a place as *bon camarade* among the fellows of the American Surgical Association.

My information on the subject of my sketch has been largely obtained from a paper by Eugene Bliss of Cincinnati, presented to the American Antiquarian Society, and from the collection of papers relating to the settlement of Gallipolis, collected and arranged by John M. Newton, and now in the Cincinnati Historical Society, and a pamphlet on the "First Scientist of the Mississippi Valley," by W. V. Byars. From all of these I have freely drawn.

Antoine François Saugrain (de Vigni) was born in Paris Feb. 17, 1763. He came from a long line of "librarians, booksellers and printers," who, as far back as Charles IX and Henry of Navarre had served the royal family of France. The de Vigni, which was but occasionally used, seems to be explained from the cus-

tom at that time in vogue in Paris of sending children to nurse into the country, and on their return they were known by the name of the village in which they had lived. Little is known of his early life, but it is evident he was given a thorough general scientific education, and that he studied "chemistry, mineralogy and physic." His general scientific knowledge stood him in good stead in the wilderness and he was ever ready to put it to the most practical use in his daily wants. His knowledge of mineralogy made his advice often called for in the development of the mines in the Ohio Valley. He supplied himself with ink from a natural chalybeate water and an infusion of white oak bark, and when in need of a fire lighted it from a lens made by two watch crystals with clear water between. Wherever he found himself he established furnaces and chemical laboratories and had his electric batteries, and in time of leisure he made thermometers and barometers, which he readily sold. He was most observant of the resources of the country and its inhabitants, and has left acute comments on both.

He probably never practiced in Paris, for about the time his studies were completed his family, who were royalists, were compelled to flee across the Rhine, and for a time he did not know their whereabouts. Learning of a party of French coming to America, he joined them, and seems to have entered the service of the King of Spain, for we soon find him engaged in mineralogic investigations in Mexico, the friend of the viceroy, Don Galvez. This viceroy Humboldt calls "the enlightened Galvez." After his death Saugrain returned to France, but was never afterward able to shake himself free from the attraction which the life in the wilds possessed for him. In 1787 we learn from Brissot de Warville that Saugrain again came to America with a M. Piquet, a French philosopher, fully imbued with the ideas of Rousseau then in vogue on the "Rights of Man," and who believed in the "primitive innocence and goodness of the children of the forest." The two dined the night before they left Paris with Dr. Guillotin, who had married Saugrain's sister, and who, at that time, was undisturbed by his future celebrity. Piquet was a botanist, and Kentucky and the valley of the Ohio were their objective points for the purpose of studying the flora and probably also to ascertain the feasibility for a French colony. They reached Fort Pitt, too late to go down the river, and "established themselves in an abandoned cabin a few miles away." They suffered greatly from the cold and lived principally on "venison and potatoes." In spite of their hardships they busied themselves with their scientific work. Saugrain examined mines in the neighborhood and found iron, lead, copper and silver. With his hydrostatic scales he determined the weight and density of the various kinds of wood and tested their capacity for the production of potash: cornstalk he

* President's address delivered at the meeting of the American Surgical Association, at St. Louis.

found the richest. March 19, 1788, the two set out down the Ohio. Piquet did not find that his humanitarian views of the Indian worked out in actual practice, for they soon killed and scalped him. Dr. Saugrain has left a record of the trip.¹

My Friends:—The ice having caught us at Pittsburg, you know that we were obliged to remain there the space of four months, and that in the end, the Ohio having opened, we saw with regret our first boat depart, carried away by the ice. We had another one made, in which we embarked to the number of four, to wit: M. Pique and Raguet, French; Pierce, American, and myself. We set out from Pittsburg March 19, 1788. We stopped at Wheeling (Woulige) and at Muskingum, and at Limestone (now Maysville), a place where a fine town should be built; in short, we continued our voyage without accident until March 24, always admiring both banks of the Ohio, which in places are magnificent. But on March 24, at half-past 4 in the afternoon nearly, being opposite the Big Miami, as the wind had thrown us a little on the shore of the Ohio, on the Pennsylvania side, and while we were preparing to put ourselves rather more out in the current to go faster, M. Pique called my attention to a flatboat which was on the same bank. Alas! He was far from thinking this same boat would cause his death. As we were getting away from the shore mentioned



DR. ANTOINE FRANCOIS SAUGRAIN.
(From an oil portrait, painted from life.)

to gain the stream, we heard ourselves called by the Indians, who at the same time fired on us. At the first shot they killed my mare, and in struggling the poor creature pushed against M. Pique's which gave me a kick in the belly, throwing me flat, and with another she would certainly have killed me had she struck me, but she only grazed the skin on my forehead. As the mare had thrown me flat the Indians thought surely they had killed me. I conjecture that from the shore they fired nearly twenty times, but none of their shots hit us, except that M. Pique was just grazed in the head, as I thought, but as he did not complain I believed it a matter of no consequence.

To get beyond the range of the balls we all four took to the oars, but we saw that the Indians all went aboard the flatboat we had seen near the shore and in front of which they had put some planking to prevent their being seen, and in this same planking they made holes to put their guns through so that they might fire on us without danger of being killed themselves. I left my oar to see if our guns were in order. Of the three we had I found two loaded; one of these was mine, the other M. Raguet's carbine. I hastened to load the third, as well as to prime two pistols belonging to the same M. Raguet.

During this time the Indians advanced on us and as they did not fire, one of us, I know not which one, proposed to raise a white handkerchief in sign of peace, judging it would be better to be a prisoner among the Indians than to be killed. They got nearer and nearer to us, even with some sign of friendship, and as they were near us, one of them was on the point of entering our boat, and as this unhappy man held a knife in his hand, I judged, with some reason, I believe, that he had no praiseworthy intention. I seized a pistol and sent two balls into his stomach. The pistol was no sooner fired than all the Indians, who were then standing, threw themselves flat in the boat and in this position fired on us. Then M. Raguet took his carbine and fired in turn on them and I did as much. Raguet fired three or four shots, but unluckily in his haste he put the ball before the powder, which a little retarded the quickness of the firing, and when, having reloaded his carbine, he wished to fire, not well seeing how to aim, he put his arm outside the boat, and it was at once broken by a gunshot fired by the Indians. (In a note at this point Dr. Saugrain adds: Some one at the Falls of the Ohio said that I did wrong to fire; I think so too, for in the boats which have been taken before and since no one has been killed, inasmuch as no one made resistance.) I put my hand outside to hold my gun better and to aim better and had a finger of my left hand broken. At the first shots that the Indians fired from their boat into ours the American who was with us jumped out and swam to land. This did us much harm, for then the Indians, who perhaps had left us, fired much more. M. Raguet had his arm broken and I my finger. I think I fired but once afterward. As for M. Pique, he did not wish to fire, thinking, I believe, that the Indians would do him no harm if they took him prisoner, and instead of aiding us in our defense, he followed the example of Mr. Pierce. As there were left only M. Raguet and myself, we both threw ourselves into the water. As he had his arm broken and did not know how to swim, I believe he was drowned, preferring, as he told me, to be drowned to being scalped by the Indians. I had not yet reached the shore when I saw M. Pique and two Indians waiting for me, and I had no sooner reached the shore than they took me and bound my hands behind my back with some girths which serve them to hold up their blankets. They had no sooner finished tying me than I saw one of the two who held me go to M. Pique, throw him on the ground, and after having opened his coat and pulled open his shirt, give him four stabs with a knife on one side, and one on the other, and he scalped him. He put his scalp into a pocket-book which M. Pique had in his pocket. I leave you to think, my friends, what a spectacle for me! I expected for myself, as you well imagine, a like fate. But instead of killing me they made me run to overtake the boat, which, although it was headed toward the shore, had drifted nearly a quarter of a mile from the place where we swam ashore before they could come up with it. When we got opposite our boat one of the two went into the water and wished to take me by the hair to lead me, for the boat could not come near the shore on account of the trees which prevented it. As for me, such cruel fear seized me, seeing that he had not killed me and that he wished to cross the Ohio, I believed that he wished to burn me on the other side, and I made an effort violent enough to break the straps that held me bound and threw myself into the water. I swam with such force that he did not wish to run the risk of following me, and he did well, for my plan was, if they came after me, to seize one of them and drown with him.

Those who had jumped from their boat—swimming—to take us on shore, got into the one they had just taken from us and began to cross the Ohio. As for me, I held onto a tree, with my arms about it. Those Indians who were in the boat fired at me and wounded me in the neck. When I saw the boat mid-way of the Ohio, I regained the shore and when I went to see if M. Pique were dead, I perceived Mr. Pierce, who had concealed himself in the ravine. He came to me and we went to see M. Pique, who was dead, and in turning him over I saw that the Indians had not taken his watch. I took it and likewise a knife and two dollars he had in his pocket. Mr. Pierce

¹ Translation by Eugene Bliss of the Relation of a Trip Down the Ohio.

cut a piece of his coat to cover his feet. I had not the same forethought, of which I repented. We left M. Pique there and began to walk. It was very cold and I had nothing on me but a shirt and a pair of large breeches. I lost my shoes while swimming. At first we went a little away from the bank of the Ohio through fear of being seen by the Indians who were on the other side. After having made about four or five miles night began to come on. I was very tired. I lost much blood by the wound I had in my neck, and as we found ourselves in a good place to sleep, there being much dead grass there, we lay down, and Mr. Pierce had the kindness to pull up a quantity of the dead grass and we covered ourselves with it. I slept nearly three hours and my companion awoke me. We went back to the bank of the Ohio and he began to wish to make a raft. But he never could have succeeded, seeing that he was alone, for my neck was so swollen that I could not move my right arm, and my left hand was much swollen. Seeing that it was useless to work, for the vines of which he made use to fasten the pieces of timber all broke, we abandoned the attempt at a raft. We began to walk and walked a great part of the night. At last about 4 o'clock we lay down again. A fallen tree was the place Mr. Pierce chose. He lay down under it and I got as near him as possible. It came on to snow, and as my feet did not come under the tree and as it rained a little, I found my feet frozen when I awoke. I rubbed them a long time with snow, but uselessly. They caused me no pain, so we made a good day's march, always following the bank of the Ohio in the hope we might see some boat, which, going down to the Falls, would take us in. We were obliged to cross three or four creeks. The number of deer, pheasants and turkeys we saw is quite inconceivable. We also saw four or five troops of buffaloes, which came so near us that with a pistol I could have killed some. Night came on and we lay down. It still rained, little it is true, but that not the less caused much pain to my feet. The next day I could hardly walk, and my companion, who was impatient, left me often very far behind him. But I found a way of making him come. It was to sit down, and he, after having waited for me some time, thinking that something had happened to me, retraced his steps, and seeing my feet as black as coal and that I could not walk, he gave me his arm and cut a piece of his shirt to wrap up my hand. My neck was extraordinarily swelled, but it did not bleed any more. I chewed up a sort of agaric, which I put on it. We kept on walking, but very slowly. I saw a stinking beast, skunk (*bete puante*), and Mr. Pierce had no sooner seen it than he ran after it and with a blow with a stick he killed it. After skinning it he wished to eat some of it, but he could not. As for me, I cut off some little bits and I swallowed them like pills. This did me little good. I assure you. We could have cooked it had it not been for fear that the Indians would come to us, seeing the smoke. I could have made a fire without much trouble. The sun shone and I had two watches, the crystals of which would have made a lens by filling them with water and fitting them together. At last, after making so excellent a repast and a considerable halt, I took the rest of the stinking beast and put it in my shirt to carry it. About 5 o'clock in the evening we came to a house which had been abandoned. I was told (afterward) it was fifteen miles from the Big Miami, the place where we were attacked.

When we had rested half an hour a fresh desire seized us to make a raft, and we put into the water everything we could, and while my companion did the heavy business, as carrying the doors of the house, some fence or poteaux de barriere, etc. I cut into pieces my companion's jacket, which was made of buckskin, for that is very much used in America to make cords, and I cut the seat from my big breeches to make some socks to cover my feet. The whole affair went on very well. The raft was made and we were going aboard when from the other side of the river Indians fired at us. This did not alarm us much, considering the distance, but what did make us afraid, and especially me, was the Indians who replied from the side where we were to the cries of those on the other side. Then I took to my heels, and never in my life, I think, did I make so good

use of them. My feet no longer made me suffer; in short, I felt nothing. My companion, however, was still more alert than I, and in two minutes I lost sight of him. At last I was obliged to stop because in running a piece of stick ran into my foot. My companion in misfortune retraced his steps, and as night protected us from the Indians, we lay down, and it was one of the worst nights I have passed in my life. I could not sleep, and at each moment I thought I saw Indians, and the march the next day was still worse, for although wide awake I saw Indians behind all the trees; each bit of wood was a gun, and I believe to alarm us more, all the deer had conspired. I had a great need of food—much exercise, involuntary baths, the quantity of blood lost—I ate some stinking beast, "polecat." Before sunrise we were on the march; for the time I walked more on my hands than my feet. I drew myself along, I know not how. We came to a creek, which I believe is a few miles from Big Bone Creek, and there, for the first time, Mr. Pierce and I had a little dispute. The question was about crossing a large creek. Mr. Pierce wished to go up to cross it; I was strongly for swimming across it. Seeing that he wished absolutely to make the grand detour and leave the bank of the Ohio, I did as I always did. A violent part seemed to me the best. (How much he has since thanked me for it.) To put an end to the dispute I went into the water. He had his back turned and could not oppose my plan. I was already in the water before he was aware of it. Thus I crossed fortunately and he did not delay to follow me. It was about 11 o'clock in the morning. We stripped ourselves stark naked and dried our clothes. The bath did us good. When we were dressed we continued our route.

Nothing unusual happened to us until we got to another creek, which was nearly four miles from the last one we just crossed. As we were going to swim across it as we did the other, Mr. Pierce saw two boats coming down the Ohio. He called to them, but the boats kept off, believing we were Indians, but seeing our white shirts and our breeches, they determined to come to us. For this purpose they put all the men into one of the boats and left the other with the women and just one man to steer it. This took quite a long time, during which the current kept carrying them on. This time I did not have to beg Mr. Pierce to cross this creek, as well as two or three others which followed it. As for me, I followed him, but much more slowly. At last we swam out to join them, for they could not approach the shore on account of the trees which prevented them. It was surprising to me, arrived on board, to see all the people of the boat that received us with carabines in hand. But the fear of being surprised by the Indians obliged them to be on their guard. Arrived on board, they undressed me, warmed some whisky and rubbed all my body, which did me much good. I drank a little of it and ate a little bread, which seemed to me good. They dressed my neck, which was much swelled. As for my hand, they did nothing for it. They waited until we should be at the Falls to cut off the finger—which was not done, thanks to myself. My feet were in a very bad condition and gave me much pain.

Two days' sailing were enough to bring us to the Falls, where I passed the night of March 29. The next day, which was Sunday, I crossed the Ohio to go to a fort situate opposite Louisville, where I was most cordially received. I was introduced by Colonel Blaine,² and Major Willis gave me a reception for which I can not be too grateful. In short, I stayed in the fort with all possible comfort from March 30 to May 11. For three weeks I could not move, and every day they had to take out some portion of my foot which began to putrefy, but with the care of the fort's surgeon and with patience, all has been well and my foot is quite cured except the place where the piece of stick went in when I was running away in the woods. Thus far I have been unable to cure it.

Louisville is quite small. Nothing wonderful is found in it. The ruins of an old fort (Fort Nelson) are to be seen. They are on the bank of the Ohio, as is the town. I believe they do not at all exaggerate its unhealthiness. The city and its environs

2. Whose acquaintance I made at Fort Pitt. He had come down some time before us and arrived at the Falls without accident.

are very sickly. There are found, even in the lowa, low grounds filled with water, from which exhales the most dreadful stench, especially in the heat of summer. It would not, however, cost much labor to drain these marshes which give the inhabitants fevers, which, if not mortal, are long in curing. The other side of the Ohio, where I stayed for some time, where an American fort (Fort Steuben) is built and where there are 200 men in garrison, is not more healthy than Louisville, and there are few persons free from fever. This fort is in a very pretty situation. The land there is excellent and there are trees on every side.

In his record he states that he had left Pittsburg March 18 and had been attacked by the Indians March 23, was three days in the woods, and two days in the boat which picked them up. He made himself at once useful at the fort, examined some mines on Silver Creek, and analyzed a specimen which was brought to him which was supposed to contain gold, but which proved to be iron pyrites and copper. There was a lead mine fifteen miles from the post which yielded abundantly, but mixed with bismuth.

While at the fort Saugrain made a furnace and furnished the doctors fixed alkalies and amused them with electrical experiments. Salt, he states, was made in abundance in the neighborhood and sold at \$2 a bushel. From some stones which he picked up, and which were encrusted with shells, he came to the conclusion that this part of the country had once been covered by the sea, or a great lake. In this he anticipated the later demonstration of the glacial markings. Flint stones good for arrow-heads and gunflints were everywhere found. Quintucké (Kentucky), he remarks, was everywhere covered with a cane which makes a good food for cattle. Turtles, geese, turkeys, ducks, plover and quail were found immediately about the fort, but the deer had been frightened by drum and fife to a distance of several miles. It was here that he brought home some chalybeate water, and by adding it to an infusion of oak bark, made ink with which he was then writing, and which he thought would not fade. He also found a resin which he called copal, from a tree called the sweet gum. This discovery had not been made before, so in his honor they planted a specimen in the fort and called it Saugrain's tree.

From April 21 to May 3 he counted 34 boats passing down the river. May 7 a boat with fourteen rowers and eight or nine passengers arrived from Vincennes. They had been attacked 150 miles below and two of the party killed. This boat was going on to Pittsburg, and the doctor expected to go with them, but decided finally to accompany Colonel Blaine on horseback through Kentucky so as to see the country and then meet the boat at Limestone.

May 11 he set out, after expressing great regret at leaving the fort where he had received so much kindness, alone with Colonel Blaine. He comments on the fertility of the soil, the small size of the trees, the bad roads, and the fact that the plantations were mostly in barley. Their first stop was Bardstown, which had several stone houses and a handsome court house, which led him to believe that the people indulged in lawsuits.

Danville he found a charming settlement, with land the best in the world. Here they were joined by two Philadelphia ladies, both pretty, and Colonel Blaine's son. A party of fifty armed men passed through Danville, and two fugitives arrived of a party of seven from Richmond who had been attacked by Indians, one killed and the rest scattered. From here they went to Lexington, crossing the Kentucky River where the banks were high and rocky. Lexington he found pleasant, with good water and less idleness than elsewhere. A pest of cater-

pillars had stripped the maple trees which supplied the people with sugar, which would prove a severe loss. After two days they set out for Limestone, stopping at Bourbon; even at that early day visitors to Kentucky felt something was wanting unless they became familiar with Bourbon—a practice which prevails to the present day.

They dined at Saline Bleu (Blue Lick). Here you see the extraordinary spectacle of two springs, one salt and the other fresh, within ten feet of one another. Here salt is made by evaporation, requiring 1,000 gallons to make a bushel. Reaching Limestone they found the boats already there.

May 21 they set out for Muskingum with a party of sixty-eight armed men and forty-nine unarmed, in boats laden with goods from the Indians. They passed the Big Kanawha, which is beautifully situated but very dangerous from the Indians—two white men and four Indians had been recently killed. On May 30 they reached Muskingum, which he considered occupied the finest situation for a city he had ever seen, and ventured the prediction that it might become the largest city in America. The plan of the engineers he considered admirable. June 9 they left for Fort Pitt, where they arrived June 17, and soon left for Philadelphia with Mr. Pierce and Mr. Brason, the postmaster of Philadelphia, who had come out to establish a branch postoffice. The latter had been directed by Dr. Franklin to supply Saugrain with money if he met him. They traveled on horseback and stopped over night with one James Miers, then on to Greensburg, where he was invited, he says, out of curiosity, to many houses, for the people are not hospitable. The next day, though his foot was painful and required lancing, he traveled forty miles, and the next day the same distance over the Allegheny Mountains, and passed the night in a tavern in a deep valley between two high and barren mountains. "He would die of grief living in such a place where the sun shines for two hours only."

June 10 they stopped at Chambersburg, which had many stone and brick houses. A nearby creek turned fifteen or twenty revolving mills. The industries were remarkable. Gunpowder was made in quantities and sold for 50 cents a pound. They traveled over good roads and reached Carlisle, where the United States had magazines for the manufacture of arms. This town was famous for the dissension over the new Constitution. On the way they met large wagons which carried people to Fort Pitt, from whence they took boat for Muskingum. On the way to Lancaster they crossed the Susquehanna where it is half a mile wide and four fathoms deep. Here there was a fine courthouse and several churches, and it was noted for the fine rifles made there. The population was mostly German.

On June 20 they reached Philadelphia and found Dr. Franklin sick, but well enough to extend an invitation to dinner, which was gladly accepted, though Dr. Saugrain was quite ill and not very presentable in the clothes he had been traveling in. The journey from Fort Pitt to Philadelphia on horseback was made in seven days, while the trip out in a cabriolet had required fourteen days. It is not known when Dr. Saugrain left Philadelphia, but we next hear of him again in 1800, when he became engaged in the service of the Scioto Company to join a party of French settlers from Lyons and Paris, who were bound for the Ohio, and who founded Gallipolis.

This settlement furnishes one of the most picturesque and pathetic stories of the early west. The party, some 500 in number, was composed largely of high-classed

French artisans who were illy fitted to cope with the hardships of the wilderness. They were "carvers and gilders to his majesty, coach and peruke makers, friseurs and other artists, and only four or five farmers." The brothers, Caudevert, were sculptors and carvers who had already attained reputation enough "to have decorated two of the most beautiful churches in Paris."

The French imagination, still under the spell of Rousseau and the *Figaro*, was fairly fired by the accounts put forth by the promoters of the Scioto Company of "the free and happy life to be led on the banks of the beautiful Scioto" untrammelled by the artificial bonds of European society. The prospectus of the company, with a map, described the attractions in glowing terms.

"A climate wholesome and delightful; frost, even in winter, almost entirely unknown; a river called by way of eminence the beautiful, and abounding in fish of vast size. Noble forests, consisting of trees that spontaneously produced sugar (sugar maple), and a plant that yields ready-made candles (*Myrica cerifera*), venison in plenty, the pursuit of which is uninterrupted by wolves, foxes, lions or tigers. No taxes to pay, no military service to be rendered." Sangrain was sought because of his knowledge of the country. He was to serve three years, to have 200 acres and a house, and support for himself and three servants. For this he was to give his medical service.

The party reached Alexandria May 1, 1790, and arrived at Gallipolis October 20. Eighty cabins and a "council and ballroom" had been erected by Rufus Putnam for them. At first everything "was new, the colonist had means of support, and time passed agreeably between labor and pleasure. Woods were cleared, gardens planted, and everyone strove to make himself agreeable and useful. After a day of severe labor, dancing and singing or a social and cheerful meal succeeded." (Mrs. Mentle, Cincinnati *Evening Chronicle*, July 14, 1827.) July 14 they celebrated the fall of the Bastille. "They had brought with them costly dresses and expensive clothing, and rare and valuable laces, articles only suitable for a gay Parisian life." One of the descendants when quite an old woman, remembered seeing, when a girl, a barrel of silk stockings which was opened in St. Louis, where they had gone after the failure of Gallipolis, much damaged by being badly packed. The days of prosperity were not of long continuance—the company supplies stopped, there was great want, and their title to the land was found defective. Congress finally gave them 24,000 acres. "Now the ruffled shirt and the lace of the colonist were seen adorning the American hunter and mixing with the greasy hunting shirt and leggins, over which hung in laughable discordance the embroidered coat of the Frenchman, while beautiful rings shed luster on the blackened hands." "Nutmegs and spices were exchanged for eggs." Dr. Brackenridge, in his "Recollections of the West," gives a vivid picture of Dr. Saugrain in these surroundings. He seems to have kept an inn, and in a little back room, surrounded by his blowpipes, crucibles, chemical apparatus and electric batteries, he made aeromotors and thermometers and phosphorus matches, for all of which he found a ready sale. This work was regarded by many as uncanny and closely allied to the black art. On one of the other cabins tradition tells us of the sign "Bakery and Midwifery." Saugrain had established a reputation of inoculating for smallpox and crowds from the Kanawha Valley sought his service. On one occasion some Indians came to see him at work. The doctor placed a gold piece on a metallic plate and told the chief that he

might have it if he could pick it up. He received a severe electric shock and ran howling away. The doctor, to their great astonishment, then picked it up and put it in his pocket. The great fertility of the soil, he tells us, "brought emigrants without stop, full of energy to build their first cabin. They then played in the bosom of idleness. An inhabitant of the country which is in the middle of the forest scarcely works two hours a day for his living and that of his family. He spends nearly his whole time in reposing, in hunting and in drinking. The women weave linen and make clothes for their husbands, and he has seen good linen and woolen cloth made in the cabins. There is no silver. Whisky is bought with wheat and pork with mutton."

The Doctor married in Gallipolis, but soon left for Lexington, invited by a company that needed his knowledge in the manufacture of good bar iron, in which they had not been successful. He soon became popular. There is a tradition that while in Lexington he made for Henry Clay his first kite. He remained for six years, when, in response to an invitation of Trudeau, French governor of St. Louis, he moved there in 1800. The trip was made in a flatboat down the Ohio, and it took many days to work his way up the Mississippi. In 1805 he was appointed by Jefferson surgeon in the army and was stationed at Fort Bellefontaine, on the Missouri. In the *Missouri Gazette*, May 26, 1809, we find the following notice: "Dr. Saugrain gives notice of the first vaccine matter brought to St. Louis. Indigent persons vaccinated gratuitously." He continued to practice in St. Louis till his death, in 1820, and must have been eminently successful, for he left a large landed estate for the support of his wife and six children. Although thus busily occupied, he found time for his electrical and chemical work, and in the latter he is said to have anticipated the European inventors in the use of phosphorus for friction matches. His scientific work lives in tradition and has gained for him the title of the "First Scientist of the Mississippi Valley."³

His earnestness and modesty are well illustrated by a remark which has come down to us, made one day to his daughter, who was his assistant, in the laboratory: "We are working in the dark, my child; I only know enough to know that I know nothing." Can we to-day say more or less?

And now, in taking leave of our little French doctor, I may say that I felt we might turn from the great special surgical questions which now press on us for solution, to the early times when the scientific knowledge of the doctor enabled him to minister to the larger and more varied needs of those about him; from the "hurly-burly" of the great city to the noises and odors of the forest, from the blaze of electric lights to the beginning of friction matches, and find some interest and profit in the career of a pioneer physician who brought with him into the wilderness the highest culture of the day, and applied in his daily round the best that science could then afford for the benefit of those he was called on to care for.

Tradition still keeps warm his memory in the great city in which we meet, and I trust that the American Surgical Association may be the means of introducing him to his proper and larger place in the profession which we represent as one of the great pioneer physicians who has stimulated development, and place him in the position which fairly belongs to him by reason of his great attainments.

Original Articles.

A PLEA FOR MORE THOROUGH EXAMINATION OF DOUBTFUL SPECIMENS OF ECTOPIC PREGNANCY.*

J. WESLEY BOVÉE, M.D.

Professor of Gynecology, Columbian University; Ex-President Southern Surgical and Gynecological Association; President Washington Obstetrical and Gynecological Society.

WASHINGTON, D. C.

Every abdominal surgeon meets with cases in which, before or during operation, the diagnosis of ectopic pregnancy is made, but in which no fetus or placenta is found. In such, absence of the fetus is attributed to the rapid absorptive action of the peritoneum on the nearly boneless ovum, and the absence of the placenta to interruption of the pregnancy before the development of that structure is commonly understood to begin. It is now known, however, that the trophoblast enters into the formation of that structure early in the developmental stage of segregation or cell division. In observing the work of others, I am sure this diagnosis is adhered to even without microscopic examination, if blood, either loose or encysted, is found in the peritoneal cavity, and a tube or ovary, or both, distended by blood coagulum. In my own experience, several times I have found that microscopic examination of such specimens has caused the diagnosis to be changed. I have had these specimens in my work carefully examined during the last ten years. In 1897, I read a paper entitled "Tubal and Ovarian Hemorrhage Resembling Ruptured Ectopic Pregnancy," at the St. Louis meeting of the Southern Surgical and Gynecological Association, in which I endeavored to prove the diagnosis of ectopic pregnancy was often wrong, even when made during an operation, and should not be made except by aid of the microscope. In that paper I cited many cases of error of diagnosis of this kind made by abdominal surgeons of world-wide reputation. I need not go into detail in explanation of the great harm of such error in the cases of virgins, widows and even married women, not to prove that such are not uncommonly made.

In these cases of tubal and ovarian hemorrhage from other causes, we have frequently a history of interrupted menstruation and sudden and severe pelvic pain, accompanied by profuse uterine hemorrhage and all the subjective and objective symptoms of disturbed ectopic pregnancy. In one of my cases the hemorrhage had continued for the six months preceding operation, and a mass practically filled the pelvis, forcing the uterus and opposite appendage far to one side and upward. At the operation the mass was found to be a large accumulation of partially walled-in blood, both fluid and coagulated, an ovary nearly normal and a large tube distended nearly to the isthmus by blood-clot. The fimbriated end was widely dilated and considerable free blood was in the peritoneal cavity. The indications were strongly suggestive of tubal pregnancy, but microscopic examination failed to find villi or any other evidence of pregnancy.

Between Jan. 1, 1899, and June 1, 1904, I operated on ten cases in Columbia Hospital for Women in which the macroscopic examination of the removed spec-

imens, taken with the case histories, gave very strong presumption of tubal abortion or ruptured tubal pregnancy, but in which the microscopic examination proved such diagnosis untenable.

In these ten cases the microscopic diagnoses were hematosalpinx in six, chronic salpingitis and ovarian hematoma in one, sclerotic ovary with profuse hemorrhage in one, ovarian papilliferous adenocystoma with salpingitis in one, and in another chronic salpingitis, with a sclerotic hemorrhagic ovary and a carcinomatous one.

In my services in two other hospitals I found a few cases, but at the time of this writing the reports of the microscopic examinations of the specimens removed were not accessible.

A study of these ten cases convinces me that many specimens removed and diagnosed as ectopic pregnancies are not such, and that in this class of cases the differential diagnosis is usually not made, as the aid of the microscope is not invoked as a routine procedure. I am equally as thoroughly convinced that the microscopic examination of every specimen presumptively diagnosed as ectopic pregnancy should be put to the microscopic test. It is only by this process that a most thorough knowledge may be secured of the causes of the conditions suggestive of disturbed ectopic gestation. It was only by a systematic microscopic study of his pathologic specimens removed that Webster of Chicago discovered the beautiful specimen of ovarian pregnancy presented to the American Gynecologic Society at Boston, and which caused him to recede from his former position that ovarian pregnancy was an impossible condition. In two of my ten cases malignant ovarian tumors were found.

The effect of such routine examination will be a more thorough knowledge of the pathologic conditions of the ovaries and tubes, more reliable statistics, and the prevention of stigma being placed on chaste women.

EXTRAUTERINE PREGNANCY WITH ATYPICAL SYMPTOMS.*

WALTER B. DORSETT, M.D.
ST. LOUIS.

A diligent search of the literature fails to reveal the record of many cases of extrauterine pregnancy in which anything aside from what may be termed typical symptoms were presented. The object of this paper, therefore, is to call attention to the fact that our knowledge of its symptomatology is by no means complete, also that it is a malady of more frequent occurrence than we are in the habit of assuming.

According to Hirst, the proportion of cases of extrauterine to normal pregnancy is about 1 to 500, and he gives that of Winkel to be 16 to 22,000 births, and of Bandl 3 to 50,000. While not giving his own experience, he states that he has operated 59 times with three deaths; 13 of these cases were operated on by him in nine months.

The subject of diagnosis as dealt with by most writers would lead one to believe that it is easy to decide by the subjective and objective symptoms that are presented, and while I agree that in the main this is true, still from my experience I am constrained to make this broad statement: There is no intraabdominal condition that is more frequently shrouded in mystery and

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

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so devoid of pathognomonic symptoms as extrauterine pregnancy. The above statement may be due to my own experience, which I believe to be unusual, and which will be seen from the histories of the cases I present.

What should constitute the essential factors in making a diagnosis in this condition is well understood. The only exception that is worthy of note is the statement of Bland Sutton. He says: "A careful series of investigations on an abundant supply of material teaches us that a healthy fallopian tube is more likely to become gravid than one that has been inflamed." This statement was made in 1897. In his more recent work¹ he says: "The fact that pregnancy occurs in a tube after a long period of sterility in women who have borne children has given color to the suggestion that the patients have suffered from desquamative salpingitis, and the destruction of the proper epithelium will account for occurrence of tubal gestation, inasmuch as it puts the mucous lining of the tubes into a condition exactly similar to that of the uterus after menstruation." It will here be seen that he differs from most authorities in that he ignores the sequences of inflammatory disease as a factor in the causation of tubal gestations, and rather clings to the idea that the denudation of the tube alone fits it for an abiding place for an impregnated ovum. This is in marked contrast with the opinion of most writers on this subject, who hold to the theory that a tube robbed of

made by two good surgeons. An operation for the relief of the trouble revealed an extrauterine pregnancy of about five weeks' gestation and pathologic lesion of the appendix. A continuous and persistent hemorrhage from the uterus prompted me in another case to curette the uterus for a supposed retained placenta following a supposed early abortion. Failure to check the bloody discharge and the appearance of tumefaction in the right tube, accompanied by a sudden and violent pain on the side, suggested extrauterine pregnancy, and an operation revealed a distended broad ligament and ruptured tube with fetus enveloped.

I have operated on four other cases in which there was a diagnosis of hemorrhage following supposed abor-

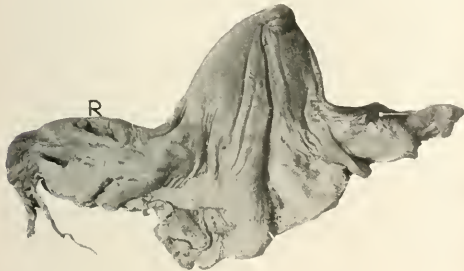


Figure 1.

its ciliated epithelium, or strictured, or possessed of a congenital malformation, as a diverticulum, or twisted and contorted by bands of adhesion or displaced by new growths, is one of the essential etiologic factors in the production of tubal gestation.

I have operated on forty-one cases of extrauterine pregnancy, with a mortality of six. The indications for the operation have been varied. The results, considering the condition of the patients, have been good. Several cases had not been diagnosed as ectopic gestation, and while this was true, they were cases that presented symptoms demanding surgical intervention.

The first case that I personally attended was in a woman about 35 years old who fell dead after running violently upstairs at the St. Louis Female Hospital. The diagnosis in this case was heart failure, inasmuch as an examination on her admission to the hospital revealed serious cardiac lesions. The postmortem examination of the abdominal cavity revealed blood in large quantities in the cavity, a ruptured fallopian tube, and a fetus of about six weeks' gestation (Fig. 1).

The second case was one in which, on account of tumefaction and symptoms usually attending a suppurative appendix vermiformis, a diagnosis of appendicitis was



Figure 2.

tions, and in whom curettement had been done by attending physicians.

So far as literature is concerned, little is found to guide even the most careful student in an unerring manner toward a diagnosis, so that positive symptoms of ectopic pregnancy are frequently wanting. This is particularly true in tubal pregnancies prior to the rupture of the enveloping structure of the gestation sac.

Incorrect diagnoses as to the cause of hemoceles and pelvic abscesses have in many instances been made. The cause of error in these cases is often due to the want of clear histories to enable us to form a conclusion in a given case. Positive findings, as, for instance, the pres-

1. Surgical Diseases of the Fallopian Tubes and Ovaries, 1901, p. 208.

ence of a fetus or chorionic villi in or adjacent to a blood clot, will settle the question on operation, but we must remember that negative findings, as the absence of both fetus and chorionic villi, do not militate against a diagnosis of extrauterine gestation, for the reason that the peritoneal fluid often acts as a digestive agent and effectually destroys all such evidence.

The clinical history of the patient may or may not justify the surgeon in arriving at a diagnosis of extrauterine pregnancy, and he is often led to an operation solely by the indications for a celiotomy. In other words, does or does not a particular case present symptoms demanding an abdominal section? There may or may not be a history of shock, internal hemorrhage or concealed hemorrhage, the presence or absence of a discharge of decidual membrane from the uterus, the presence or absence of a tumor in the pelvis external to the corpus uteri, a clear history of a previous pathologic condition of the tubal mucosa (and, as a consequence, a history of sterility of from five to ten or fifteen years' standing, or no history of such condition), and still the patient may have an extrauterine pregnancy. The question, then, as to the propriety of an operation in most cases should be the urgent symptoms that are presented. This is true in most cases that come under the observation of the surgeon, but by no means does it include a few other cases of ectopic gestation in which urgent symptoms are not present, and in which the even clear histories of hemorrhage per via naturalis, the previous pathologic condition of the tubes, the presence or absence of a tumor or tumefaction. All of these, taken individually and collectively, should be the guides. We should always bear in mind that every case should be "a law unto itself." To illustrate the latter, these cases can be used:

CASE 1.—Mrs. H. S., aged 23, married six months, entered the hospital Dec. 19, 1900. Physical condition good; no history of previous inflammatory disease of tubes or ovaries prior to marriage. Menstruation always regular since its beginning; menstruated in normal manner one week after marriage. About one and one-half weeks later began to have pain in the right iliac region. On bimanual examination a painful tumor could be outlined midway between the uterus and the abdominal end of the tube. Temperature slightly elevated and pulse a little faster than normal. On opening, an encysted blood tumor was found, which, when disturbed, showed a tubal connection, and later a ruptured tube and small fetus with chorionic villi. Patient recovered without a bad symptom. In this case the only symptom worthy of note was the painful tumor.

CASE 2.—Miss E. S., aged 23, entered hospital Sept. 9, 1903. Gave no history of shock or sudden pain; no history of discharge of deciduous membranes from the uterus. About one week before entering the hospital she complained of heaviness in the pelvis. Bimanual examination revealed a fluctuating mass in the cul-de-sac of Douglas. Patient was anesthetized and Douglas' pouch incised. Quite a large amount of pus was discharged, and toward the last a macerated fetus. In this case the only guide was the fluctuating abscess in the pelvis.

CASE 3.—Miss A. A. No direct symptoms pointing toward extrauterine pregnancy. Chief symptom, vomiting and pain in the pelvis. No history of shock at any time. Examination revealed only a soft, retroverted uterus. Palliative measures to relieve the vomiting, and rest in bed, were ordered. Only after two weeks, when a bloody discharge from the vagina annoyed the patient, was another examination made and a tumor found. Operation showed a large hematocoele and fetus of about five weeks' gestation. This patient came very near dying, and was saved only after two intravenous injections of normal saline solution. The absence of food consequent on long continued vomiting, together with the loss of blood, had so debilitated her that death from exhaustion was threatened.

CASE 4.—Mrs. G., colored, was examined bimanually and a clearly outlined fibroid tumor made out between the layers of the broad ligament on the right side. Just above the growth a fluctuating mass was detected, which was taken for a fluctuating pus sac. None of the symptoms usually accompanying intra or extrauterine pregnancy was mentioned or suspected. Operation revealed tubal gestation near the uterine horn and fetus still *in situ*. Owing to ventrifixation and removal of the left tube and ovary some years previously, adhesions were so extensive that it was impossible, in doing a hysterectomy, to remove more than three-fourths of the body of the uterus. This patient made a good recovery and left the hospital in three weeks.

The presence of fibroid growths situated near the tubes is mentioned by Roberts as an etiologic factor in tubo-cornual pregnancy. He claims that distortion of the tube by the fibroid tumor is the cause.

These cases are cited simply to illustrate the difficulties which surround the diagnosis of some cases of extrauterine pregnancy, and also to indicate the necessity for surgical intervention.

From my experience I feel sure that extrauterine pregnancy is a much more frequent occurrence than is usually supposed, and that in a certain proportion of cases, typical symptoms and clear histories are not found.

DISCUSSION

ON PAPERS OF DRs. BOVÉE AND DORSETT.

DR. J. H. CARSTENS, Detroit, agreed with Dr. Dorsett that in some cases the diagnosis is very difficult. He had a patient who was operated on for pus tube on the left side. She was taken with a pain on the right side, fever of 100.5 F.; pulse, 80. He made a diagnosis of appendicitis, operated and found an extrauterine pregnancy on the right side. In this condition there ought to be no fever and a progressively increasing pulse. This woman had a normal pulse due to the small quantity of blood lost, about a pound. In another case he found a growth about the size of a walnut in the tube, with a rupture and a large hemorrhage, and the woman had not missed a single menstrual period. He operated and removed the growth, as he supposed. The tumor was examined microscopically and chorionic villi were found. He hardly ever finds a case that is not extrauterine pregnancy, but that does not make any difference. No matter what they are, operate first and study the pathology afterward.

DR. F. F. LAWRENCE, Columbus, Ohio, said that Dr. Carstens' statement that in extrauterine pregnancy there is always an increasing pulse rate and a normal temperature is not only misleading but, except in ruptured cases, contrary to the facts.

In the first place there are very few cases in which there is not some oozing from the end of the tube before occlusion takes place. In cases where the pregnancy occurs near the fimbriated end of the tube it becomes occluded later than where it occurs nearer the uterus, and there is consequently more or less continuous oozing with a resulting slight elevation of temperature; until there is considerable localized inflammation of the peritoneum or until considerable blood is lost there is practically no increase in the pulse rate. This is not only the logical teaching but the true clinical picture of an unruptured tubal pregnancy. After rupture there is rapidly increasing pulse, faintness, for a short time subnormal or normal temperature, followed by an increasing temperature with all the other signs of internal hemorrhage. That the diagnosis is not made before rupture is because of faulty teaching.

Dr. Lawrence reported a case a few months ago in which two extrauterine pregnancies occurred in the same patient within fourteen months.

Since that time he has had another experience with one which occurred about three and one-half years after the primary pregnancy on the opposite side. In both cases the

fetuses were well developed and both tubes unruptured. It does not matter whether we are positive of our diagnosis of extrauterine pregnancy, tubal mole or papilloma, either one should be removed, and Dr. Bovée's contention that all should be examined microscopically is well founded.

That is the only method by which we can obtain the exact pathology of these cases.

DR. G. B. MASSEY, Philadelphia, said that from his point of view there is here a rather remarkable condition of things. Two distinguished men tell us that as a result of these operations they are unable to make a diagnosis. Another tells us that there is no need of making a diagnosis, one must operate anyway. Dr. Carstens says that trouble comes in those cases that have gone beyond the time where absorption can take place. But there are also other cases, carelessly included in this list, in which it is difficult to examine the specimen and ascertain what it is.

Dr. Massey asked, is it not the teaching of both these papers that these affections are in process of cure at the time of operation? If by a surgical operation it is possible to save those bleeding into the abdomen by all means do so. Cases with arrested bleeding in the broad ligament are already in process of cure, and should be treated by the constant current to hasten absorption if not to kill the fetus. Moreover, if there is any excuse for operation it is for immediate operation when life seems to be in danger, and not days later when in all probability the fetus is dead and in process of absorption. A patient at present under Dr. Massey's care was operated on on the fifth day after rupture, when the pain had ceased and she was comfortable. According to all experience her danger was greatest five days before. Both tubes and ovaries were removed, and she has been a sick woman since.

DR. A. GOLDSPOHN, Chicago, said that he could not recollect a case of the ruptured class that he did not diagnose, or strongly suspect that as the diagnosis; in the absence of neoplasms, of course. There may be pelvic disease or abscess, and many other different causes, but after rupture, and extravasation of blood, these cases are not difficult to diagnose. The test of diagnostic skill is in diagnosing a tubal pregnancy before rupture. Dr. Goldspohn has not seen many of these; about half a dozen. He has taken one out through the inguinal canal in conjunction with a retroversion operation. He did not diagnose it previously, however, and therefore it does not count. In order to classify a case as one of tubal pregnancy, the chorionic villi should be present, and they can be found with the aid of the microscope when the fetus is frequently no longer recognizable. Dr. Goldspohn has found a number of times somewhere in the extravasated blood clot, usually near the center, a little cavern as if a large pumpkin seed had been lodged there, or a small almond kernel, with little films of membrane in it, but no fetal remnants, and with the microscope the necessary evidence in most of such cavities could be found. The fact that this little cavern is situated near the center and not near the surface shows that it is well out of reach of the peritoneal fluids. The idea of the peritoneal fluids digesting things is far fetched, and certainly can not be accepted as explaining the absence of chorionic villi. Dr. Goldspohn thinks that it is generally accepted now that operation is the most correct treatment.

DR. W. H. HUMSTON, Cleveland, Ohio, has never yet operated on a case where he had announced tubal and ovarian disease and found an extrauterine pregnancy, but he has made a diagnosis of extrauterine pregnancy and found tubal and ovarian disease. He had one case with severe hemorrhage from ruptured tubal pregnancy. The woman was nursing a baby of nine months; he operated, and in twelve months she was delivered of a perfectly healthy baby, and has continued in good health ever since. She certainly had good appendages to have become pregnant twice in this short time. He has been fortunate in his operations for extrauterine pregnancy, and believes in early, thorough operations. He does not wait until shock has subsided, as advised by some, but overcomes shock by injecting saline solution under the breasts the moment the anesthetic is commenced. He injects two or

three quarts, and takes the patients off the table in better condition than they went on.

DR. I. S. STONE, Washington, D. C., said that he for one did not always find the pathologic diagnosis and the clinical history and macroscopic appearance of the specimen agree. He has frequently found indications of pregnancy at the time of operation which were not considered such by the pathologist. A very interesting question often arises in this connection, namely, how often is the hematoma due to impregnation, and is the hematoma of pregnancy always within the folds of the broad ligament as taught by many surgeons? He has long believed and has frequently observed that the tube may rupture elsewhere and, in fact, does often rupture on its intraperitoneal side. In such cases the hematoma will often have an external adventitious membrane very similar to the peritoneum itself.

DR. SAMUEL M. BRICKNER, New York City, said he trusted that we will not get away from Werth's dictum that unruptured extrauterine pregnancy is to be regarded in the same light as a malignant neoplasm. He said that sometimes the pregnancy will be interrupted and there will be a deposit of blood in the tube, representing a hematosalpinx; but the end of the tube is closed, which differentiates it easily from hematosalpinx caused by atresia from the fact that the blood is always clotted, while in the latter condition it is always fluid. In these cases it is sometimes impossible to find chorionic villi or decidual cells, nothing but the clot of blood appearing on microscopic examination. In a recent case, at the margin or insertion of the clot, a few chorionic villi were found. Another point is the use of a modified Döderlein chart on which is registered the time and degree of menstruation. If we have several normal periods of menstruation, followed by a menopause and then continuous or interrupted bleeding, it is very suspicious of tubal pregnancy; the chart gives a graphic view of the type of bleeding and its severity.

DR. A. PALMER DUDLEY, New York City, said that the consensus of opinion in America is that ectopic gestation should be diagnosed and removed as soon as possible. Why remove the entire structure for a non-septic condition? In the vast majority of cases ectopic gestation is a septic, and how many thousands of cases of salpingitis are seen that are not treated surgically, but are relieved by local treatment, and these women bear children afterward. Last summer, while in Berlin, Dr. Dudley saw Ohlshausen operate for ectopic gestation. He made a small incision, turned out the fetus, washed out the abdomen, ligated the bleeding vessels, and dropped the tube back. If he, with his vast experience, has come to the conclusion that non-septic ectopic gestation does not justify the removal of the tube and ovary, why can not others pattern after him? If Dr. Dudley had to do such an operation in a case where nonsepsis could be made out, he certainly would not remove the tube and ovary, but would drop them back. Nature will take care of them.

DR. C. S. BACON, Chicago, said that Dr. Bovée will admit that after a certain length of time all evidence of gestation, the minute fetus, chorionic villi in the tube and the decidua in the uterus disappear, and asked him when do these disappear, in months, weeks or days.

DR. J. W. BOVÉE, in replying to a question, said that the microscopic appearances will prove whether there has been a pregnancy probably as long as three months after rupture. That has been his understanding, although he does not make the microscopic examinations.

He does not quite understand what the digestive function of the peritoneum would have to do with the contents of the tube when blood is flowing out of the tube and blocking the passage into the peritoneal cavity. The clot may become so firm and the internal pressure in the tube so great as to press out and absorb all the villi along the wall of the tube. He does not quite agree that the treatment should be left to nature. We can help nature materially. He would treat them the same if he knew beforehand that it was a tubal pregnancy or a hematosalpinx or a tubal hemorrhage. He would not leave the tube, as Dr. Dudley advised, because he does not like these

crippled tubes. He has seen ectopic gestation follow just such cases. He performed four laparotomies on one patient because he yielded to her wishes regarding a future pregnancy. If there is a crippled tube, and the abdomen is opened, we should not give it a chance to offend a second time. The diagnosis of these cases is not always clear. In most cases where there is a disturbed pregnancy it will be diagnosed as ectopic pregnancy; or if a simple hematosalpinx it will be diagnosed as ectopic gestation, either tubal abortion or threatened tubal abortion or rupture. Possibly we may learn to diagnose ovarian pregnancy later on. A large number of these cases will be ovarian and tubal hemorrhage. The cause of these hemorrhages, Dr. Bové thinks, is carelessness on the part of the woman at about the menstrual period or exposure to sudden changes in temperature, producing an engorgement in the broad ligament with subsequent hemorrhage. Another very productive cause is the use of oxytocics at about the menstrual period. He has found such a history in a few of his cases.

Dr. W. B. DORSETT said that he does not believe that there is a parallel in surgery where an organ that has been the cause of trouble, and can be removed safely, ought not to be removed. We know that the remote cause of hemorrhage in the tube is due to a previous pathologic condition, either a stricture, a diverticulum or a denudation of the epithelium. This is the almost universal belief. The only exception is made by Bland-Sutton, who claims that the tube must be healthy or else it can not exist. Dr. Lawrence spoke of a case in which all sorts of diagnoses had been made, and Dr. Dorsett said that that emphasizes the point he made in his paper, that we are often in the dark yet have to operate. A celiotomy is demanded and yet for no particular condition. Dr. Dorsett said he did not mean that the peritoneal fluid passed into the tube; he referred only to those cases in which the rupture is complete and the chorionic villi are removed and are outside of the tubal mucous membrane, but that does not militate against extrauterine pregnancy. In those cases where we find a hematoma and nothing else, we do not have extrauterine pregnancy, but when we do find chorionic villi in an unruptured or ruptured tube it is a positive evidence of ectopic gestation. In all the specimens he showed the diagnosis was made by the microscope. The chorionic villi are there.

THE TREATMENT OF LUPUS ERYTHEMATOSUS BY REPEATED REFRIGERATION WITH ETHYL CHLORID.*

M. B. HARTZELL, M.D.

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PHILADELPHIA.

A distinguished teacher of dermatology was in the habit of saying to his class, when presenting a case of erythematous lupus: "Gentlemen, I show you an example of a disease which, although not incapable of recovery, is the most refractory to treatment of all cutaneous affections." And I am sure that all who have had any experience, even a limited one, in the treatment of this obstinate malady will agree with that teacher. The long list of remedies to be found in every text-book of diseases of the skin said to be more or less useful (usually less than more) in this disease is additional evidence, if any were needed, of its refractoriness to treatment, for the curability of any disease is usually in inverse proportion to the number of remedies proposed for its cure. So many forms of treatment, both internal and external.

have had their praises loudly sung in this affection, only to be cast aside as their uselessness became apparent, that it requires no little courage to propose a new one; and I hasten to say that the method of treatment which I am about to describe briefly is not brought forward as an infallible cure for erythematous lupus, but as one which I have found very useful in a number of cases, after the failure of other methods.

The method of treatment to which I wish to call your attention consists in the repeated freezing of the patches of lupus at short intervals by means of ethyl chlorid spray. The diseased areas should be thoroughly frozen and kept so for five to eight minutes, and the freezing should be repeated at intervals of two to three days. Occasionally considerable inflammatory reaction follows, in which event the intervals between the freezings may be made longer—four to five days, or even more. After ten days to two weeks of this treatment considerable desquamation occurs, and the diseased areas grow much paler; and at the end of six weeks to two months small and superficial patches of recent origin may completely disappear. As illustrating this method of treatment and its results, I shall very briefly relate a few cases which have been thus treated during the past three years.

CASE 1.—The first case to be treated by refrigeration was a woman, about 40 years old, who had a number of typical patches of erythematous lupus on the cheeks, nose, forehead, behind the ears and on the scalp, causing in the last situation extensive areas of baldness. The disease on the cheeks was of the florid, superficial type, being bright red rather than violaceous, but on the scalp was much deeper. The patient had had treatment of various kinds, without any material benefit, for two or three years. When she came under my care she was at once put on large doses of quinin internally and frequent applications of strong alcohol locally. Under this treatment improvement was for a time very marked, but after a while the patches on the cheeks, which had almost disappeared, again became active. It was then decided to try the effect of repeated freezing, the patches behind the ears being selected for the experiment. At first the freezing was done at intervals of four or five days, but owing to the difficulty in securing the patient's regular attendance it was frequently a week between the sances. A favorable effect was at once manifest; the patches gradually grew paler and finally disappeared. The lesions on the cheeks were then subjected to the same treatment, and improvement was also soon manifest here, but less marked than in the patches first treated. After three months of such treatment the patient left the city for her summer home, and the applications of the ethyl chlorid were unwisely trusted to members of the patient's family, with the usual unsatisfactory result. On the patient's return in the autumn but little further improvement was noticed, and the freezing was given up—unwisely, as I think—for the x-ray, which was entirely without favorable effect. The patient soon after passing from my care, the further course of the disease is unknown. Although carried out under somewhat unfavorable circumstances, the treatment was undoubtedly beneficial up to a certain point.

CASE 2.—D., a clerk, 35 years old, came to the skin dispensary of the University Hospital some two years ago for the treatment of a dime-sized patch of erythematous lupus situated on the bridge of the nose, of several months' duration. After some months of the usual treatment without any visible result, freezing with ethyl chlorid was begun. Owing to the fact that the patient lived some distance from the city and could not always obtain leave of absence from his place of business, the treatment was carried out in very irregular fashion, there being frequently periods of three or four weeks or more during which no applications of the spray were made. Notwithstanding this, a steady, although slow, improvement was manifest. When last seen, a few months ago, there was practically no

* Read at the Fifty-fifth Annual Session of the American Medical Association in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. H. W. Stelwagon, J. A. Fordyce and H. G. Anthony.

trace of active disease, there being only a slight amount of the scar-like atrophy common after this affection.

CASE 3.—Miss M. S., 52 years old, had numerous patches of erythematous lupus on the scalp, nose, cheeks, sides of the neck, mucous membrane of the lower lip and backs of the hands. The disease had lasted eight years and had been treated by the family physician without benefit. The patch on the scalp was the largest, being about the size of a silver dollar; this was selected for the application of the ethyl chlorid spray. After the second application some slight improvement was visible, and after the fourth, to quote from my note-book, "remarkable improvement" was noted. Unfortunately, the patient found the freezing of the scalp extremely painful—so much so, that the treatment had to be given up. It may be said here that, while a certain amount of pain follows the freezing, it is rarely severe enough to cause much complaint from the patient. In this case, notwithstanding the small number of the applications of the spray, the improvement was immediate and marked.

CASE 4.—J. W., 29 years old, a stonemason by occupation, had a marked erythematous lupus of thirteen years' standing, affecting the ears and the cheeks. The disease was most severe on the ears, where it had produced a marked scar-like atrophy, the lobes having practically disappeared. This patient had been under the care of a distinguished dermatologist of Edinburgh for a considerable period, but had derived but little benefit from treatment. The use of the ethyl chlorid spray at intervals of five days to one week, which was as often as the patient could be induced to come for treatment, in six weeks' time produced decided change for the better; and this improvement continued until, at the end of three months, the small patches on the cheeks had disappeared. While there was some improvement in the condition of the ears, the favorable effects of the treatment in this situation were much less marked than on the cheeks. It may be noted that the use of the spray on the ears was attended by considerable, but not unbearable, pain.

CASE 5.—W. B., 25 years old, a clerk by occupation, has patches of erythematous lupus on both cheeks, on lower lids, and behind ears, the first of which made its appearance eighteen months ago. The patches on the cheeks and on the lower lids have been treated by freezing with ethyl chlorid during the past three months, at intervals of three to four days. After six weeks of this treatment the patch beneath the right eye, on which the freezing had been begun, was so much paler as to be scarcely noticeable, and the smaller of the two patches on the cheeks had likewise almost disappeared. That the improvement was due to the freezing is evident from the fact that there was no perceptible change under other local treatment employed prior to the use of ethyl chlorid. This case is still under treatment.

While it is difficult to draw any very positive conclusions from observations based on the treatment of so small a series of cases, yet I think we may conclude that repeating freezing of patches of erythematous lupus has a decidedly beneficial effect. In not a single one of the cases in which I have tried it has it failed to produce a more or less marked improvement, and in some it was followed by the complete disappearance of the disease in limited areas. In conclusion, I believe that, when employed in conjunction with large doses of quinin internally, repeated refrigeration is an extremely useful procedure in the treatment of this usually very intractable disease.

DISCUSSION.

DR. M. L. HEIDINGSFELD, Cincinnati—I wish to report my results from a preparation which I have been using for the treatment of this affection with a great deal of success and satisfaction for the past three or four years. It is the local application of 40 per cent. resorcin in gelanthum, applied once weekly or even fortnightly by means of a probe wrapped with a small pledget of cotton. Inasmuch as the gelanthum is somewhat troublesome to obtain, and is easily contaminated

by molds, I have substituted the following linamentum exsicicans as a solvent vehicle for the resorcin:

R. Gum tragacanth	grs. xxx	2
Glycerin	5iiss	6
Acidii salicylici	grs. xv	1
Aque destil, q. s. ad.....	3iiss	105

M. Coque. Ft. fluid. gelat.

This 40 per cent. resorcin preparation is easily applied, invisible, rapidly cleanses and detersgates the inflamed surface, and is soothing and unirritating in character. I have often applied it in close proximity to the mucous membrane of the eye without the slightest irritation or discomfort to the patient. I have effected an apparently complete and permanent cure in several cases and very favorable results in a number of others who are still under observation or treatment. Dr. Hartzell's remedy certainly merits our attention, and is worthy our careful consideration, in the light of his highly satisfactory results.

DR. C. W. ALLEN, New York City—There is no question that freezing is very beneficial in lupus erythematousus. You can freeze a patch with liquid air with great benefit, but since liquid air is not available to all, it is well we should know about ethyl chlorid, which can be obtained by any practitioner anywhere. There are very many methods of successfully treating lupus erythematousus and it is, on the whole, a rather interesting disease to treat. I approve of curettage, which usually is not mentioned and not much practiced. If the curetting is done in a particular way it is not very painful. If the border of the patch is undermined and the curetting done from within outward it can be done with comparatively little pain and with great success if followed up and carried out carefully. I have succeeded in that way in curing patients without other treatment. Dr. Hartzell mentioned the internal use of quinin in conjunction with the external use of ethyl chlorid. I think the internal use of quinin for the wandering cases, the scattering patches, the coming and going forms, is of advantage, and it can be used in connection with various external applications, one of them being iodin, which has been more or less exploited.

DR. DAVID LIEBERTHAL, Chicago—I had an opportunity to treat a case of lupus erythematousus with alcohol and ether, as employed by H. v. Hebra. I prescribed each separately, advising him to mix them before application. During the course of his treatment the bottle of alcohol was broken and the patient continued the use of the ether alone. The improvement was more apparent than before, which was no doubt due to the ether having a lower point of evaporation than the alcohol. Therefore, Dr. Hartzell's successful employment of ethyl chlorid seems very plausible.

DR. J. B. KESSLER, Iowa City, Iowa—it is difficult to treat this protean disease. I have tried scarification with good results and without result and have found from my limited experience that the form of treatment that is best for cases which involve the follicles sufficiently deep to produce pus, is the x-ray, but with the more superficial variety I have used the x-ray to a considerable extent without any benefit whatever. I remember one old man in our town, a constant rounder, who will receive treatment at any and all times if you do not charge him, who had a patch on his hand, nose and ear. He had some proprietary preparation for his nose, but we have healed the hand two or three times with the x-ray. I recall one man in particular who had a patch on his nose that was crusted with some pus beneath the crust. I used all the remedies I could think of in the way of carbohc acid, scarification, and other things. After eight or ten applications of the x-ray this remained healed and the skin was smooth. I saw the man a year after and the result was perfect.

DR. ISADORE DYER, New Orleans—In the past year I have cured two cases of deep-seated lupus erythematousus with the x-ray; in the irregularity of clinics in a large city I find that ichthylol in collodion gives me the best service. A 20 per cent. solution will remove the patch within ten or twelve days in the simple superficial types.

DR. MORTIMER A. MOSES, New York City—I have seen ethyl

-chlorid used in Lassar's clinic in Berlin in the treatment of superficial epitheliomas. The effects were good and I am surprised that no reports have been sent out from that clinic. The treatment mentioned by Dr. Allen, iodine locally and quinin internally, I have seen used in one case of severe, rather deep-seated lupus erythematosus, and there resulted an almost perfect cure within five or six months. The lupus was very extensive, almost every part of the face was involved and there was considerable thickening of the tissues.

Dr. A. RAVOGLI, Cincinnati—Dr. Hartzell's plan is a modification of the method of Hollander of Berlin, who spoke of this method at the International Congress last year in the Section of Dermatology. By the use of iodine and the internal administration of large doses of quinin I have treated a number of patients in my private and hospital practice, but I must say I did not get the improvement that Hollander claimed to have obtained. I think we should be careful in distinguishing the different varieties of lupus erythematosus. If we have one of the superficial forms of the disease, sometimes it disappears by itself, or with very little application, but after a while these cases come back and take the terrible proportions which we know as lupus erythematosus diffusus. I am treating a musician now whom I have treated three times on different occasions, the disease yielding under pyrogallic acid, resorcin and ichthylol; but when nearly well he would let go, and then be back again with the disease in a much more severe form. I have treated him recently with good results, by applying a paste of formo-resorcin, 3 per cent., but although greatly improved, I have not much faith that he will be entirely cured. The treatment of this disease is one of the most difficult questions with which dermatology has to contend.

Dr. H. C. BAUM, Syracuse, N. Y.—Cases of lupus erythematosus I find respond well to various sorts of treatment, but what is successful in one case often does not relieve another. I have had good results recently from the application of high-frequency currents, but how permanent these results will be I can not say, the oldest case since treatment being not more than four months. In two or three cases I was not able to complete the treatment from the fact that the patients were satisfied with the relative improvement. Those that continued seemed to have the patches cleared up entirely. In making this treatment I use the vacuum electrodes.

Dr. W. S. GOTHELL, New York City—There seems to be hardly any remedy that will not occasionally cure cases of lupus erythematosus; and, on the other hand, there are some cases that no remedy will cure. I have been more impressed with a series of bad cases that had been treated with the cautious applications of trichloroacetic acid, and which were shown by Dr. E. Pisko of New York, at the Manhattan Dermatologic Society last winter, than with any other therapeutic measures. A single light application of the deliquesced crystals was made, followed by wet applications or emollient salves. There was considerable though only temporary pain; and the resultant eschar left superficial scars behind. I should consider it applicable, however, only to advanced cases, in which cicatricial deformity is inevitable, or has already occurred. I have had cures from the use of the Finsen light, as I reported in the *International Journal of Surgery* last year. The treatment that Dr. Hartzell advocates, which is that which Dethlefsen proposes for lupus vulgaris, seems to be ideal.

Dr. F. J. WALLIS, Philadelphia—I think the suggestion is worth trying in other cases beside lupus, provided we could lessen the irritation. Oil silk covering the lupus might give the same results.

Dr. M. B. HARTZELL—In answer to Dr. Lieberthal's question regarding the applications made between the freezings, I would say that in some, perhaps most cases, no other applications at all were made. In a few absolute alcohol was mopped on. The only originality claimed for this treatment is its use in this particular disease; as has been said, this was introduced by Dethlefsen in lupus vulgaris. I am very glad that Dr. Dyer finds ichthylol so effective. If I understood him aright he said he had no occasion to use anything else.

Dr. DYER—In the superficial cases, the coming and going, evanescent cases.

Dr. HARTZELL—The disease is usually a very obstinate one, but in some instances the patches disappear spontaneously. One of the most extensive cases I ever saw treated with some indifferent application got well in two or three months' time, and in two months more was worse than ever. This method is not offered as an infallible remedy for lupus erythematosus. Ethyl chlorid was used because it was the most convenient and most effective method of producing freezing of the skin.

DISEASES OF CHILDREN OCCASIONED BY AFFECTIONS OF THE NOSE.

THE NECESSITY FOR RECOGNITION AND TREATMENT.*

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PHILADELPHIA.

The members of this section, who are specialists in diseases of children, are far more conversant with the general conditions than I. I am more apt to see the special nasal disease, although I was in active, general practice for three years, and treated as many general cases as I could induce various public institutions and friends to entrust to me. For the past twenty years, since I relinquished general work, I have treated large numbers of children for special diseases, and have observed in most of them connections between the special work and the general conditions present. As the result of this experience I have arrived at certain conclusions which perhaps I may be able to present so as to be of practical value.

In the first place, the importance of the functions of the nose, its relation to other parts of the body, and its widespread influence when diseased, can scarcely be overestimated.

The two usual modes of ingress to the body are the mouth and nose. If any comparison be made as to their relative value the nose will be found to occupy a place fully as important as that of the mouth. The mouth admits food and drink, and in part prepares these for digestion; it is useful as a speech organ, and by the sense of taste stimulates digestion.

The nose admits air and moisture; it warms the air and moistens it; cleanses it of foreign particles which it expels, and in addition aids the mouth in determining the value of foods and drinks, as well as aids digestion by the sense of smell.

A man can live for weeks without food, for days without drink, and his lifetime without speech; but he can respire but a short time without moisture, and without air he can not live fifteen minutes. A man may be fed indefinitely through his nose, but he can not breathe with safety indefinitely through his mouth.

The noses of children are more susceptible to disease and more easily cured than the noses of adults. Whether or not all the inhabitants of our eastern seaboard have had catarrh may be a question, but it is undoubtedly the case that the children have almost invariably head colds or a tendency to one on the slightest provocation. While with some this may be an argument for neglecting such

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

cases, it is really a very strong reason for an opposite course. The symptoms must be considered as danger signals which indicate that care and thoughtfulness must be exercised to avoid other conditions perhaps more grave. In addition, it is to be considered as a caution to avoid drafts of air, undue exposure, stomach derangement, or anything exhausting to the system. It is a signal to live a more normal life.

If the nose be not restored to normal, by treatment or by nature, this physical barometer, as the nose may be said to be, is not so sensitive when new exposures occur, and the result is that the physical condition of the child will be unduly lowered before the proper restorative steps are taken. With each neglected attack, the local condition becomes worse, the secondary results become more and more pronounced, the general vitality of the child is lowered, and if it continues indefinitely almost any form of wasting or dyscrasic disease may result, the form depending on the inherited or acquired susceptibilities.

A pitiful fact about the whole condition is the apparent carelessness with which such cases are regarded. "Oh, only a cold," is the common thought: well, "only a cold" in one part of the body or another is the cause of death of more than half the human race.

The functions of the nose are, 1, to admit air; 2, to warm it; 3, to moisten it; 4, to cleanse it, and, 5, through the sense of smell to stimulate digestion and to reject unhealthy substances. It is now a well known fact that the foods we desire or crave are more easily digested, and that the pleasant odors of many foods thus increase their digestibility.

In addition, the nose drains the eyes and ears, ventilating the latter through the eustachian tubes. Through the intimate association of its circulation with that of the meninges and the cerebrum it exercises an influence on our mentality, deciding often whether we shall be of a bright and cheerful, or of a crabbed and mournful disposition. In much the same way it exercises a potent influence on the memory, as many a one with nose disease can unfortunately testify.

It will be observed that the nose directly influences the brain, the eyes, the ears, the throat, larynx, lungs and digestion, as well as the general health.

Thus it is apparent, that the direct influence of the nose being so widespread, it must indirectly influence every tissue of the entire body. By affecting the digestion and respiration the nose influences the health of the most distant structures; by affecting the sense of sight, hearing and smell, it must have a similar influence through these protective organs, and as our judgment is the result of the experiences of our senses, plus the memory and mentality, it follows that even that is influenced considerably by the nasal condition. The conclusion follows that the entire body responds to the nasal condition, and that the memory, the mentality, and even the judgment, are influenced by the disease or health of this organ.

The dog's nose is supposed to be the indication of his health; we say when the nose is cold that he is well, and when warm that he is sick. A man's health, or lack of it, is not so easily determined in this way, but a careful study of the nasal fosse and the nasopharynx will, to the initiated, shed light as to his physical condition.

Any obstruction in the nose or the postnasal space, whether a foreign body, a nasal tumor, an adenoid growth, an enlarged turbinated, a deviated septum, a general hyperplasia, or hyperemia or an accumulation of

mucous or scabs will prevent proper, healthy breathing and induce mouth-breathing, all the nose function being interfered with directly in proportion to the severity of the abnormality present.

If the obstruction is at all considerable the child will become a confirmed mouth-breather. The air passing into the child in mouth-breathing is but slightly less warm than when inhaled through the nose, but the amount of air taken in is deficient, and to obtain even that minimum requires an unusual amount of effort of the chest muscles and the lung tissues, very exhausting to both; in addition the air is not cleansed, but enters the lungs directly, depositing all foreign particles there. Most important of all is the fact that the air enters the lungs deficient in humidity, the consequence being that the blood cleansing process is much interfered with, the reoxygenation of the blood occurring much more slowly, the carbonic acid gas being liberated with difficulty, as the blood must needs give up its serum in an unusual quantity to moisten the epithelial lung tissues.

DISTURBANCES OF THE DIGESTIVE TRACT.

Such a child will develop a dry throat, evidenced by a hacking cough and hawking, pharyngitis or laryngitis, or both may set in, the lungs begin to work less and less vigorously, adapting themselves gradually to the receipt of smaller volumes of air, the chest gradually flattens and becomes chicken-breasted, the apices fall, the collar bones begin to be more prominent, the heart's action in turn is interfered with and becomes less strong and regular. The digestion is often seriously deranged on account of the abnormal mouth-breathing with the deficient oxygenation and the diminished circulation, as well as the interference with the sense of smell, and also especially because of the constant injection of the nasal discharges and throat accumulations which, fermenting often before they reach the stomach, exercise a most harmful and serious influence on the functions as well as the structures of the stomach.

In this connection it is interesting to quote from Friedrieh:¹

"Dyspepsia is often associated with atrophic fetid rhinitis and pharyngitis and with abscess in the cavities adjoining the nose, obviously because the pus which enters the pharynx is often swallowed. It would be well worth while to examine these relations more closely from a clinical standpoint, for, so far as my experience goes, this cause for chronic gastric catarrh has so far barely received a passing mention. When complaints of failing appetite and bad indigestion are constantly heard in cases of ozena, where the cavities of the nose are enormously enlarged and its walls covered with crusts, where the pharynx and posterior pharyngeal wall is filled with offensive discolored masses of secretion, it seems but natural to attempt to establish a causal relation between the two conditions. A secondary chronic gastritis is readily explained either by the anomalies of smell and taste which result from the ozena and manifest themselves in paresthesia and anesthesias, destroying the appetite and causing a bad taste in the mouth, or directly by the irritation of the decomposing secretions in the stomach."

Malnutrition thus occasioned has the usual results. We find a faulty digestion causing stomach and intestinal pains, headaches, cold extremities, a lack of appe-

1. Friedrieh, E. P.: *Rhinology, Laryngology and Otology and Their Significance in General Medicine*; Philadelphia, 1900, pp. 28, 41, 72.

tite, disturbance of the bowels, a general lack of tone, enlargement of the liver, a tendency to disorders of the skin, leading to eczema and to the production of boils. The malnutrition in its effects still further exaggerates the catarrhal nasal trouble and this in turn the general disorders and the action and reaction goes on continuously and is endless. Indeed, very often after the head catarrh is cured by appropriate treatment the secondary stomach and intestinal catarrh, with its attending disorders, persists.

EYE AND EAR DISTURBANCES.

At the same time we may find developing as a result of the obstruction a catarrhal or phlyctenular conjunctivitis with epiphora, or closure of the *ductus ad nasum* or even a keratitis. There usually is an involvement of the eustachian tube, with a loss of hearing power either as the result of direct extension of the nasal inflammation, infection or closure of the tube, or as the result of pressure alone.

As deafness exists in about one-third of all adults, and as the proposition that catarrhal deafness (the usual cause of deafness) is practically always the result of disease of the nose is admitted, and as nose disease is not only most prevalent, but in addition is most easily corrected in childhood, the necessity for its careful treatment at this period is evident.

In these obstruction cases the memory, the mentality and judgment are more prone to suffer if the posterior nares is considerably involved.

How then, can the general health be perfect when the mischief is so widespread, when the digestion is impaired, the respiration diminished, and the heart's action interfered with and when the direct poisoning of the body is constant from the injection of inspissated, fermenting and diseased mucus?

If the condition continues, not only will all these structures gradually become more diseased, but the entire physical and mental growth of the child will be interfered with, the child growing to be a puny, stunted man. Many a child who under normal conditions was destined to attain a height of 5½ to 6 feet, has failed to reach it by half a foot or more, while his mentality, which was perhaps capable of reaching, say, 90 per cent. of an arbitrary standard, never afterward was able to soar above 60 per cent. Of course, this is presuming that the child did not develop the diseased conditions to such an extent as to cause death before the attainment of manhood.

The tissues of children, being in a growing or nascent state, are more easily subject to modifications than in adult life; they are, therefore, more subject to congestion and hyperemias, which are the first stages of the usual colds or catarrhs in the head. They are also more easily controlled by treatment, whether internal or local. A drop of tincture of aconite, with two drops of tincture of belladonna given to a child every hour for five hours, will have a much more favorable influence in such a case than a corresponding dose in the developed man.

On the subject of diseases of the ears being caused by nasal obstructions and congestions, I have many times given voice in my various pamphlets.² I might in addition quote from Friedrich:¹

Any and all diseases of the nose and postnasal space which are followed by obstruction of the nasal passages lead to passive hyperemia in the mucous membranes, which in turn produces occlusion of the eustachian canal. The recognition of this important fact is comparatively recent, and since the causal relation between these disturbances and the interference with nasal respiration by the presence of adenoid growths has been definitely established the attention of clinicians has been directed to the significance of nasal stenoses in occlusions of the eustachian tube. The interference may be due to a number of conditions within the nose, as hypertrophy of the mucous membrane, mucous polypi, tumors, syphilitic or tuberculous infiltrations, foreign bodies, etc. There may be a congenital narrowing of the nasal cavity from deformity, and hyperplasia of the septum or abnormal curvature of the turbinated bones. The obstruction may be situated in the post-nasal space, and may take the form of hypertrophied pharyngeal tonsils, tumors, syphilis, or tuberculosis occluding the posterior nares. Hence the recognition and removal of any obstacle to nasal respiration should constitute an integral part of every examination and treatment of the ears. There can be no hope of curing ear affection before the causes which are responsible for the congestion of the mucous membrane have been removed and the permeability of the tube has been restored.

The effects on the lungs of nasal disease may be caused by direct extension of the inflammatory process or by infection in addition to the nasal obstruction or modification of the nasal functions, as in atrophic catarrh, where the volume of air entering the lungs is not interfered with, but the air is not cleansed, nor is it properly heated, nor does it receive the necessary degree of humidity from its passage through the nose. The first of these conditions is apt to cause acute and chronic bronchitis, and at times asthmatic conditions, and tuberculosis. The last mentioned disease is more prone to originate the phthisical or pneumonic conditions. Unfortunately the cases of lung involvement are both frequent and serious in their import. I am confident that in children the larger proportion of lung diseases have their origin in this way. These conditions are not myths, but most serious realities.

In this connection it is necessary to again quote from Friedrich's¹ masterly work:

Diseases of the lungs may owe their origin to direct extension of disease of the upper air passages to the trachea and bronchi. The causes are the same as those we have referred to in discussing the relations existing between diseases of the upper air passages, chronic hypertrophic and chronic atrophic catarrh, and suppurative processes in the nose, in its tributary cavities, and in the postnasal space.

Rose colds and hay fever are not frequent in children, but when they appear are peculiarly severe and very prone to lead to serious involvement of the lungs. Any disease of the nose occasioning frequent paroxysms of sneezing seems to be peculiarly hard on the lung tissues of children. I have observed numerous cases of asthmatic conditions which have had their origin in this way, and the greatest measure of relief has been afforded by care directed to overcoming the primary cause.

Chronic bronchitis is the most frequent of the various sequelæ and proves very obstinate, especially in cases of chronic suppuration in the tributary cavities of the nose, where the pus trickles down from the naso-pharynx into

2. New Methods Employed for the Relief of Impaired Hearing. Especially the Use of the Phonograph, Vibrometer and Metronomic Ear Massage; Proceedings of the Philia. County Med. Soc., 1894. Deaf Mutes—Can They Be Made to Hear? Proceeding of Med. Soc. of Pa., 1895. What Are the Curative Effects of Pneumo- and Phonomassage on the Middle and Internal Ear? THE JOURNAL A. M. A., Oct. 26, 1895. Phono- and Pneumo-masseurs in Suppurative Dis-

ease of the Ears; Proceedings of the Med. Soc. of Pa., 1897. Otopneumonia in Suppuration of the Ear; THE JOURNAL A. M. A., Oct. 3, 1896. Some Further Results in Treating Ears by Massage Methods; THE JOURNAL A. M. A., March 26, 1898. Prompt Attention to the Eardrums of Infancy and Early Childhood; THE JOURNAL A. M. A., Oct. 29, 1895. Suppurative Disease of the Ear: the Presence of Polypi and Granulations Therein Not an Unfavorable Indication; THE JOURNAL A. M. A., March 4, 1899.

the deeper air passages and sets up a chronic irritation. The question of the relation between chronic catarrh of the upper and of the deeper air passages has not received the attention it deserves; it is barely mentioned in the most general terms in connection with bronchitis, and the possibility of emphysema; bronchiectasis or fetid bronchitis being due to such causes is usually ignored.

The peculiar connection, often definite, again but suggested, between nasal catarrh and rheumatism may perhaps in part be explained by what has been referred to in this paper, namely, the secondary involvement of the throat in nose affections and the later development of dyspepsia and liver derangement followed by symptoms of general malnutrition, and this gradually gliding into rheumatic disease. Later on in life, even though the catarrhal disease be cured or modified, the rheumatism or malnutrition, or both, may remain and be a constant threat to comfort and safety.

When early in life obstruction or inflammatory disease of the nose is present it often, and in adenoid disease practically always, exerts a marked influence on the nutrition, formation and position of the teeth and the development of the dental arches. Thus are caused inequality in the size and structure of the teeth and the formation of secondary, irregular and contracted arches. These effects are especially observable when the child has been affected in early infancy. Unfortunately this influence unless corrected will very soon leave its impress so deep as to follow the child into adult life, its permanent teeth needing much attention and being the cause of faulty mastication and digestion, as well as of difficult respiration.

In a pamphlet³ published some ten years ago I have referred at more or less length to a number of diseases to which nasal disease gives origin. In several other papers⁴ I have called special attention to the symptoms occasioned by such abnormal growths. In a later pamphlet⁵ I called attention to the influence of nasal disease on the curvature of the cornea through a probable action on the muscles of the eyeballs.

I hope I have been able to give you a few thoughts on the subject which may stimulate to further observations which will, I think, aid in proving the proposition that nasal disease, especially in children, is a not infrequent factor in the causation of disease, and that it modifies many diseases, interferes much with the cure of various affections, and that when carefully handled it is promptly controlled by proper local and general treatment.

TREATMENT.

The first indication for treatment is to avoid the causes of nasal diseases, such as colds, exposures, exhaustion, local mechanical irritation, and anything that tends to keep the general vitality below normal.

All obstructions to the proper inspiration of air must be removed, hyperemia and congestion must be modified and reduced by local treatment and internal medicine. Deviated septi must be straightened, enlarged turbinates must be reduced, hypertrophied tissue must be brought to normal size by operative measures, or other treatment or both. All nose diseases must be treated in

connection with the other diseases of which they may have been the cause. In all cases one should persist in the most perfect and antiseptic cleansing possible. Stimulation of the various tissues must be used when necessary, soothing preparations, however, are more often required. Albolin, cosmolen, glycerin and alkalin solutions are in constant demand. Acids, iodin, nitrate of silver, the electric needle, the snare, even the saw and knife have their uses at times. What to use and when to use it, is a matter of judgment.

Internal Treatment.—We must never neglect thorough antiseptic cleansing of the throat and nose, with a careful preparation and covering of the parts by oils or salves after our local nose work is completed. In addition to this, every case of nose disease demands internal treatment. It may be iron or phosphorus, or even iodin, or it may be a digestant or a nerve tonic or an alkali or a laxative. But the medicine which I believe is needed more than any other is cod liver oil.

Hygiene and Diet.—In addition to the avoidance of the cause, the child should be made to live, so far as possible, a perfect hygienic life. He should retire early, get plenty of sleep; take a sponge bath with friction in the morning on arising, if his vitality admits of it. He should wear proper and sufficient underwear for the season; the underwear should be of pure wool, usually very light weight. I believe linen underwear in our climate is unsuitable for the child. He should not be dressed in too heavy clothes. He should wear stout shoes with rubber overshoes whenever it is wet under foot or where there is snow on the ground. He should not use coffee nor tea; he should drink milk or water, with an occasional change to chocolate or cocoa or lemonade, as necessary. His food should not be predigested, but it should be digestible. He should not drink during the course of the meal. He should go out of doors every day, rain or shine, unless he is sick. He should have a proper variety of work, study and play. He should take his meals with regularity and not be fed too often. He should not be denied sweets and candies on all occasions. A child needs sweet foods, and as long as the stomach does not rebel they are agreeing with him. He should run and race and play with other children.

He should, as a rule, take his hot baths at night, on retiring. Beyond all else, perhaps, he should go to bed early. Children need a great deal of sleep; they can absorb all that is allowed them. By sleeping ten or twelve or more hours they are fitting their bodies not only for the present, but for the strain of adult life, as well. They are storing up energy and nerve force for future emergencies.

TREATMENT OF CHOREA BY PROLONGED WARM BATHS.*

W. C. HOLLOPETER, M.D.
PHILADELPHIA.

In this brief contribution I wish to emphasize the virtues of the prolonged warm bath in shortening the attack of chorea.

With the great increase in the number of adults suffering from nervous diseases, it would be natural to expect an alarming increase of chorea among school children. This, however, is fortunately not corroborated by statistics. We have less chorea to-day than we had

3. The Nose as a Frequently Unrecognized Cause of Disease; *Codex Medicus*, Phila., vol. 1, No. 1, p. 17.

4. The Treatment of Nasopharyngeal Adenoids; *Proceedings Amer. Med. Assn.*, June, 1899. The Easiest, Quickest, Safest and Most Thorough Method of Removing the Third Tonsil; *The Penn. Med. Jour.*, April, 1901. The Recognition and Prompt Removal of Postnasal Adenoids in Children; *THE JOURNAL A. M. A.*, March 25, 1903.

5. The Influence of Nasal Disease in Modifying the Quantity and Axis of Corneal Astigmatism; *Ophthal. Rec.*, March, 1897.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee; Drs. S. W. Keller, H. M. McClanahan and John C. Cook.

fifty years ago; Watson, writing at that time, analyzed 1,029 cases, against Holt's 146 of to-day. With the population of our cities rapidly increasing, and with this growth the crowding and struggling for higher educational and social preferment, we find the army of neurasthenics markedly augmented among the adult population; and while we have neurotic children, true chorea does not seem to be increasing in the same ratio.

Heredity and environment, the twin jailers of childhood, do not hold their victims securely now that domiciliary hygiene is better appreciated and more widely taught. While we know that few American children of city rearing escape the entanglements of neurotic heredity, we may also state that the very satisfactory advancement made in domiciliary and personal hygiene has neutralized in a great measure the benumbing influence of heredity. The great attention given to our children's comfort and their personal hygiene, in the better classes of society, has done much toward reducing the number of choreic children. The care of the child's teeth; food, and how it is taken; sleep, and its environments; study—all of these influence the development of the child, and all have been greatly improved during the last few years. Much more advanced study, considering the child's age has been demanded—more than is consistent with growing health. The child's intellectual advancement to-day is phenomenal, and this advancement has only been accomplished because of a wider knowledge of hygiene, both personal and domiciliary. Motley and Bancroft graduated from Harvard at 17, but the boys and girls of to-day are competent to cover more ground for their entrance into college than did either Motley or Bancroft at graduation.

Much has been said about pressure in school as a factor in producing nervous conditions. This is also a relative factor. I do not believe that we have so much pressure in our schools as we have poor personal hygiene and home irregularities. The boy who eats rapidly and irregularly of improper food, disregards his teeth and stomach, and the many other personal attentions which are so essential in attaining and maintaining a high standard of health in a growing child, soon lowers his vital resistance, and, in this way makes a bid for chorea, as well as the whole train of acute infectious diseases.

The cramming system in existence in most of our schools has been a favorite subject with many educators. Much can be said on the subject both for and against it, but I think that the cramming takes place more frequently in the stomach than in the brain. Irregular and improper feeding, with careless, exciting home life have more to do with making a nervous child than school life, although the studies be somewhat difficult.

THE RELATION OF RHEUMATISM TO CHOREA.

The relation of chorea to rheumatism is always interesting, because never satisfactorily answered; an equal force of authority being claimed both for and against it. Possibly chorea is a selective action of the rheumatic diplococcus on a nervous system with special predisposition to chorea. It is possible to find rheumatic histories for all our cases of chorea—what parents do not have rheumatism in some form after rearing a family?

REVIEW OF LITERATURE.

The professional drift is undoubtedly in the current leading us to believe that chorea has some youthful resemblance to mature rheumatism. An outline of the literature of the etiology and treatment of chorea will

show that my ideas of hydrotherapy in connection with chorea are not original, but have not been strongly held, therefore no favorable results were secured.

The very interesting discussion on the pathology and treatment of chorea which took place July, 1903, in the British Medical Association, is undoubtedly the most important recent contribution to our knowledge of this very important and interesting disease of childhood. The essence of this discussion was (and the majority of the members were of this opinion) that chorea was a disease of microbial origin—a diplococcus—some relationship existing between it and some previous microbial disease giving us a mixed infection. Drs. Poynton and Pain have isolated a diplococcus from rheumatic cases associated with chorea. A large number of observers have verified in part the results of these investigations.

Dr. E. P. Lees believes that chorea is a disease of the brain. He says concerning the symptomatology of chorea that its most obvious characteristics are disorderly muscular movements which are spasmodic, chronic, irregular, involuntary, and exhibit imperfect control and co-ordination. The muscles which are most affected in chorea are particularly those which are under the most delicate voluntary control, and in view of this fact and of the other attending symptoms, he believes that chorea is unmistakably a disorder of the brain, and particularly of the motor centers. If the cord is involved, it is but rarely, and only occasionally it is observed that the peripheral nerves are also affected.

The value of the routine treatment of rheumatism by the salicylates, in Dr. Lees' opinion, is strong corroborative evidence that the micro-organism is closely related to that of acute articular rheumatism—an English opinion, strictly speaking.

Two very interesting cases which prove but little of what is now taught and believed, and yet suggesting much that is new and interesting, will be sufficient to illustrate my theory. A brief history of each case will tell its own story.

CASE 1.—E., aged 12; the sixth child of German parentage.

Family History.—Father and mother both living and well. Father aged 48, mother 42. Father is a baker, health good; he is a hard worker. He has poor teeth, eats rapidly, has poor digestion, and occasional rheumatic and gouty pains. He has not lost a day from work by reason of sickness for 10 years. Mother is overburdened from childbearing and domestic toil with inefficient help, and may very properly be denominated a neurasthenic, yet performing her usual exacting domestic duties.

History.—The child was sent to school when 6 years old, and after being in school for several weeks commenced to manifest symptoms of chorea; the irregular movements increasing rapidly until every superficial muscle was twitching and jerking. The child could neither stand, walk nor rest. Every joint was sore and inflamed by reason of friction.

Treatment and Result.—She was encased in cotton and bandaged to protect the skin and limit friction. In 12 weeks the violence of the movements subsided and convalescence was established. The child has had six annual attacks, all commencing in the fall (September) and lasting from 3 to 4 months.

At no time did we find fever. This child has no heart lesion, and contrary to the most eminent authority has not been, nor is she at present, anemic.

Remarks.—The child's history is interesting because of the annual attacks and their violence; the duration, the absence of anemia and heart murmur. The last three attacks were materially shortened by prolonged warm baths.

The other case is that of a child whose family have for a long time been my patients.

CASE 2.—The oldest daughter died from heart and kidney sequelæ of scarlet fever. The father is inclined to have rheumatic manifestations, but the mother has unusually good health; even the grandparents possess to a slight degree the stigma of the rheumatic tendency.

History.—F., the second daughter, is the same age as the child mentioned previously. She has had five annual attacks of chorea, commencing each time at the end of her school year, thus showing nerve fatigue and loss of control. The attacks of the two earliest years lasted from three to four months; those of the last three years terminating within six weeks by means of my hydropathic treatment.

Treatment.—This treatment I have found to be eminently satisfactory. The usual detail as to personal wants, food and sleep having been fully observed, I found by accident, that the warm general bath was unusually soothing to the exhausted, twitching muscles. I noticed that after the bath, the child had a longer and more refreshing sleep; a sleep that strengthened and fortified her for the day; so rendering each day more comfortable than the preceding.

TECHNIC OF THE BATH.

The technic of the bath, which constitutes the entire and most satisfactory treatment in my hands, is to place the child in a bath at a temperature that will prove no shock nor surprise to it; a temperature of from 90 to 98 is sufficient, according to individual peculiarities, and cool down so as to be soothing to the whole cutaneous surface. Washing the face before the child is put into the bath is oftentimes advantageous.

The child, when once placed in the bath, is entertained by the nurse or mother by placing some plaything or floating toy in the water, and while the child's attention is so occupied the time will pass rapidly and the attendant's duty will consist in avoiding draughts and in maintaining the temperature of the water sufficiently high (from 90 to 96) so as not to produce any immediate or secondary shock to the child. In this way, the child may be entertained for a long time in the water; the whole body being immersed except the head and neck for at least one or two hours, twice a day. The last ten minutes of the time can be properly devoted to a gentle superficial massage of the arms, legs and trunk; after which the child will be sufficiently weary to take a nap.

I have treated probably 40 or 50 cases by means of the prolonged bath, following this method of procedure with the result of shortening the duration of the attacks from 3 months to 6 weeks.

DISCUSSION.

DR. C. F. WAHRER, Fort Madison, Iowa, said that he was certain that many cases of chorea, so called and so treated, are not chorea at all, in spite of the fact that many physicians think it is easy to diagnose chorea. He mentioned a boy about 8 years old who developed certain anomalous movements of the head; these would be frequently repeated, and terminated usually in a slow rotation of the head, also a slow shrugging of one shoulder. Within a few years these movements ceased, and instead of them he gave vent occasionally to a peculiar expression sounding like "ha-ha." This in turn ceased and gave way to an ear-splitting whistle, of which he was apparently entirely unconscious. Subsequently he developed other peculiar phenomena, such as licking the ends of his fingers, before answering when spoken to. He was treated in the usual manner with arsenic and antirheumatic remedies without any appreciable benefit. He was a very bright boy, distinguishing himself at his studies, and subsequently graduated in medicine and took a postgraduate course. He is now in active practice, and although an able

thinker and fine scholar, he still develops these little peculiarities. At present he frequently gives vent to a dry cough, which is particularly noticeable when his attention is relaxed. He has no heart lesion. Dr. Wahrer never regarded this as a case of chorea, but rather one of tic or habit spasm. Such cases are comparatively common, and the usual treatment for chorea has no effect on them. When the patient's attention is called to these movements he is able to stop them; this is not so in true chorea.

DR. W. C. HOLLOPETER said that by chorea he did not mean the cases of habit spasm to which Dr. Wahrer referred. Some children constantly bite their fingernails or have other forms of habit spasm, but those are not cases of true chorea. Dr. Hollopeter gave small doses of arsenic or iron to some of his patients who were anemic, but in the last series of fifteen cases he withdrew drugs entirely. Every child was examined carefully, and if there was any nasal obstruction, or stomach or intestinal disorder, the defect was corrected so far as possible. Dr. Hollopeter tried the hydropathic treatment as an auxiliary to the rest treatment and found it beneficial, but exceedingly irksome to the patients. Many would not remain in bed, but they had no objection to remaining in the bath, playing with boats and various water toys. He believes also that the water acts as a better support than the bed and is much more comfortable than the bandage sometimes applied to the extremities and exposed parts to prevent friction. In those cases in which a heart lesion existed it was not aggravated by the water treatment.

DOUBLE RADIAL RUPTURE OF THE IRIS.*

S. C. AYRES, M.D.

CINCINNATI.

This case of double radial rupture of the iris is very remarkable and, so far as I have consulted the literature on the subject, there is only one which corresponds to it. In that case, which occurred in the practice of Dr. Büniger,¹ in 1821, the left eye was struck by a chain, causing an artificial pupil which could be distinguished from one made by an operation, only by a band of iris remaining at the ciliary margin. At first, sight was very much impaired, probably from intraocular hemorrhage, but perfect vision was finally regained.

My case is as follows:

History.—G. U., age 10, was first examined Nov. 12, 1902, and gave the following account of the accident: He was struck by a BB shot from an airgun at a distance of about five feet. The shot struck the edge of the lower lid of the left eye at about its anterior third. It embedded itself in the bulbs of the cilie and almost passed through. It was removed at home by squeezing the lid, when it dropped out. I saw the boy five days later and found a well-defined coloboma of the iris as clean and sharply cut as if it had been done by an expert. It was about 4 mm. in width. There was no blood in the anterior chamber, and only a moderate injection of the conjunctiva. Lying in the coloboma was a mass of iris tissue. It was entirely separated from the iris on both sides as well as from its ciliary attachment (Fig. 1). The lens was opaque and vision was reduced to perception of light, probably on account of intraocular hemorrhage. Tension was normal and the eye not painful. In my judgment the posterior lens capsule was ruptured, as there was no evidence of soft lens substance in the anterior chamber at any time. Atropin was ordered.

In the course of time the edges of the coloboma gradually approached each other and the upper and inner portions of

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. I. Randolph.

¹ Graefe and Walther's: *Jour. d. Chir. und Augenheilk.*, vol. II, p. 669.

the iris drew up, leaving a long slit-like scar marked by a gray line of cicatricial tissue (Fig. 2). The iris mass shriveled up and disappeared under the approaching edges of the iris. In three months he was able to count fingers at one foot and at the end of a year could count fingers at three feet. The iris at the end of the scar responds to light and probably an iridectomy made at that point would restore useful vision.

I shall not attempt a review of the literature on this subject, but will only refer to the various papers which have been written.

Dr. E. Franke² reports 13 cases of rupture of the sphincter iridis, including an original one in his own practice. He discusses the mechanism of rupture of the choroid, and gives the opinion of some of the most eminent men on that subject.

Prof. L. Weiss and Dr. W. Klingelhoef³ collected 31 cases of rupture of the iris, including two original ones. They review the literature up to date. Their Case 1 is credited to Stellwag, but it really belongs to Büniger. Stellwag reviewed this case in an article published in 1855, as stated in the paper by Dr. E. Franke.⁴

The 31 cases are arranged chronologically, giving age of patient, name of author, cause of injury, condition of iris and pupil and complications. It is a valuable collection, and one can, at a glance, review this interesting group of accidents.

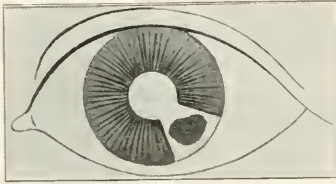


Fig. 1.—Five days after injury.

Dr. George Levinsohn⁵ of Berlin, in a paper on "Indirect Ruptures of the Iris," reports four new cases. In the first, there were three ruptures of the pigmented pupillary margin; in the second, there was a slight rupture of the pupillary margin and multiple perforations of the iris in the region of the dilator; in the third case, there were multiple slight ruptures of the pigment border; in the fourth case, the iris was atrophic from recurrent attacks of iritis. An iridectomy was attempted, but only small bits of iris could be removed. As a result of the operation, the pupil was drawn upward and the lower portion of the iris near its ciliary margin ruptured, thus giving him a small pupil. The case does not properly belong in the class of traumata as do the others.

Dr. George C. Harlan⁶ reports a case of "Rupture of the Iris at the Pupillary Margin and in Continuity from Contusion of the Eyeball." It is accompanied by an excellent illustration in colors. There was a notch in the temporal border of the iris, which extended to within 3 mm. of its periphery. There were also thirteen serrations in the margin of the pupil, which could be seen in favorable light. The lens was not injured. No iritis followed, and the eye recovered excellent vision. To this case he adds five more, stating that they formed six instances of pupillary rupture, and two of radiating

rupture in the continuity of the iris. These cases are tabulated by Weiss and Klingelhoef.

I find the following new cases which are not mentioned by Weiss and Klingelhoef:

Dr. W. F. Mittendorf⁷ gives in detail a description of a patient who was accidentally struck in the eye by a stone, and, as a result of the injury, had six distinct ruptures of the pupillary border.

Woodward⁷ relates a case of rupture of the pupillary border of the iris extending through one-half its width. There was an accompanying rupture of the choroid, which was in evidence when the intraocular hemorrhage had absorbed. The eye made an excellent recovery, with perfect vision with the aid of + cyl. 0.5.

If, to the cases tabulated by Weiss and Klingelhoef, we add the four reported by Levinsohn and one by Woodward and one by Mittendorf, and my own case, we will have a total of 38 cases.

This probably does not represent all the cases of slight ruptures of the pupillary pigmented border, or of ruptures in continuity, which very easily escape observation. The elasticity of the iris is such that the slight tears readily close and are thus overlooked.

The question as to whether the rupture occurs in the direction of the force or perpendicular to it has been ably discussed by the authors mentioned.

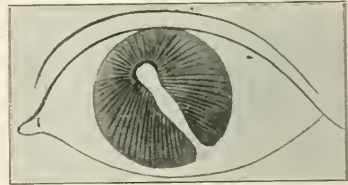


Fig. 2.—One year after injury.

It seems evident that no rule has ever been or probably ever will be formulated which will explain all of these cases. An eye is struck by a fist or by a flying fragment of wood or metal, and one can not tell definitely what part of the eye was most impinged on. The rupture of the iris may occur on the side of the injury or on the opposite side, and this result is governed by laws which are not yet well explained.

In my case there can be no question about the rupture occurring in the direction of the force and not perpendicular to it. The entrance of the pellet of lead into the margin of the lid and the location of the iridectomy coincide exactly. The detached piece of iris was lying in the coloboma plainly visible and could not be mistaken. The gray background of the opaque lens left no room for doubt.

DISCUSSION.

Dr. J. L. Borsch, Philadelphia, stated that several years ago he saw a case of this kind in which the injury was produced by a man throwing a loaf of bread at his wife. The blow caused a subconjunctival luxation of the lens and a complete hyphema and rupture of the iris. He extracted the lens, and the patient made a rapid recovery. When the blood disappeared from the anterior chamber the patient presented the appearance of having been iridectomized. Despite the great traumatism the eye sustained, the patient had normal vision, with a + 13 D. spherical lens.

2. Graefe's Archives, vol. xxxii, No. 2, p. 261.
3. Arch. f. Augenb., vol. xxxix, 1899.
4. Archiv f. Ophthal., vol. xxxii, 1903, p. 135, translated by Dr. Ward A. Holden.
5. Trans. Amer. Ophthal. Society, vol. vii, p. 640.

6. Trans. Amer. Ophthal. Society, 1899, vol. viii, p. 541.
7. Archiv f. Ophthal., 1897, vol. xxxi.

Dr. G. C. HARLAN, Philadelphia, said that ruptures of the sphincter are found frequently if they are carefully looked for. More rare are ruptures in continuity, radial ruptures. These are very difficult to distinguish because the wound does not gap. They are best seen with the ophthalmoscope with a high power lens. Dr. Harlan has seen two or three such cases.

TWO ADDITIONAL CASES OF SYMPATHECTOMY FOR GLAUCOMA.*

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I wish to put on record the following two additional cases of sympathectomy for glaucoma, as it seems very desirable that all cases of this character should be reported so that we may arrive at a proper estimate as to the efficacy of the operation.

CASE 1.—Frank K., aged 65, Bohemian, was first seen June 20, 1903. There was nothing in his previous history, so far as his general health was concerned, which had any special bearing on the present ocular trouble.

History.—He says that four years ago he "caught cold" in the left eye, with severe pain all over that side of his head. Vision failed and in eighteen weeks he was totally blind. In a year or two the left eye began to shrink.

Status Præsens.—Phthisis bulbi. It is not unlikely that the trouble four years ago in the left eye was glaucoma degenerating into glaucoma absolutum. Right eye: Recently the sight began to fail. He saw as through a mist, and the eye became red. The tension is +3, field contracted, measuring above 15 degrees, temporal 45, below 40 degrees, nasal 30. pupil moderately dilated and irresponsive to bright light; shallow anterior chamber; cornea insensitive; marked injection of globe, and pain. Vision was reduced to perception of light. Eserin was instilled several times with the result of contracting the pupil and reducing the tension to normal. He was given a .25 per cent. solution of eserin to use at home every two hours; three days later the condition of the eye was almost normal, and vision was 20/70. When eserin was discontinued the tension returned, so it was evident that an iridectomy or a sympathectomy would have to be done. Had it not been that the patient's other eye was blind, I should not have thought of doing a sympathectomy, for the almost unanimous consensus of opinion of observers is that if sympathectomy is ever indicated it is in cases of chronic glaucoma, not in the acute form of the disease. As he had lost his other eye, however, I felt warranted in making trial of an operation which did not necessitate opening the globe (in which opinion several of my colleagues concurred), although, of course, the possibility of infection after an iridectomy for glaucoma is very remote.

Operation.—On June 30, 1903, the superior cervical sympathetic ganglion was removed by Dr. John F. Erdmann in his usual skillful manner. No pupillary changes were noted at the moment of evulsion, as the eye was under the influence of eserin. The healing was prompt, and *per primam*—but there was some hoarseness for a few days.

Results.—On July 2, forty-eight hours after the operation, the pupil was small and the tension normal without eserin. Ten days after the operation the patient had another attack of acute glaucoma. T. +2, great pain in the eye, all reduced by the regular instillation of eserin. A few days after the operation the field was somewhat increased above and to the nasal side, compared with what it had been before the operation. The patient continued the use of eserin and disappeared.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph.

On Sept. 15, 1903, he was readmitted to the hospital during the service of my colleague, Dr. Weeks, who did an iridectomy on the right eye. At that time he did not have the symptoms of an acute attack, but was entered as a case of chronic glaucoma. His vision has progressively failed and is to-day (May 15, 1904) reduced to the ability to count fingers at one foot. There is a deep glaucomatous excavation and the appearance of advanced atrophy of the optic nerve. The field is somewhat more contracted, especially above and to the nasal side than when taken some months ago. However, the atrophic element is most conspicuous, and his field shows concentric rather than the typical glaucomatous limitation to the nasal side. (Fig. 1.)

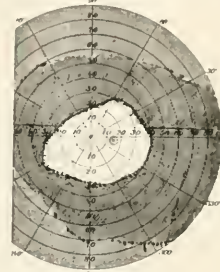


Fig. 1.—Right eye.

The contrast can be appreciated by comparing this field with that of the next patient. The importance of taking the fields carefully in these cases, and the significance of a concentric rather than a nasal limitation, has been emphasized, among others, by my colleague Dr. Gruening. That is in a case of chronic glaucoma, when the field is concentrically limited, especially if associated with impairment of color perception, there is, in all probability, a large element of atrophy present and we can consequently expect much less from an iridectomy.

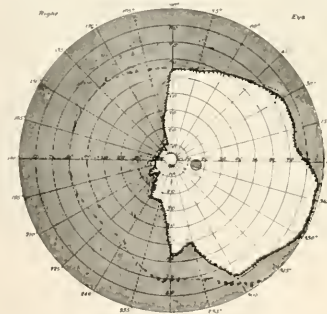


Fig. 2.—Right eye.

CASE 2.—Chronic simple glaucoma. Mrs. D., age 61. United States.

History.—Was first seen Sept. 30, 1903. She had had a wide iridectomy skillfully performed a year and a half ago by Dr. Giles, to whose courtesy I am indebted for information as to the previous history of the patient.

Status Præsens.—Since the operation her vision has progressively diminished and is now in the right eye 20/100; left 10/200—unimproved in each. There is a deep excavation in each optic nerve, and the tension is +1 in each eye. The nasal half of the field (O. D.) is almost entirely gone, as the accompanying chart will show. (Fig. 2.)

Operation.—On Nov. 6, 1903, sympathectomy was done on the right side, again by my friend Dr. John F. Erdmann. The

healing was prompt and *per primum*. Following the operation there was narrowing of the palpebral fissure, with ptosis, also hoarseness, and a choking sensation in the throat as though there was a lump in the throat. The ptosis disappeared, but the hoarseness and choking sensation in the throat continued more or less.

Results.—November 13, one week after operation, with -1 Ds. = +1° Dc. 30, her vision was 20/50, although it seemed to come "in waves," as she expressed it. That is, one moment she would be able to read the letters on the card, and then they would all seem to disappear. The tension of the right eye was distinctly less than that of the left. I saw the patient once or twice more, the last time, Jan. 8, 1904. The hoarseness and feeling of constriction in the throat continued, the tension of the right eye remained apparently normal and less than that of the left. The slight visual improvement continued, she would slowly work her way down to the 20/50 line, stopping occasionally "to rest," as she said; and sometimes having read the letters one moment, she would seem not to be able to do so the next. With +3 Ds added to her distance glasses she could read Jaeger No. 7 at 30 c.m. slowly. The patient always insisted that the sight was worse after the operation than before; it wasn't "so steady."

The sudden death of the patient shortly after my last examination prevented my following the case further, as I should have liked to do. The impression of her family was that her vision was somewhat, though not much, better after the operation.

CONCLUSIONS.

As to the conclusions to be drawn from these cases I have seen where the operation was done (five), I would say:

First.—That it is not indicated in acute inflammatory glaucoma. In a paper on sympathetomy which I had the honor of reading before the New York State Medical Association in 1901, I referred to a case of Mohr's, which bears on this point. The operation of sympathetomy was done and two and a half months afterward the patient had an attack of acute glaucoma, for which an iridectomy was performed. Immediately after the section the iris protruded, followed by all the contents of the globe, with abundant hemorrhage and loss of the eye. In my first case reported to-day, the operation had apparently little effect on the process. In fact, the patient had an acute attack which was controlled by eserine while convalescing from the sympathetomy. Iridectomy likewise did not avail to prevent the progressive loss of sight.

Second.—If the operation is ever indicated, it is in cases of chronic simple glaucoma. In the second case reported by me to-day, and which was of this nature, there was apparently some slight improvement of vision. From a consideration of my own cases and those reported by others, I can not see a very brilliant future for the operation. The best that can be said for it is that it can not do any harm, and possibly may do some good. So long, however, as we have one such brilliant result as that which followed in Dr. C. W. Cutler's case, reported three years ago (this patient's vision is still 20/30 with a telescopic field) we certainly are warranted in suggesting the operation to these otherwise hopeless patients.

46 West Fifty-third Street.

DISCUSSION.

DR. W. H. WILDER, Chicago, referred briefly to some of the cases of this kind that he reported at the last meeting of this section, three of which showed a very favorable result. The most remarkable one, in which the fields were markedly reduced and central vision greatly impaired, was greatly improved after the operation. The fields returned to nearly nor-

mal and this improvement has continued to the present time. The other two cases were too recent at the time of that report to justify any conclusions, but now, although he has not had an opportunity to examine them, he has communicated with them in the last few weeks, and they report that the favorable condition that followed the operation continues. Dr. Wilder inclined to favor sympathetomy in certain cases. He has only had three cases in the past year where he thought that iridectomy offered no chance. The patient had 20/120 central vision, but very greatly contracted fields. After operation, his central vision doubled in a week and the peripheral vision has increased. After operation, this prompt benefit has been observed in certain cases. However, it may be transitory. To give it anything like a fair trial, it should be done early. In other words, it would seem justifiable in these cases of chronic simple glaucoma to first do a sympathetomy and then, if necessary, an iridectomy. Dr. Wilder believes the patient's chances are not jeopardized by this method, and it is only when done in the early stages of the disease that one can hope to get the best results.

DR. JOHN E. WEEKS, New York, stated that he has had some experience with the operation, and finds, in regard to the cases operated on more than one year ago, that in three of the six vision is about the same as when he reported them in New Orleans; that is, the vision has been retained, but in some of these cases there is an acute exacerbation of the glaucoma. He was obliged to perform iridectomy in two cases where it had not been done previously. He agreed with Dr. Wilder that in some cases of simple glaucoma sympathetomy would be permissible before iridectomy, but in the greater number of cases he should only perform it where iridectomy had failed and where sclerotomy had failed, and he might perform iridectomy twice on the same eye before doing a sympathetomy. In addition to the disturbance of the operative procedure, symptoms are apt to be produced which will greatly inconvenience the patient. In regard to performing iridectomy twice, he knew of a case, in the practice of Dr. Gruening, where iridectomy was done four or five times on one eye, and not until nearly all of the iris was removed was there arrest of the process.

DR. W. B. MARPLE said that he did not want to be understood as saying that he would not do a sympathetomy, but only that he did not see any very brilliant future for it; it can not do any harm. He agreed with Dr. Weeks that one should see what iridectomy will do first. He had a case where, after the iridectomy, the patient had a return of acute glaucoma. In one case he did a second iridectomy, immediately after the original one, and after that there was no recurrence of the former trouble. He removed about two-thirds of the iris in that case.

BLASTOMYCOSIS OF THE EYELID.*

WILLIAM H. WILDER, M.D.

Assistant Professor of Ophthalmology, Rush Medical College; Professor of Ophthalmology, Chicago Polyclinic; Surgeon, Illinois Charitable Eye and Ear Infirmary, etc.

CHICAGO.

The condition known as cutaneous blastomycosis which was first described in 1896 by Gilchrist¹ under the name blastomycotic dermatitis, is one that should be of interest to the ophthalmologist, inasmuch as among its favorite sites are the face and the eyelids.

The deformities produced by its action on the skin of these parts may prove to be very serious, and difficult to treat, as illustrated by the case that I shall record.

As stated by Drs. J. Nevins Hyde and Frank H.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Randolph. Randolph, Randolph, 1. Johns Hopkins Hospital Reports, 1896, vol. 1.

Montgomery,² who have made most valuable contributions to the subject, "the disorder is probably more common than is generally supposed, and possibly has been confounded in the past with verrucous tuberculosis, unusual forms of carcinoma and with atypical manifestations of syphilis."

The following is a report of a case of this interesting disease which for the last six months has been under my care:

Patient.—S. Y., a Lithuanian coal miner of Bureau County, Illinois, 50 years old, came into my service at the Illinois Eye and Ear Infirmary, Nov. 10, 1903. He has lived in this country and state nine years.

Family History.—His father was 60 years old when he died, and the patient states that for the last seven years of his life he had a severe cough, expectorated blood and lost weight. His mother died at the age of 70 years, cause unknown. The patient has two brothers living, one of whom is perfectly healthy, the other has epilepsy. There have been four sisters in the family, one of whom died at the age of 12 years of some acute malady. The other three are well. Patient has no recollection of his grandparents. He is married and his wife is healthy. They have three healthy children. Three of their children died in infancy or early life.

Personal History.—The patient, a man of more than average height and fairly well developed, states that he has always been well, and gives no history of syphilis or tuberculosis. On the back of each hand and wrist, as well as on the sides and back of the neck, are well-marked areas of vitiligo. His present trouble began two years ago with a small red spot in the skin over the right eyebrow, which gradually became thickened, rather warty in appearance and covered by a crust. This patch increased in size and extended upward toward the scalp, and backward on the temple until it involved the skin as far back as the ear. As it advanced there was healing of the part originally affected, a smooth scar being left.

Several months before his entrance to the hospital the disease attacked the upper lid and the outer canthus, and caused extreme ectropion.

Appearance of Lesion.—The appearance on admission was that shown in the photograph (Fig. 1) and was as follows: The diseased area had extended upward for an inch into the hairy scalp, backward to a point nearly above the right ear, forward to the median line, and downward to the zygomatic ridge. The outer half of the right upper lid, the outer canthus and a portion of the lower lid were affected. A separate patch about 2 cm. in diameter was present on the forehead just to the right of the median line and immediately over the supra-orbital ridge. The inferior and posterior borders of the large area were well defined and elevated about one-eighth to one-quarter of an inch above the healthy skin, and sloped down to it. It was of a dark red color, rather warty in appearance and covered in places with a loosely attached crust. The adjacent diseased area presented a roughened papillomatous appearance, with here and there crusts, on the removal of which a seropurulent secretion escaped. Small miliary abscesses were seen in the advancing border of the diseased area, where the process seemed the most active. The central portion of the area described on the forehead and temple was occupied by smooth, glistening, tense but easily movable scar tissue, rather loosely adherent to the tissues beneath, not unlike that left after the healing of lupus erythematosus.

The little patch over the left eyebrow seemed to be a recent focus of infection. It was well defined, with an elevated border, was flat and covered in places with thin crusts. When these were removed there were seen irregular papilliform elevations covered with a glary mucopurulent secretion.

The advancing border of the disease had attacked the outer part of the right upper lid and the outer canthus. It had not quite reached the lid margin, and the conjunctiva, although greatly exposed, was not apparently involved. The contraction of the scar tissue above and to the outer side of the lid caused

an extreme ectropion as shown in the accompanying illustration, so that it was impossible for the patient to close the lids. For this reason the conjunctiva was edematous and suffering from a chronic inflammation. On account of the exposure of the eyeball, an infectious ulcer had started on the cornea that threatened to destroy it, and a hypopyon half filled the anterior chamber.

I suspected that I had to do with a case of cutaneous blastomycosis, and the patient was referred to the clinic of Drs. J. Nevins Hyde and Frank Hugh Montgomery at Rush Medical College, where the diagnosis was made positive by Dr. O. Ormsby finding the characteristic organism from the secretion taken from the miliary abscesses. Cultures of the organism were made on agar. To these gentlemen I am greatly indebted for valuable assistance in the study and treatment of the



Figure 1.

case. He was given a number of x-ray treatments and placed on large doses of iodid of potassium.

Treatment and Result.—The ulceration of the cornea became so threatening that about two weeks after his admission I decided to attempt a plastic operation to relieve the ectropion, although the field was so infected by the disease that I had faint hope of success. The lid was dissected free from the diseased area, the scar was well drawn down, and a large elliptical Wolff graft taken from the arm was planted in the gap. Singularly enough, although it looked for a time as if it would slough, it became attached in almost its whole extent, and greatly relieved the situation for the corneal ulcer rapidly healed and the hypopyon disappeared.

Soon after this the effect of the x-ray treatment and the large doses of potassium iodid, reaching 150 grains, three times a day, began to be felt, and the disease of the skin began to subside.

There was considerable shrinking of the graft, so that a sub

2. THE JOURNAL A. M. A., June 7, 1902.

sequent operation was necessary, and this was done on Dec. 31, 1903. This was only partially successful, for much of the Wolf graft sloughed, but the gap was filled with Thiersch grafts, which grew well.

Later there was contraction that drew the canthus outward and a pedicle flap was taken from the cheek, to restore the canthus, but the tip of this sloughed, and the defect was successfully filled in with Thiersch grafts and with a small Wolf graft.

His present condition is about as shown in the photograph (Fig. 2), but some additional patching will be necessary before the lid is quite satisfactory. The corneal ulcer healed with a scar below the pupil and he has very fair vision, viz., 20/200.

This case is fairly typical of cutaneous blastomycosis, more than 40 cases of which have been observed and recorded. The disease is caused by a peculiar fungus that gains entrance to the skin, and multiplying brings about the lesion and histologic changes that are characteristic of it. This organism seems to be allied to some of the fungi that infect the skin, such as the *oidia*, and Howard F. Ricketts,³ who saw many of the cases of Hyde and Montgomery, has made extended observations and has attempted a classification. In an elaborate article, he arrives at the conclusion that the so-called protozoic disease of Wernicke, Busse's and Curtis' saccharomycosis and Gilchrist's blastomyeetic dermatitis are various manifestations of the same disease. He also concludes that the organisms in these diseases are so closely related morphologically and biologically as to be included in a common genus *oidium*, and he proposes the name *oidiomycosis* as the proper term for the condition caused by such organisms.

SITE AND FREQUENCY.

The disease may affect any region of the body, such as the scalp, the back, breast, thigh, palm of the hand or sole of the foot. The mucous membranes seem to escape, although Montgomery² shows an illustration of a case in which the mucous membrane of the lower lip was affected. The face seems to be the most favorite site, as it was affected in 18 out of 32 cases mentioned by Montgomery, and the eyelids frequently suffer, with resulting ectropion. In a recent article by Dr. Casey Wood⁴ there is reference to nine cases, published and unpublished, in which the lesion involved the skin of the eyelids. In this number Dr. Wood includes one case of his own, and also the present case, notes of which were furnished him, and in none of them had the disease extended to the conjunctiva. More than 40 cases of this disease have been published up to date, and several more are under observation that have not yet been published.

This condition does not seem to be related in any way to tuberculosis or syphilis. In most of the case histories there is no evidence of either syphilitic or tubercular taint. Of the 32 cases studied by Montgomery, only 4 gave a history of tuberculosis, and one died of this two and a half years after the first appearance of tuberculosis. Four cases in which the disease either began as a systemic infection, or in which general infection followed the cutaneous lesion, have been reported—Montgomery,² Walker and Montgomery, "Systematic Infection with Blastomycosis, Autopsy,"⁵ Busse-Buschke,⁶ Ormsby and Miller,⁸ Cleary.⁹

In all of these the autopsy showed numerous lesions, small abscesses in certain of the viscera, lungs, pleura, liver, spleen, kidney and mesentery. The case reported by Ormsby and Miller was especially interesting, in that the cutaneous lesion seemed to follow the systemic infection.

LESION.

The disease usually begins with a small red papule, which soon becomes covered with a crust. It gradually spreads, involving a larger area, and presents the appearance of a flat wart-like growth, elevated to about one-eighth to one-quarter of an inch above the healthy skin. In some cases, as in the present one, there may be several separate foci of infection, and these may coalesce. An interesting case has been recently published by Gilchrist,¹⁰ in which there were multiple lesions on the face and limbs. There were sixteen separate foci of



Figure 2.

infection on the face and neck, none of them, however, involving the eyelids. The surface presents distinct papillary elevations, and depressions that give it a verrucous appearance, and it may be covered with dry crusts. When these are removed there may be some bleeding from the exposed papillae or the surface may be seen covered with a seropurulent secretion. A similar secretion may be pressed out of the depression between the papillary excrescences. The border of the growth is very characteristic. It is rather sharply defined, but slopes to the normal skin. It is dark red, elevated about one-quarter of an inch above the normal skin, and in it are seen numerous very small abscesses, varying in size from those invisible to the unaided eye to those as large as a pinhead. The contents of these military abscesses is a

3. Jour. of Med. Research, vol. vi, No. 3.

4. Annals of Ophthal., January, 1904.

5. Transac. Amer. Derm. Assn., 1900, p. 189.

6. THE JOURNAL A. M. A., April 5, 1902.

7. Virchow's Archiv., 1895, vol. cxi p. 23; (Verhandl. der Deutschen Derm. Gesellsch., 1895, p. 151.)

8. Jour. Cut. Dis., March, 1903.

9. Report to Chicago Path. Soc., May, 1904.

10. Jour. Cut. Dis., March, 1904.

viscid mucopurulent substance, and in it are usually found the organisms peculiar to the disease. Pure and uncontaminated cultures of the organism may be made by carefully opening one of these abscesses with proper precautions and inoculating a glycerin agar tube with a needle that has been introduced into the fluid from the abscess. As the diseased process extends, healing of the part originally affected may occur, so that one may observe all stages of the disease in same area. The scar that is left is a soft, smooth, rather flexible one, not firmly adherent to the underlying structures. When affecting the eyelid, marked ectropion may follow, as in the present case. After healing is apparently complete, new foci of infection and miliary abscesses may develop in the scar. Histologically, the papillary elevations are seen to be due to marked hyperplasia of the epithelial elements of the skin, and there are seen numerous irregular prolongations and processes of the epithelial layer extend-



Fig. 3.—Marked thickening of the epithelial layer of the skin which extends deeply into the corium. Numerous characteristic miliary abscesses are seen in this layer as well as in the corium. $\times 12$.

ing deeply into the corium, presenting a strong resemblance to epithelioma. Probably it has frequently been mistaken for this in the past. (Fig. 3.) There may be some tendency to the formation of epithelial whorls, but in blastomycosis the basal layer is never broken through and the epithelial elements never take on an independent growth in the subcutaneous structures. There is an infiltration of the corium with leucocytes, connective tissue and plasma cells. The cells of the rete are large, with well-defined prickles. The characteristic miliary abscesses occur in the epithelial prolongation and may also be seen in the corium. As has been said, they vary in size, and may be as large as a pinhead. The microscope shows these to contain leucocytes, epithelial and nuclear detritus, red blood cells and the peculiar organism of the disease. The organisms may also be scattered through

the corium, and the giant cells may contain several of them. They are more or less abundant in some sections, each field showing a number of them, while in other sections they may be difficult to find. In human tissues they appear as spherical, highly refracting bodies, about 10 microns in diameter, with a well-defined capsule, between which and the protoplasmic contents may be seen a prominent zone. The protoplasm is made up of a fine granular substance in which may frequently be seen larger, highly refracting granules, which may be sporules. In the older organism a well-defined vacuole may occasionally be seen. Reproduction takes place by budding, and this process may frequently be seen in the specimens. (Fig. 4.)

DIAGNOSIS.

For purposes of diagnosis, some of the secretion from an abscess may be placed on a slide and potassium hydrate added. This destroys the pus cells, mucus, etc.,



Fig. 4.—One of the miliary abscesses in epithelial layer, showing the structure of the abscess wall, the contents, and the characteristic organism. $\times 350$.

in about ten minutes and leaves the organisms clearly visible. The organism grows on glycerin agar or glucose agar at an ordinary room temperature, the growth showing in from two to eight days. The character of the growth varies in different media, and the individual organisms vary in different cases. In general, the growth presents a fluffy white appearance, or, in older colonies, a roughly granular surface, with elevations and depressions.

On different media the organism sends out mycelia with lateral buds or conidia. For a description of the appearances and the variations of the growth under cultivation, one should consult the various papers on this subject, of which that by Ricketts is one of the best.

PROGNOSIS.

Four fatal cases have been recorded, and of these, one

at least, that of Ormsby, started as a systemic affair. Under appropriate treatment, the diseased process promptly subsides. The deformity produced by the scar may be considerable, if such a part as the eyelid is affected, and the resulting ectropion may be disastrous to the eye unless the position of the lid is restored.

TREATMENT.

If the lesion is small, the diseased part may be thoroughly curetted or excised. Large doses of potassium iodid, as first pointed out by Bevan, produce a marked beneficial effect on the lesion, and cases are cured by this means. The dosage should be large, as much as 300 or 400 grains daily being given. The present case took regularly for some time 450 grains a day. This treatment should be supplemented by the use of the x-ray, especially if, after discontinuing the treatment by the iodids, there should be any signs of a return of the disease.

In the case of the lid being affected, the resulting ectropion must be corrected by a plastic operation. Naturally, one would not operate in the region affected by such a disease unless compelled to do so, but that it is not impossible to successfully perform a plastic operation for the restoration of the lids in such a field is demonstrated by the present case, where relief of the ectropion was imperative.

I wish to express to Dr. J. Nevins Hyde and Dr. Frank H. Montgomery my thanks for the privilege of exhibiting illustrations of many of their cases; and I am also indebted to Dr. E. V. L. Brown, pathologist of the Illinois Eye and Ear Infirmary, for the preparation of the histologic specimens of this case.

103 State Street.

DISCUSSION.

Dr. W. A. Pursey, Chicago, said that without knowing the actual statistics of the subject he should say that at least 50 per cent. of the cases show lesions on the lower lids, and that in most of these cases the lesion on the lower lid has been the primary lesion. In the nine cases of blastomycosis which have come under his care, six showed lesions on the lower lid, and in three of these only the lower lid was involved. As first seen, the lesion on the lid shows a papillary, warty growth, without distortiⁿ, but later there develops an ectropion which produces a very characteristic picture. Dr. Pursey emphasized the pathognomonic importance of the small miliary abscesses which are found in the borders of the lesions. These may be so minute as to be visible only under a hand lens, but they are characteristic and should be sought, and from them can be obtained frequently pure cultures of the organisms. This condition is usually due to a group of fungi similar to the yeast fungi, but whether it is due to a single organism or may be produced by several varieties, is yet undetermined. There has been an attempt recently to differentiate from these blastomycosis cases a group of cases which are supposed to be due to coccidia. He thinks that there can be little doubt that the differentiation has not been thus far demonstrated. As proof of the pathogenic relation of these organisms to the condition, granulomatous tumors have been produced in guinea-pigs and pure cultures obtained after death from these. It must be borne in mind that this condition is not entirely confined to the skin and that there is the danger of the development of general blastomycotic infection resulting in the death of the patients; a phenomenon which has been observed in several cases. A point of peculiar interest in connection with this disease is its relative frequency in certain localities. Since it was first described by Gilchrist a large percentage of the cases on record have been reported from Chicago; about 30 per cent. The condition has not yet been seen in New York or Boston, and only one case in Great Britain. In explanation of its peculiar frequency in Chicago and the contiguous territory, ef-

forts have been made to discover some relationship of the disease to certain occupations, as the handling of grain, farming, particularly the handling of manure, but thus far facts do not throw any light on this subject.

Dr. E. C. ELLETT, Memphis, showed a slide from what he supposed to be blastomycosis of the nose and asked Dr. Pursey's opinion of it.

Dr. PURSEY said that it certainly looked very much like it. Dr. ELLETT said that it seemed probable that that is what this case was. It was a recurrent nasal tumor. The first appearance was on the anterior extremity of the inferior turbinate body. The growth, then, was not examined. About a year and a half later the patient came under his observation again and he found a papillomatous looking growth on the anterior end of the inferior turbinate and a small growth further back on the inferior turbinate and a third projecting from the septum, looking like a spur. These three tumors were removed. He has not been able to see or hear from the patient again. No cultures were made, because it was thought to be a benign nasal tumor. The patient was a young white man, aged 17.

Dr. W. H. WILDER, Chicago, stated that the prognosis in these cases is good unless there is systemic infection. The disease seems to yield promptly to radiations of the x-ray combined with potassium iodid in very large doses. This case took 450 grs. a day for weeks. After several weeks the condition improved and now there are no active points of infection, for a test recently made was negative so far as the discovery of any of the organisms was concerned. The potassium iodid treatment was first suggested by Dr. Bevan of Chicago.

SUBJECTIVE REFRACTION.*

JOHN A. TENNEY, M.D.
BOSTON.

I call attention to the power of the pinhole disc found in trial cases in the examination of the eye. All are familiar with its use in detecting myopia and high degrees of hyperopia; and it is well known that if there is light enough and the opening of the screen is small enough, there would be no need of lenses in any condition of refraction, at any age. The pinhole disc does its work by lessening the diffusion circles on the retina; and too small an opening in a retinoscope or ophthalmoscope is a disadvantage because its masks errors of refraction.

In Foster's "Text-Book of Physiology" we find it stated that if the pinhole disc is held before the eye and moved laterally, the experimenter looking toward the bright sky, the retinal capillaries may be seen, looking like a cobweb. The vessels at right angles to the motion are best seen. If the disc is held at the right distance from the eye, one can see the image of the crystalline lens.

Dr. Gould, at the session of this Association in Denver in 1898, exhibited an instrument that he called the "Funduscope," which caused a small opening to revolve before the eye within the width of the pupil, and by means of which the retinal vessels could be seen in all directions alike.

Czermak pointed out the fact that if two screens are held before the eye toward the light, and the one in front is moved laterally, it will appear to move in the same direction that it actually does move; but if the one next to the eye is moved in the same way, the one in front will seem to move in the opposite direction. This is easily explained. The pinhole in the anterior screen is practically the source of light; its image

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, John E. Weeks and R. L. Ranolph.

moves on the retina in the same direction that the posterior disc is moved; hence it is projected in the contrary direction. All ophthalmologists know that the nasal side of the retina sees toward the temporal side, and the temporal retina sees toward the nasal side.

If a convex lens is moved laterally before the eye, objects seen through it seem to move in a contrary direction to the motion of the lens; but if the lens is held still, and the head is moved, the same objects appear to move with the lens. In the first instance, the image moving on the retina with the motion of the lens, is projected in a contrary direction, as has already been explained; and in the second instance, where the lens is held still and the head is moved, the image seen through the lens moves in a contrary direction on the retina, hence it is projected in the same direction with the motion. Exactly the opposite phenomena are observed when a concave lens is used.

Very little literature has been produced within a



Figure 1.

century concerning the diffusion circles on the retina. Tscherning states, what is manifestly true, that in myopia and hyperopia every point of an object must appear on the retina as a circle or a part of a circle, and these circles overlap each other. In hyperopia the light is most intense at the outside of the circle, in myopia the intensity is greatest in the center. The resulting cones of light in myopia project forward toward the point of reversal in the vitreous.

If we take the pinhole disc, or what answers the same purpose, if we perforate a card with a pin and hold it close to the eye, the state of refraction in the eye is accurately and quickly told by moving the screen laterally. In hyperopia objects will appear to move against the motion of the card; in myopia, they will move with the card; and it is evident that there is a point between where there will be no motion, and that condition is emmetropia.



Figure 2.

In Czermak's experiment the eye is hyperopic for the anterior screen, if it is held nearer to the eye than its near point. The image seen moves with the posterior disc on the retina as far laterally as the width of the diffusion circle would be if light entered the eye the full size of the pupil. The projection is always in the direction contrary to the motion of the image on the retina. As might be expected, the motion of the image on the retina in myopia being contrary to that of the disc, it is projected in the same direction, and appears to move with it.

A schematic representation of what occurs in hyperopia is shown in Figure 1, the passage of light being shown by the arrows. Figure 2 shows how the light enters and leaves the eye in myopia. The small circles represent the motion of the disc from side to side.

As a matter of course, in simple hyperopic astigmatism, there will be no motion observed along the meridian of greater curvature, but at right angles to this the motion will be contrary. In simple myopic astigmatism there will be no motion in the meridian of lesser curvature; in the other meridian the motion will correspond to that of the disc. In mixed astigmatism in the myopic meridian the motion will be with the movement of the disc; in the other it will be contrary.

It will be seen that in all these anomalies of refraction, the motion of objects seen through the disc will be precisely the same as that seen when the lens that corrects the defect is moved before the eye in the same way and at the same rate; and as those familiar with lenses seldom find it necessary to neutralize them in order to tell their power, so the motion of the pinhole disc will reveal to the initiated his error of refraction.

I find in my own case that if the disc is moved before my right eye in the direction corresponding to the meridian marked 60 degrees on the trial frame, I see no motion. At right angles to this the motion is against the movement of the disc, and at the rate of that of a cylinder of half a diopter. In the left eye I find no motion in the meridian of 150 degrees, but at right angles to this the rate of motion is the same as that of a plus cylinder of half a diopter. The test is a delicate one, turning in a marked degree at a quarter of a diopter. It is understood that in all these experiments the accommodation must be at rest.

DISCUSSION.

DR. G. C. SAVAGE, Nashville, Tenn.—Dr. Tenney has given us the simplest and most accurate subjective test for refraction that we have. He wrote me some time ago to ask if I thought the idea any good and if it were new. I tried it and replied that so far as I knew it was new, and it certainly was good. In my own case it works out well. Nothing could be more accurate than the test. The judgment of direction and motion is a gift, therefore the ignorant can give as correct answers in this test as can the educated.

DR. M. BLACK, Denver—How far before the eye do you hold the disc, or does that make any difference?

DR. TENNEY—I hold the disc very close to the eye, just as close as I can. The patients certainly respond very readily to the test.

THE EFFECT OF PILOCARPIN HYDROCHLORATE IN STRYCHNIN POISONING.

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AND

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(From the Rockefeller Institute for Medical Research.)

NEW YORK CITY.

A case has recently been described under the title: "A New Remedy for Strychnin Poisoning;" hypodermic injections of pilocarpin were given and the patient recovered. The case was as follows:

A child of two and a half years was found with "a bottle of strychnin to his mouth and the contents being emptied into it." The mouth was cleaned out by the mother and the physician who arrived one hour later administered first morphin hypodermically which brought on vomiting, and later washed out the stomach. He gave further internally tannic acid and chloral, the latter until there was profound narcosis. Nevertheless, the convulsions became stronger and were coming every two minutes. As a "last resort" he gave pilocarpin hydrochlorate, 1/24 of a grain hypodermically and repeated the dose after eighteen minutes. The skin became moist and saliva

was flowing out of the mouth. The convulsions became lighter, occurred less frequently and after an hour subsided completely.

The reporter of this case is apparently not in doubt that the recovery was due to the administration of pilocarpin.

We became interested in this case, as we had ourselves planned to test the effect of pilocarpin on strychnin poisoning—for the following reason: In our studies on nephrectomized rabbits,² we found that in animals thus deprived of their chief eliminating organs, sub-minimum doses of the poison, if given at proper intervals, never accumulate in the blood to a dose sufficient to bring on a convulsion. We then thought that perhaps after the removal of the kidneys other organs might assume the task of eliminating the poison from the body. A study of the intestinal contents of such animals brought, however, no satisfactory results. We had therefore in mind to test also the saliva of such animals, especially as there is a statement on record that even in normal animals the salivary glands eliminate strychnin, and it was our plan to increase the salivation by the administration of pilocarpin.

However, the increased salivation in the above mentioned case was apparently not of a very unusual character, and if the recovery was indeed due to the administration of pilocarpin, it was probably not simply on account of the elimination of the strychnin through the increased salivation. The effect, if there was any, must have been brought about by a neutralization of the strychnin in the spinal cord—or some other yet unknown manner.

It became necessary first of all to establish the facts. We have therefore carried out a series of experiments on frogs and rabbits, in which the effects of the administration of pilocarpin on strychnin poisoning were studied. We shall illustrate the results we have obtained by a few abbreviated reports of some of our experiments.

Experiment 1.—Two small frogs. Frog 1 (control) received in the dorsal lymph sac 0.02 mg. strychnin; had hyperesthesia but no convulsions.

Frog 2 received in the dorsal lymph sac 0.02 mg. strychnin nitrate and in the ventral lymph sac 0.01 gm. pilocarpin hydrochlorate; had convulsions after 12 minutes.

A subminimum dose of strychnin became an effective toxic minimum through the addition of pilocarpin.

Experiment 2.—Two medium sized frogs. Frog 1 (control) received in the dorsal lymph sac 0.03 mg. strychnin nitrate; convulsions after 24 minutes.

Frog 2 received in the dorsal lymph sac 0.03 mg. strychnin nitrate and in the ventral lymph sac 0.01 gm. pilocarpin; convulsions after 14 minutes.

The pilocarpin animal had the convulsion 10 minutes earlier than the control.

Experiment 3.—Two large frogs. Frog 1 (control) received in the dorsal lymph sac 0.04 mg. strychnin nitrate; convulsions after one hour.

Frog 2 received in the dorsal lymph sac 0.04 mg. strychnin nitrate and in the ventral lymph sac 0.01 gm. pilocarpin; convulsions after 45 minutes.

The pilocarpin animal was a little larger than the control, but had the convulsions nevertheless, 15 minutes ahead of it.

In all these experiments the pilocarpin animals died, while the controls survived the convulsions.

The following illustrations are taken from experiments in which strychnin sulphate was employed, of which somewhat larger doses are required to bring on a convulsion than of the nitrate:

Experiment 4.—Two medium sized frogs. Frog 1 (control) received in the dorsal lymph sac 0.04 mg. strychnin sulphate; convulsions after two hours.

Frog 2 received in the dorsal lymph sac 0.04 mg. strychnin sulphate and in the ventral lymph sac 0.01 gm. pilocarpin; convulsions after 45 minutes. Both survived.

The pilocarpin animal had convulsions 75 minutes before the control.

Experiment 5.—Two medium sized frogs. Frog 1 (control), larger one of the two, received in the dorsal lymph sac 0.05 mg. strychnin sulphate; after a good deal of handling had a convulsion 47 minutes after injection.

Frog 2 received in the dorsal lymph sac 0.05 mg. strychnin sulphate and in the ventral lymph sac 0.01 gm. pilocarpin; first convulsion, 17 minutes after injection; did not recover.

Pilocarpin animal, though smaller, with the same dose of strychnin sulphate, had the convulsion 30 minutes before the control.

We should also mention the following experiments:

Experiment 6.—Several frogs of different sizes received injections of 0.01 gm. pilocarpin; no noticeable effect.

In all the experiments on frogs the additional injection of pilocarpin unmistakably increased the poisonous effect of strychnin. Either an ineffective dose of strychnin became effective, or the convulsion appeared earlier and the animals did not survive the attacks.

The following are abbreviated reports of a few experiments on rabbits:

Experiment 7.—Rabbit 1 (control), white, male, 1500 grams. Injected 0.45 mg. strychnin nitrate per kilo; remained under observation 75 minutes; no effect.

Rabbit 2, white, male, 1400 grams. Injected subcutaneously 0.45 mg. strychnin nitrate per kilo; also 4 mg. pilocarpin hydrochlorate. Had a violent convulsion 33 minutes after injection. Later had another fit of convulsions. Two hours and forty minutes after injection animal was found dead.

A dose of strychnin which was not even toxic for the control, was fatal for the pilocarpin animal.

Experiment 8.—Rabbit 1 (control), white, male, 1400 grams. Received an injection of 0.55 mg. strychnin sulphate per kilo; some hyperesthesia; no convulsions.

Rabbit 2, white, female, 1000 grams. Received 0.55 mg. strychnin sulphate per kilo, and 0.01 gm. pilocarpin. Fifteen minutes after the injection the animal had a violent convulsion and died.

Here again a dose of strychnin sulphate which caused only hyperesthesia in the control, brought convulsions and death to the animal which received in addition pilocarpin.

Experiment 9.—Rabbit 1 (control), gray, male, 1585 grams. Received 0.5 mg. strychnin sulphate per kilo; hyperesthesia but no convulsions.

Rabbit 2, black, female, 1175 grams. Injected subcutaneously 0.5 mg. strychnin sulphate per kilo, and two minutes later injected 0.01 gm. pilocarpin. Thirty-eight minutes later the animal had a violent convulsion and died.

In this experiment, with a trifle smaller dose of strychnin than in the foregoing one, and with animals (gray and black) which are a little less susceptible than those of the previous experiments (whites), the addition of pilocarpin again brought a fatal convulsion, while the control was hardly affected at all.

Experiment 10.—In a few animals the injection of 5 mg. and more of pilocarpin brought on copious salivation, diarrhea, etc., but there were no signs of convulsions or even hyperesthesia.

The hypothesis that a drug which, when given simultaneously with strychnin, aggravates distinctly its toxic effect might work, nevertheless, as an antidote to strychnin if administered later, is not sound enough to justify a prolonged series of experiments to disprove it. Two such experiments, however, were made:

Experiment 11.—Two frogs of the same size received 0.03 mg. strychnin nitrate such. Half an hour later both had con-

² S. J. Meltzer and W. Salant, Jour. of Exper. Med., vol. vi, p. 107, 1901.

convulsions. One frog was given 0.01 gm. pilocarpin and died after an hour; the other was alive and normal next day.

Experiment 2.—Two frogs of the same size, but larger than those in the previous experiment, received 0.03 mg. strychnin nitrate each. Forty minutes later neither had convulsions. One frog received 0.01 gm. pilocarpin. Five minutes later it had convulsions and was found dead next morning; the other had no convulsions and lived.

The foregoing experiments are sufficient to demonstrate the following two points: 1. Pilocarpin hydrochlorate does not act as an antidote to strychnin. 2. On the contrary, the addition of pilocarpin apparently supports the poisonous effect of strychnin, by its aid an ineffective subminimum dose may have a toxic or even fatal effect.

These are the conclusions we arrived at by our experimentation on two species of animals. What are we to think of the effect of injections of pilocarpin in strychnin poisoning in human beings? We are aware that conditions vary from species to species, and that what is harmful to rabbits and frogs might still be harmless or even useful to human beings. But until we have proofs of such deviations we have to be guided in our therapeutic efforts by the results we have obtained from animal experimentation. Surely we have to consider that as harmful to man which is found to be harmful to beasts until the contrary is proved. In other words, since the experiments on animals have demonstrated that pilocarpin increases the toxicity of strychnin, we are in duty bound to avoid the administration of pilocarpin in cases of strychnin poisoning in human beings, unless by many accidents a number of facts will be accumulated showing unmistakably that in this regard the human being behaves differently than the animals experimented on, i. e., that here the addition of pilocarpin does not increase but reduces the toxicity of strychnin.

Is the above quoted case such a fact, i. e., did the child really recover chiefly on account of the injection of pilocarpin which it received? We do not think so. We rather believe that the patient probably recovered not because it received pilocarpin but in spite of it. It was simply a case in which strychnin had a strong toxic but not a fatal effect. We do not know how much of the strychnin the child swallowed. Possibly it was altogether only a small dose; the immediate cleaning of the mouth by the mother and the washing of the stomach by the physician assisted in reducing the dose from a fatal to only a toxic one. It is possible that the profound narcosis produced by the liberal use of chloral contributed to the favorable outcome, not with the aid but in spite of the pilocarpin. In animals we have seen numerous cases of strychnin poisoning which without any treatment survived violent convulsions lasting many hours. The toxicologic literature contains reports of cases in which recovery took place after very large doses of strychnin—more than ten times the fatal dose. We have therefore no good reason to believe that the child recovered from the strychnin poisoning because it received pilocarpin. On the contrary, on the basis of our results, we have reason to say that it recovered in spite of the injections of pilocarpin.

Before we conclude, however, it seems to us to be a moral duty to call attention to one point. The recorder of that case says: "As a last resort I gave pilocarpin." etc. What authority did he have to consider pilocarpin a "last resort" in such a case? In looking over some toxicologic literature we failed to find it anywhere mentioned as a possible antidote for strychnin poisoning.

Pilocarpin is a poison and some authors state that in some cases it can even cause convulsions like brucin, nicotin, etc. If that child would have finally succumbed to the poisoning, in the face of our experimental results, we would have had no means to prove that the injection of pilocarpin did not have a share in the fatal outcome. Why do physicians forget the supreme law: first of all not to do harm? Physicians carry with them numerous alkaloids for use in cases of emergency. Their minds ought to be impressed by this obvious rule: On human beings each alkaloid should be employed only according to well established indications for its use and not according to theoretical notions. Well founded theoretical notions can and ought to be tested on animals.

IDIOPATHIC GANGRENE IN THE YOUNG.

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The following case, I believe, is of sufficient interest to merit a place in the literature of gangrene:

Patient.—Elizabeth W., age 13, farmer's daughter; parents in good health. Personal history good. In appearance is tall but undeveloped.

History.—March 6, patient walked to my office, one and one-half miles, to consult me in regard to her left foot, which for two days had been painful and slightly swollen. A diagnosis of rheumatism was made. Three days later the soreness and swelling had extended above the ankle and she was unable to walk. There was some malaise. Pulse, 100; temperature, 99.5. Her condition grew worse from day to day, the soreness and slight swelling gradually extending up the leg, the soreness being more marked posteriorly along the course of the large blood vessels and the pain usually deep-seated and of a burning character. The foot was never found hot to the touch; on the contrary, it was always cooler than the rest of the body. Evidence of endarteritis and thrombosis of the nutrient arteries became more conclusive each day. The heart was normal.

March 17. Pain and soreness began in great toe of right foot and gradually extended as they had done in the left. The condition of the patient grew steadily worse as the disease continued to advance up both legs toward the body. Temperature at this time seldom exceeded 101. Pulse 110 to 120.

March 24. A small blue-black spot of moist gangrene appeared on the inner side of the great toe and another the size of a half-dollar on the inner side of the instep of the foot first affected. The urine was free from sugar. At this time the soreness had extended along the popliteal and femoral artery to the groin and the swelling above the knee on the left side. On the right the foot and leg were involved to the knee and the soreness extended along the course of the popliteal above. The gangrenous spots gradually extended by continuity and by the appearance of new spots higher, which later coalesced, the extension being most rapid posteriorly in the parts which received pressure from the bed.

April 1. The gangrenous process began in the right foot and extended in a similar way. Notwithstanding efforts to prevent it, decomposition of some of the dead tissue took place. Lines of demarcation were established in a few places, but spots of gangrene were always present above them. During this stage of the disease the temperature ran from 101 to 103. Muttering delirium was present, and death occurred April 14, on the forty-first day of disease. At this time the gangrenous process involved the entire left foot and about half of the leg below the knee, and the right foot and part of the ankle. No autopsy.

Remarks.—It is at once apparent that this case can not be classed among the more common forms of gangrene. The age of the patient and the absence of evidence of sclerosis of the vessels in the other parts of the body exclude it from the angiosclerotic cases. The trau-

matic, the spreading traumatic and hospital forms of the disease must be excluded because of the absence of traumatism affecting the blood supply or serving as an infection atrium.

To the symmetrical gangrene of Raynaud and to Morvan's disease it bears no close resemblance; nor was it the effect of any destructive agent which might act directly on the cells of the tissues, as chemicals, heat, cold, electricity, etc. There was no previous history nor present evidence of any of those diseases which predispose to gangrene, as diabetes mellitus.

The gangrenous process in this case was clearly the result of thrombosis of the arteries supplying the parts, apparently accompanied and probably preceded by an endarteritis. The specific first cause of the trouble is not known. A careful search of such literature as has been accessible to me brings to light nine cases which have been reported as idiopathic or spontaneous gangrene.

Of these, one¹ was in a diabetic. Recovery.

One² was in a patient 79 years of age. Autopsy showed atheromatous degeneration, vessels of leg and thigh plugged with coagula and a dissecting aneurism of the left iliac artery.

One³ had agoneurotic symptoms (coldness and numbness of two fingers) for three years previous to the attack, and later paresthesia of the lower extremities, also previous to the attack. Amputation of part affected. Death. Pathology, thrombosis.

One⁴ was preceded by paralysis in the upper extremities and the gangrene confined to a small area around the patella. Age of patient, 52. Pathology, not clear.

One⁵ was in a patient 62 years of age. Death in eight days. Autopsy showed cardiac hypertrophy and an abscess of the heart opening in the left ventricle. To these five the name idiopathic gangrene can not be properly applied.

Of the remaining four cases, one⁶ was in a patient 33 years of age and three⁷ were in the insane. Of these last three, two were the result of thrombosis of the chief arteries and one the result of embolism.

In none of the cases herein cited did the disease occur in one so young as the patient whose case-history is herein contributed.

THE RESISTANCE OF THE PERITONEUM. ILLUSTRATIVE CASE.

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APPLETON, WIS.

A patient's liability to septic peritonitis following abdominal section or wounds involving the peritoneum depends manifestly on two factors: First, the virulence and number of the micro-organisms introduced, and, second, the vital resistance of the individual patient.

Concerning the first of these factors volumes have been written; as to the second, however, there is a singular paucity of references in the literature of surgery. To emphasize the rôle of the individual resistance of the patient in preventing or favoring peritonitis is the motive of this article. I consulted several systems of surgery

without finding any mention of the varying susceptibility of different patients to post-operative peritonitis. H. A. Kelly, however, gives recognition to the importance of the patient's condition in the following language:

"The more we learn of infectious processes the more we are convinced that the vital resistance of the patient plays an important, if not the greatest, part in the resistance to infection.

"If a patient is much depressed physically and is subjected to an abdominal operation in which there is extensive traumatism to the peritoneum attended by considerable oozing, the chances for a serious infection are much increased. To the individual factor of vital resistance are undoubtedly ascribable many of the discrepancies as to the apparently varying degrees of virulence of the same infection when under precisely the same conditions one patient will be infected and another escape. The gravity of the infectious process will, in a given instance, depend on the degree of absence of resistance to infection in the individual, the nature of the operation, the perfection of the technic employed, and the virulence of the entering micro-organism."

The following interesting case illustrates the remarkable resisting power of the peritoneum in certain healthy patients:

Patient.—J. D., a man aged 25, of fine physique and in rugged health, a professional burglar by occupation, was brought by the Chicago police to the Cook County Hospital with a bullet wound in his back.

History.—The following history was obtained from the police: About 6 p. m. on the preceding day, while burglarizing a house, the patient was shot from behind with a 38-caliber revolver. He made his escape, but was captured the following morning and brought to the hospital about seventeen hours after being shot.

Examination.—Examination showed the patient to be a strong, well-developed young man; he was pale, but otherwise showed no signs of severe shock. There was a bullet wound an inch above the crest of the right ileum and four inches from the spines of the lumbar vertebrae. Anteriorly the bullet could be felt in the abdominal wall of the epigastrium an inch to the left of the median line. The whole abdomen was tense and slightly tender to pressure.

Operation.—Immediate laparotomy was done by Dr. Owsley and myself: the peritoneal cavity was filled with intestinal and gastric contents and partially clotted blood. The bullet was found to have passed upward, forward and to the left, penetrating the small intestine twice, both walls of the stomach, and the margin of the left lobe of the liver. The small intestines were covered with flakes of fibrin. The intestinal and stomach perforations were all closed with Lembert sutures, and the peritoneal cavity irrigated with several gallons of warm salt solution. The incision was closed with figure-eight silkworm-gut sutures without drainage.

Result.—To our surprise the patient made an uneventful recovery—at any rate for the first nine days—his temperature never having gone above 100 degrees.

As the patient was a criminal with a police court record, an officer was detailed to sit on guard by his bedside day and night. On the night of the ninth day (the abdominal sutures were not yet removed), the patient, clad only in a short hospital shirt, jumped through the window, climbed the high fence and escaped, much to the chagrin of the policeman. Six weeks later I read in the *Chicago Tribune* that the fugitive had been recaptured, "still a little weakened from his operation."

This case is of unusual interest because laparotomy was not done till more than seventeen hours after the shooting and the gastrointestinal contents were spread diffusely through the abdomen. Yet the patient's extraordinary vitality enabled him to recover promptly

1. Prowse, W.: *Brit. Med. Journal*, London, 1884, vol. 1, p. 993.
2. Spence, J.: *Edin. Med. Jour.*, 1864, vol. 3, pp. 7-9.
3. Sternberg, C.: *Wien. Klin. Wochens.*, 1895, vol. viii, pp. 659-687.
4. McGraw, T. A.: *Phys. and Surg.*, Ann Arbor and Detroit, 1899, vol. xxi, p. 472.
5. Nimier, M.: *Bull. Soc. an. d. Paris*, 1895, vol. lxx, p. 424.
6. Pratois, V.: *Rev. Med. d. Pest, Nancy*, 1892, vol. xxiv, pp. 458-501, and 1893, vol. xxv, p. 592.
7. Merton, W. B.: *Jour. of Mental Science*, London, 1896, vol. xiii, pp. 119-122.

with no symptoms of peritonitis and a minimum amount of shock.

Since the adoption of the small caliber, high velocity steel bullet by the armies of the world, military surgeons have been astonished at the large proportion of soldiers who have recovered without operation from penetrating bullet wounds of the abdomen. This does not imply that the intestines escape injury, or that no infective material is carried into the peritoneal cavity. It is possible, and even probable, that many a fatal typhoid perforation is no larger than some of these bullet wounds from which so many soldiers promptly recover. Why, then, such a different prognosis? Chiefly because bacteria find so much more favorable a soil on the peritoneum of a weakened, moribund typhoid patient than in the belly of a hard-muscled, weather-seasoned soldier.

As a further illustration of the resistance of healthy, able-bodied soldiers may be mentioned an experience of an English army surgeon. After one of the battles of the Transvaal war he found a Boer soldier with a large lacerated wound of the abdominal wall, through which several feet of intestines had escaped and were covered with debris and dirt. He hastily performed an intestinal resection, washed off the exposed viscera with plain water and closed the wound. The patient made an uneventful recovery.

Since the beginning of what may be called the era of abdominal surgery the resistance to peritonitis of patients operated on has encouraged the propagation of many fallacious theories of asepsis and operative technic. The older and middle-aged surgeons remember well the time when it was a common practice to saturate all gauze and sponges with strong antiseptics (bichlorid or carbolic acid solution), before introducing them into the abdominal cavity in the course of a laparotomy. The survival of the patients in spite of the treatment has been adduced as an argument in favor of this or that procedure. Nor has the time passed when this vital resistance of the patient gives rise to erroneous ideas as to the perfection of the technic employed. Slovenly methods are certainly encouraged and perpetuated among certain operators because their results in a limited number of cases are apparently just as good as those of the most pedantic "rubber-gloved" surgeon. Many an amateur surgeon has complimented himself on his skill after the recovery of his patient from an appendectomy when in fact the technic employed should have revoked his license to practice. I know of a surgeon of considerable local reputation in a city of the middle west, who scouts at the "germ theory" of peritonitis, or at least professes to do so, and to demonstrate his convictions never uses any antiseptics whatever, either on his hands or in the preparation of the patient for operation. He enjoys a rather large surgical practice and his results are surprisingly good. Such extreme instances as this are always puzzling to the medical student and the newly graduated physician, whose ideas of the imperative necessity of asepsis and antiseptics are given a rude shock by this apparent immunity of certain patients to septic peritonitis.

With respect to these phenomena we should bear in mind: 1. That the peritoneum is by far the most extensive and complicated of the serous membranes; that it is capable of absorbing a large quantity of liquids in a short time; that it can in some patients resist the invasion of large numbers of pyogenic bacteria and withstand considerable handling and trauma with apparent impunity. 2. That a low mortality rate, in any limited series of laparotomies, is not to be construed as demon-

strating the operator's superior technic and careful asepsis. The patient's vital resistance may be, and perhaps is, after all, the chief factor in determining whether or not septic peritonitis will follow these operations.

Clinical Note.

AN INDIGENOUS CASE OF TUBERCULAR LEPROSY.*

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CHICAGO.

Introduction.—As it is uncommon for leprosy to originate in any part of the United States except Louisiana, any cases occurring elsewhere are of interest. There are only a few such on record. I am indebted to Dr. A. U. Williams, Hot Springs, Ark., for referring this case to me.

Patient.—The subject of this report was born in Iowa, of Norwegian parentage, is 27 years of age, and has always resided either in Iowa or in Nebraska.

Family History.—His father was born in Norway and came to this country while a boy, perhaps under 10 years of age. His mother was also born in Norway and was brought to America when three weeks old. The patient has one brother, aged 23, perfectly healthy. He has had four sisters, two of whom are dead. One died at the age of 18, twelve years ago.



Fig. 1.—Photograph showing the thickened tuberculated brow and the tubercles on nose, face and ear.

the cause of death being unknown. Another died last February of what he says physicians called erysipelas, aged 25. She had been ill for ten years. The patient says she complained of burning and pressure symptoms in the limbs, which were badly swollen and were covered with lumps. Her face, he says, looked as though she had smallpox, the eyebrows were gone, and she suffered at times with fever and chills, but had no cough. The patient has one living sister, aged 32, healthy except that she exhibits facial "pimples." She is married and has two healthy children. Another married sister, aged 34, also has two healthy children. The patient's father died between 35 and 40 years of age of consumption (?). The patient says his father had some trouble with the forehead, which was similar to that in his own person. One aunt has goiter. No other serious illness is reported in the family. The mother is living and is perfectly well.

History of Present Illness.—Until 21 years of age the patient was perfectly well, but at this time he developed what was termed "malaria," which lasted for three months. At some later date a lump appeared in the left eyebrow. New ones continued to appear on the forehead and extended over the face and nose and over the thighs and forearms, but no intelligible history can be obtained as to their chronological development.

*This patient and the microscopic specimens were shown to the members of the Chicago Medical Society, April 27, 1904.

During these six years the patient has been ill a great deal with chills and fever and epistaxis. He has had, however, but very little pain. He thinks he was ill at the date of the appearance of each new efflorescence on the skin. Five years ago he visited Omaha and remained a week in St. Joseph's Hospital. He has suffered but little with headache, his appetite is always good, and he sleeps well; he has been drowsy only when ill. He has always performed manual labor until one year ago, at which time he received an appointment rendering such work unnecessary.

Examination.—At present the patient exhibits the typical appearance of the tubercular leper. Tubercles and infiltrations varying in size are situated in the region of the eyebrows, on the forehead, nose and cheeks. The hair on the brows is completely lost, and the overhanging eyebrow gives the patient the characteristic expression (leontiasis) so often described (Fig. 1). There is also complete alopecia of the bearded region of the face, where some of the leprous nodules are large as a half-dollar. The forearms, dorsum of the hands, thighs

maculo-anesthetic variety. Several ulcers have existed on the feet, due to injury from lack of sensation, but these are always in the areas which are the seat of leprous infiltration in the skin. The section shown in Figure 3 was removed from the dorsum of the hand and presents the usual histologic picture with large numbers of lepra bacilli.

Remarks.—From the fact that the patient's father died as the result of a chronic disorder near the age of 35 and had some indefinite trouble with his forehead and various symptoms supposed to be those of consumption, it is quite possible that he died of leprosy. There is little doubt about this diagnosis in the case of the sister, as her symptoms above described are practically those of this patient, a fact the patient himself recognizes, so that we are justified in the opinion that the sister of the subject of this report probably died of lep-



Fig. 2.—Microphotograph ($\times 1600$). Smear from cut edge of tubercle from roof of mouth stained with carbolfuchsin showing numerous lepro bacilli.

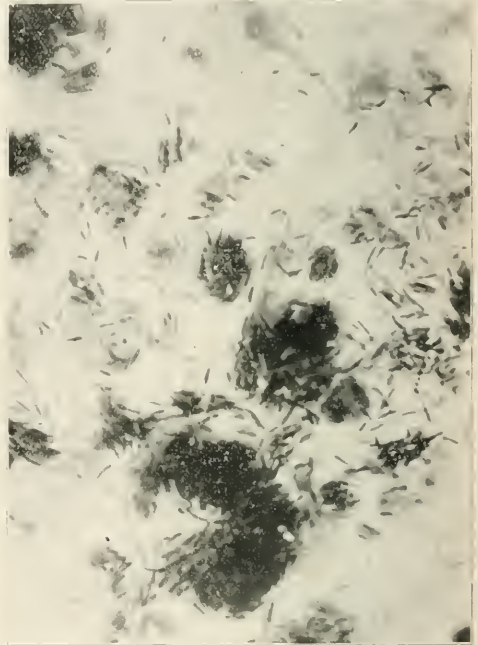


Fig. 3.—Microphotograph ($\times 1600$). Section of tissue removed from dorsum of hand stained with carbolfuchsin and methylene blue showing lepra cells and large numbers of lepra bacilli.

legs and dorsum of the feet are also extensively involved. The individual tubercles and infiltrations present the usual picture, being bluish or darkish red in color and firm to the touch. They had occurred in groups, and many had disappeared, leaving pigmented areas. The mucous membrane of the roof and posterior part of the mouth is studded with small tubercles, from one of which enormous numbers of bacilli were demonstrated immediately in a smear from its cut edge (Fig. 2). The larynx and vocal chords are also involved, making it difficult for the patient to talk, especially when trying to use his normal conversational tone. The hoarseness is not so marked in his louder tones. I was able also to demonstrate numerous bacilli in the sputum, but these could readily have come from the back part of the mouth. The ulnar nerve is somewhat enlarged, but this fact is not demonstrable in other nerves commonly attacked. There is anesthesia over the areas of infiltration, but this symptom is not present in the areas supplied by special nerves, such as is the case in the

rosy and that the disease in this family originated in the father.

Other Recorded Indigenous Cases.—In 1879, Hyde,¹ in a clinical lecture demonstrating a case of leprosy in a man aged 43, a native of Sweden, stated that there was little doubt that the daughter of this patient was also suffering from the same disease, she having been born and reared in Nebraska.

In 1901 Burnside Foster² reported the case of a man aged 20, born and reared in Minnesota, who had suffered with leprosy for eight years.

Shamberg,³ in 1904, reported the case of a woman always a resident of Philadelphia and its suburbs, who died in 1892 at the Municipal Hospital of Philadelphia of leprosy.

1. Hyde: Chicago Med. Jour. and Examiner, December, 1879.

2. THE JOURNAL A. M. A., Aug. 21, 1901, p. 553.

3. V. Internationaler Dermatologen-Kongress, Berlin, vol. 1, 1904.

D. W. Montgomery,⁴ in 1892, reported the case of a native-born American who had contracted leprosy either in California or Nevada; in 1900 he reported the case of a white woman who contracted the disease in San Francisco.

Bloom,⁵ in 1904, reported a case of anesthetic leprosy in a man aged 39, born in Illinois and living in Kentucky.

New Instrument.

AN ADJUSTABLE TUBE FOR THE FINSEN LAMP.

GEORGE G. HOPKINS, M.D.
BROOKLYN, N. Y.

A treatment which consumes an hour or more and which necessitates having the patient perfectly immobile, should be administered with the patient in as comfortable a position as possible. The Finsen apparatus as constructed in Denmark is fixed and each case must be adjusted to the tube no matter how uncomfortable the position has to be.

My adjustable tube is designed to make an otherwise perfect apparatus adjustable to any position of the patient. The accompanying photograph illustrates both the mounting of the tube and the lamp. Instead of suspending the lamp in its frame with four wires I have arranged an easy and rapid method of adjustment, by using a yoke attached to a rod, passing into a tube and held at any height desired by a clamp screw (8). This admits the raising and lowering of the lamp, so as to secure the most rays, for the tube in its varying positions, as arranged for by the stand to be described.

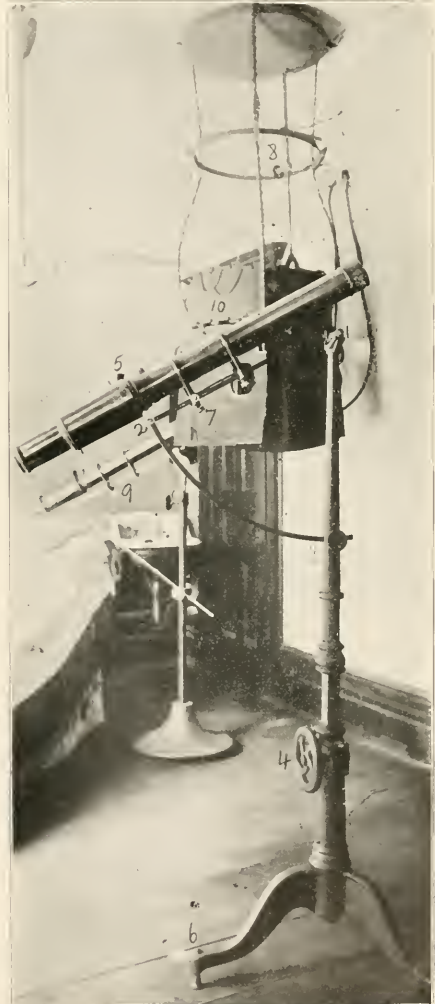
The yoke is attached to the head of the lamp by two eye loops. A metal sextant with a circular slit to carry the bolt of a clamp screw is also attached to the head of the lamp. This bears against one arm of the yoke. The clamp screw passes through this arm, admitting a change in the angle of the lamp to correspond to any change in the angle of the tube. This adjustment I have found to answer every purpose. The next thing to be accomplished was to have a stand by means of which the tube could be raised and lowered without changing its angle.

The stand shown in the background (9) was the first one I had made, but I could not make the mechanic comprehend my ideas. This stand will accomplish all that I need, but every time I change the height I have to readjust the angle. The stand shown in the foreground is the second stand that I had made, by another mechanic. It meets every requirement, is as simple as possible and costs about one-third as much to construct.

At the joint (1) the rod (2) carrying the tube (5) is attached to the head of the stand. Another piece of iron, the segment of a circle, is hinged to the end of the tube rod (2) and passes through the upright portion of the stand above the point where it is invaginated in the tube of the stand: this arm is controlled by a clamp screw (3). By this adjustment the angle of the tube can be changed at will. The altitude of the tube can be changed without altering the angle, by the ratchet wheel (4), with a setscrew to fix it at any height. Two of the three legs of the stand have castors, while the other (6) is provided with a rubber bearing, so that the stand is not easily moved by accident.

Those who have used the Finsen apparatus will appreciate the difficulty in using it on many portions of the body when fixed in the immovable position, as we find it in Copenhagen and elsewhere. These adjustments were made particularly with a view to the use of the apparatus in the treatment of uterine carcinoma, where the cervical portion is involved and where there is a hemorrhagic tendency. In this class of cases the light is invaluable.

I have yet to see any apparatus that compares with the Finsen apparatus, as devised by him, in efficiency, for the treatment of lupus, rodent ulcer, uterine carcinoma, birthmarks, eczema, etc. I have tried to keep in touch with and have examined every new substitute for this apparatus and I have bought some, but have discarded them, and I have yet to find one which will accomplish as much good as, or which is in any way comparable to, the original Finsen tube. The tube is expensive, owing to the difficulty of securing as large,



clear pieces of quartz crystal as are necessary for these tubes. Further, the operating of the apparatus is expensive in the consumption of electricity. This has led to the effort to put on the market many sorts of apparatus that are cheaper in construction, as well as very much less costly to operate.

After five years' experience with this method of treatment I am fully convinced that it is the best yet devised for the treatment of lupus and kindred diseases.

350 Washington Avenue.

4. *Ledra, Bibliotheca Internationalis*, vol. i, Fasc. 4, 1900.

5. Bloom: *Louisville Monthly Jour. of Med. and Surg.*, 1900-01, vol. vii, p. 368.

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THE INDEX.

This issue contains the index to the current volume of THE JOURNAL. As usual, it is in two parts. The "General Index" contains the index to the matter which has appeared in THE JOURNAL. While this index is probably fuller than that which appears in other journals, we make no distinctive claim for it, and there is no reason for reference to it in this place. We especially desire to call attention to that part which is the index to the current medical literature. It will be recalled that week by week we publish the titles of original articles appearing in the leading medical publications of the world, and the index referred to is an index to these titles. In one sense it is an index medicus of the medical literature of the world for the past six months. While it is not as full or complete as the *Index Medicus*, it is of great practical value to those who desire to refer to the original work of the past six months without much trouble on their part.

For the last three years we have been publishing a reprint of this index, including a list of the titles, so that easy reference can be made. We believe that this reprint is valuable, and we know it is appreciated by those who have had occasion to use it. Some months ago we sent out some 200 copies of this reprint, which is called the "Guide to Current Medical Literature," asking the recipients for their opinion as to its value. We did this for the reason that so few copies were called for that we concluded to give it up. The replies received were extremely gratifying. A considerable number stated that they were unaware that we published this in reprint form, and many had not appreciated the index in the slightest degree, because they did not know of it. This is one of our excuses for calling attention to the matter.

The reprint is sold at 50 cents for a single copy, or 75 cents for the year. We shall have to sell a good many more copies than we are selling at the present time to pay the expense of this reprint, much less make a profit. The latter is not our object.

We hope those of our readers who are interested in keeping up with any subject, and who consequently desire to know what papers are being published on such subject, will refer to the index to Current Medical Literature in this volume and study it carefully. Its simplicity will become evident to those who will try to look up a subject.

THE WATER-SUPPLY QUESTION IN FRANCE.

It is well known to sanitarians that for some time the condition of the Paris water supply has not been satisfactory in respect to either quantity or quality. The present supply is derived mainly from distant springs or ground-water sources, and certain occurrences on the drainage areas of these underground streams have given rise to some uneasiness among the general public as well as among the officials responsible for safeguarding the purity of the supply. The dubious quality of the supply is not the only difficulty. The quantity of water available from this source has proved at times inadequate for the city's needs, and it has had to be supplemented from other sources. In the year 1902 the municipal authorities began to add as part of the supply filtered water from the river Seine. In its raw condition the Seine water is far from being irrefragable, but it was thought that after being subjected to sand filtration it would be found, as has been the case with many other more or less polluted river waters, to be effectually purified.

The keen interest felt in Paris concerning the outcome of this measure has recently found expression in an animated controversy before the Société de Médecine Publique et de Génie Sanitaire. The respective partisans of the "eau de source" and the "eau de rivière filtrée" have held forth on the issue during several sessions of the society at great length, and, as it appears to an outsider, with some appearance of acrimony. Leaving one side the strong personal feeling evidently engendered by the discussion, there are several points of general interest. One is the signal failure of the attempt to show that the filtered river water has been positively detrimental to the health of the Parisians. The statistics advanced to support what, judging from the experience of many cities, is a rather surprising view, have not been able to withstand the searching criticism to which they were exposed. On the contrary, so far as the somewhat confusing and limited data warrant the expression of an opinion, the use of the filtered water has been accompanied by a diminution rather than by an increase of typhoid fever. As Chabal pointed out in the course of the discussion, those quarters of Paris that chanced to be supplied with filtered water at the time of the epidemic of typhoid fever in February and March, 1904, were among those where the disease did not assume an epidemic character. One of them, in fact, the 20th Arrondissement, did not furnish even a single death from typhoid fever during the course of that epidemic.

Another point of considerable interest is the evidence of the growth among French sanitarians of a favorable opinion concerning the system of sand filtration. The trend of the discussion plainly shows that the advocates of "spring" waters are losing ground. The stand taken by the advocates of filtered water was very de-

cided. One distinguished Parisian sanitary engineer went so far as to say that in the matter of water filtration his compatriots not only held a position of pupilage to Germany, but that they were poor pupils. It may be considered significant that "ground" waters are falling into disrepute in the country that has so long obtained its chief municipal supplies from this source, and that has committed itself so fully to the construction of costly aqueducts and storage basins.

It is, perhaps, a matter worth noting by Americans that a conspicuous feature of this discussion, and one that plainly carried a good deal of weight, was the report made by M. Le Couppey de la Forest on his recent extended official examination of American achievements in the domain of sand filtration.

The situation in France is certainly an interesting one. It seems likely that filtered waters are destined in the near future to displace to some extent the spring and ground waters of somewhat uncertain quality which have until recently been the dominant, indeed, almost the sole, source of public supply.

CHLOROMA AND ITS RELATION TO LEUKEMIA.

There is probably no group of diseases regarding which more confusion has existed than the diseases of the blood and of the blood-forming organs. The relation which exists between the different forms of leukemia, and the relations which this disease bears to chloroma and to lymphosarcoma, have given rise to endless discussion, much of which has been profitless and even rendered confusion more confounded on account of the lack of definiteness in the use of terms. In recent years, much light has been shed on the dark places by more careful study of the bone-marrow, and by more minute histologic examination, but much yet remains to be cleared up.

The question of the relation of the peculiar disease known as chloroma to the leukemias is an old one, and a close relationship has been suspected for some time. In a recent study of a case of chloroma, Dock and Warthin¹ give a very complete summary of the reported cases and formulate certain conclusions. From a clinical standpoint, the cases have often been confounded with leukemia on account of the fact that the green discoloration of the tumors, which gives the disease its name, can not, as a rule, be made out during life. In the most characteristic cases the clinical picture is that of a severe anemia running an acute course, and accompanied, as a rule, by tumors especially in connection with the periosteum of the cranium. As a result of the blood changes, we see pallor, subcutaneous and submucous hemorrhages and toxic symptoms, such as weakness, fever and emaciation, which are probably due to excessive leucocyte destruction. As a result of the neoplasms, we see exophthalmos, pain, deafness, and other less common symptoms, which are due to

mechanical pressure. The blood condition has, unfortunately, been carefully studied in but few cases. It seems probable that in almost all instances there is an actual increase in the white corpuscles, and that in the few exceptions to this there are qualitative changes suggesting lesions in the blood-forming organs. The blood lesions as a whole are those of leukemia, and as in leukemia, it is not always the same variety of cell which is increased. The most characteristic pathologic change is the presence of the peculiar green tumors which give the condition its name. These have been found most frequently in connection with the periosteum, but may also be found as definite metastases in the internal organs. The most recent studies seem to show that these periosteal tumors are secondary, and that the primary changes are to be found in the bone-marrow.

The conclusion which Dock and Warthin come to from the study of their case is that chloroma is a tumor-like hyperplasia of the parent cells of the leucocytes, primary in the red marrow, the periosteum being involved only secondarily. They concede the possibility that such a growth could arise in any of the blood-forming organs which produce white cells. The fact that this leukoblastic hyperplasia is accompanied by an increase in the blood of typical or atypical leucocytes leads them to class the disease with the leukemias. They consider it possible that as in other forms of leukemia there may be certain forms or stages of the disease in which there is no excess of the new-formed cells in the blood, i. e. an aleukemic chloroma. The essential difference between chloroma and ordinary leukemia lies in the greater malignancy of the former and in the green color of the tumors. That some cases of leukemia may have equal malignancy is shown by another case of Warthin,² reported elsewhere. The cause of the green color is still unknown; it is probably a parenchymatous color. The etiology of the process is just as obscure as that of leukemia, and for that matter, of neoplasms in general.

SEROTHERAPY IN TYPHOID FEVER.

Within the last seven or eight years several investigators have attempted to discover a prophylactic or therapeutic agent for typhoid fever based on antibacterial or antitoxic lines. In some cases a protective inoculation with a weakened virus has been employed, as in the protective inoculation of Wright, while in other instances an antitoxic serum has been used for curative purposes. Theoretical objections have been raised as to the possibility of making use of an antitoxin, on the ground that the typhoid bacillus does not excrete a soluble poison like the diphtheria bacillus, but forms instead an intracellular toxin. On this point, however, there is a good deal of disagreement, and some of the recent work on this subject seems to show that the typhoid bacillus produces a soluble toxin as well as an intracellular one.

One of the earliest observers who attempted to pro-

1. Medical News, vol. lxxxv, Nos. 22 and 23.

2. Trans. of the Assn. of Amer. Physicians, 1904.

duce an antitoxin to neutralize the typhoid poison was Chantemesse, who published his first clinical data in 1897. He has now used his antityphoid serum under uniform conditions for three and a half years, and has recently published¹ his statistics, as well as of those of two other physicians who have been using his serum independently in other hospitals. He has deferred publishing until the present, so that his statistics would cover cases observed in several different epidemics. He compares results obtained in his cases with those obtained in other Paris hospitals with a similar class of cases. The whole number of patients which have been subjected to his antityphoid serum numbers 765, of which number he himself treated 545. The remaining 220 were treated by Drs. Josias and Brunon, and were exclusively children. The mortality in both series of cases was the same—4 per cent. The average mortality of the other Paris hospitals during the same time was 13 per cent., and the lowest mortality in any of these institutions was 12.8 per cent. The causes of death under serum treatment were essentially those which cause death under other treatments, perforation, asthenia, and mixed or secondary infections. The average percentage of perforations in fatal cases is 2.6, while in Chantemesse's cases the average was 1.6.

Regarding the method of employing his serum Chantemesse is a little indefinite in this article. From his other articles one judges that the serum is given subcutaneously in rather small doses (not more than 10 to 15 c.c.), and that the dose needs to be repeated once or twice during the disease. Chantemesse states that it can not be compared with the diphtheria antitoxin, as in typhoid the severe cases often require the smallest doses, and vice versa. As in diphtheria, however, the best results are obtained if the serum is given early in the disease, and not much is to be expected if the patient shows profound nervous involvement. Chantemesse thinks that the serum produces a specific effect on the organs of defense, especially the spleen, lymphatic apparatus, and bone marrow, and that in order that this effect may be produced the patient must be in a condition to react.

The objections which have been brought against the idea that the action of this serum is specific, are, first, that Chantemesse's success is due to the personal care which he gives to his cases; and, second, that his success has been due to the use of the cold bath which he advocates as an adjunct to the serum treatment. He answers the first objection by citing the success which others have had with his serum, and the second by the statement that the cold bath is extensively used in the Paris hospitals, and that they, nevertheless, have a much higher mortality than he has in his institution.

The whole subject is one of ever-present interest, and one can not help feeling encouraged by Chantemesse's results. They are certainly better than the

results thus far obtained by any known method of treatment followed for a reasonable length of time. If any criticism can be made of Chantemesse's statistics it is that they cover a relatively small number of cases and a relatively short period of time. Making all allowances for this, however, the subject is one which it seems well to follow up further.

EFFECTS OF ENFORCED IDLENESS ON CONVICTS.

One special phase of the labor problem that comes to the front every little while is the question of the effects of the anticonvict labor laws on the health and mortality of prisoners. Owing to the demands of the labor unions, several states have passed laws which prohibit contract labor in the prisons, and which seriously embarrass the prison authorities in the management and discipline of the institutions. It is a well-known fact that idleness of prisoners tends to physical and mental deterioration; an increase of insanity, as well as a general impairment of the health and well-being of the prisoners, has generally followed the enacting of the laws aforesaid. Even under the best of conditions, with plenty of work, some mental deterioration is inevitable in prisoners. Add to this the restlessness and worry of enforced idleness, and the chances of mental breakdown are vastly increased. If our criminal laws were strictly punitive in their intent it would still be a serious question for criminologists whether it is just to add the deprivation of reason to the other punishments contemplated in the law. Yet this is practically what is being done in a large number of cases when convict labor is prohibited or seriously restricted. It would be, perhaps, more merciful and certainly more economical to the state to re-enact the old laws making capital punishment the penalty for nearly every serious crime. Under the enforced idleness plan, many a short sentence is made practically one for life; for prison-bred insanity is not, as a rule, of a curable type. The economic side of the question need not be discussed; its aspects are self-evident. The legislators who pass such laws, and those behind them who advocate them, have a serious responsibility to meet—a responsibility in which the medical profession shares if it fails to raise its voice in protest.

THE TOO STRENUOUS LIFE.

The announcement has recently been made that an all-night bank, which is to be literally open every hour of the day and night, has been organized in New York City. At recent trials of promoters and speculators and in the legal investigations of various large commercial concerns, it has been made very clear that not a few of the deals in modern business are not made during regular business hours, but in the evenings when men are supposed to be enjoying a much-needed rest after the labors of the day. The new bank is intended to cater only to travelers and others who may in emergencies need a certain sum of money after regular banking hours. It seems likely, however, that it will not discourage the making of various business transactions,

¹ Presse Medicale No. 86, 1904. The Journal, pages 1876 and 1905.

which will enable the over-strenuous to continue their money-making avocations during all their waking hours. The same newspaper that brings the news of the all-night bank also makes the announcement that the son of one of the richest men in the country, himself a very wealthy financier, has been compelled to break off his business engagements for a time, at least, though he is only about thirty years of age, in order that he may recuperate his strength before his health becomes seriously impaired. One of the best safeguards against over-devotion to business has been the fact that banking hours, up to the present time, have proved an inviolable limitation. It seems too bad that this safeguard is to be broken through under the specious pretext that travelers may need money, which they will not be able to procure except over the counter of a bank. The new institution promises to present many opportunities for the abuse of the already overburdened nervous systems of business men. At the present time, business life is run at such high tension that it is no wonder that nervous breakdowns are frequent. The old physician who used to tell his overworked patients that they had not brains enough to run their business and their liver, was expressing a great truth in a homely, telling way. "Nature may be pushed aside with a fork," old Horace said, "but she will always come back." The recoil and its consequences are not likely to be pleasant for those who allow the over-strenuous life to tempt them into the violation of the plainest rules of health.

Medical News.

ILLINOIS.

Town Physician for Rockford.—Dr. E. C. Lofgren, commissioner of health for Rockford, has been appointed town physician. Many contagious cases have come under the notice of the city health department, which have not been properly quarantined, thereby putting the entire community in danger. The new office is created as a protection for the city against contagious diseases which may be flourishing in the immediate vicinity of the city.

Committee to Select Staff for Cook County Hospital.—The nominating committee, which is to select the attending staff of the County Hospital, is announced as follows: Drs. Charles S. Bacon, Frank Billings, Daniel R. Brower, H. O. Brown, F. C. Hotz, Stewart Johnson, John B. Murphy, Hugh T. Patrick, Charles E. Paddock, Thomas J. Conley, A. C. Cowperthwaite, Casey A. Wood, Nathan S. Davis, Joseph B. De Lee, Fernand Henrotin, William E. Quine, E. M. Reading, Nicholas Senn, George F. Shears, H. M. Starkey, D. A. K. Steele, James H. Stowell, Henry S. Tucker, Charles S. Williamson.

Chicago.

Aids Passavant Memorial Hospital.—The benefit entertainment given at the Illinois theater December 22, to aid the Passavant Memorial Hospital netted that institution \$2,500.

Chicago's Health.—The Department of Health announces that after three weeks of unusually low December mortality the seasonal winter increase has set in sharply. The 548 deaths from all causes reported during the week represent a 7.6 per cent. increase over the previous week and nearly 4 per cent. more than the corresponding first winter week of 1903.

Good Record for Obstetric Dispensary.—Dr. Joseph B. De Lee, medical director of the Chicago Lying-in Hospital, reports the work done at the Maxwell street dispensary. In seven years 3,990 cases were treated at their homes without a maternal death. The next case was a complicated one in which death occurred. Since the hospital and the dispensary were established in 1895, 5,800 cases have been cared for, with only three deaths. This last death is the first since the spring of 1897.

MARYLAND.

Baltimore.

Office Building to Replace Dr. Osler's House.—Dr. William Osler has sold his residence for \$55,000. It is a two-story and attic house of colonial design and occupies a lot 59x100 feet in the very heart of the city. It was purchased by him about fifteen years ago for \$40,000. Possession will be given next May, when Dr. Osler will leave for England. The purchaser will build an apartment house on the property and the first and second floors will be arranged for physicians' and dentists' offices.

Public Hospital for Tuberculous Patients.—The first public hospital for the treatment of tuberculosis in the state was opened December 20. It was built by the city and is situated on a beautiful hill, with a fine outlook about a quarter of a mile from the city almshouse. The building is of brick and is three stories in height. It is so constructed as to give a maximum of light and sunshine. The kitchen and dining-rooms are in the basement. The other two floors are for the patients, of whom there are now about 50. The capacity of the building is 100. There are no separate rooms. Each floor, which is about 125x30 feet, is divided in the center by a wooden partition, so as to make separate male and female wards. Each ward is subdivided into compartments with canvas partitions so as to promote free access of air. In the front of the building are sun parlors and at the south side a long open porch with a fine view of the harbor. There are five female nurses, who occupy an old farmhouse nearby. There will be one resident physician, who will be assisted by the seven physicians at the almshouse in alternation. Dr. Benjamin J. Bond has been appointed resident. The treatment will be mainly fresh air, sunlight and special and abundant diet. There were no formal exercises attending the opening.

NEW JERSEY.

Personal.—Dr. B. C. Pennington, who was seriously ill in the German Hospital, Philadelphia, returned to his home in Atlantic City, December 20. His health is much improved.

Smallpox in Camden.—The first case of smallpox recorded in Camden since last May was reported to the authorities December 22. The victim was a young woman and she was admitted to the Municipal Hospital.

NEW YORK.

New York City.

Personal.—Dr. Virgil P. Gibney, who has been sued for damages growing out of an unsuccessful operation, had his case dismissed.—Dr. Emily Dunning, New York's only woman ambulance surgeon, on the occasion of her retiring from the service, was presented with framed resolutions by the attaches of Gouverneur Hospital.

New Bellevue Pavilions.—The construction of four new portable wards has been begun to relieve the overflow of patients during the winter. Although the busy season has not begun, the hospital is crowded. The same condition prevails in the Metropolitan Hospital and in the City Hospital, each of which has had nearly 100 patients lying on springs on the floors during the past week.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending December 17, 329 cases of diphtheria and croup, with 40 deaths; 310 cases of tuberculosis, with 134 deaths; 184 cases of scarlet fever, with 13 deaths; 103 cases of measles, with 12 deaths; 72 cases of typhoid fever, with 16 deaths; 2 cases of smallpox, 126 cases of chicken-pox and 26 deaths from cerebrospinal meningitis.

New York Polyclinic Medical School and Hospital.—This institution has just celebrated its twenty-second anniversary by a reception given to its board of trustees and medical staff. The Polyclinic was the pioneer medical school of its kind in America. In twenty-two years nearly 8,000 physicians have matriculated as students. A gratifying feature of the reports submitted by the president was that the medical staff not only gave their services as teachers without compensation, but from their own pockets had paid a mortgage of \$37,020 on the Polyclinic property during the past year. The institution, however, has outgrown its present facilities and the trustees and staff have undertaken to raise sufficient funds for a new building.

Continued Work for Pure Milk.—During the past week ten milk dealers have been fined for selling adulterated milk. The Metropolitan Company, whose charter was revoked by the Board

of health and a new charter refused, has been forced out of business and is selling its property. The dairy trade journals are giving their support to the Department of Health. Alderman Bennett of Brooklyn has introduced an ordinance requiring that all milk coming into the city in cans or receptacles of any kind shall bear a metal seal and those refusing to comply with this ordinance shall be fined. The milk commission of the county medical society, which has been working for the past five years, favors bottled milk, and has inaugurated a plan by which milk can be sent from the producer to the consumer without danger of adulteration by middlemen. The medical society, after inspecting dairies, furnishes them with lead foil bottle caps stamped by it and bearing the name of the dairyman. In order to secure these seals the producer must conform with certain strict regulations, but he realizes that as his milk brings better prices it is profitable to conform to the society's demand. Some of the requirements are that the barnyard shall be well drained and kept clean; the stables must be whitewashed twice a year and have tight floors, preferably of cement. The whole premises must have a supply of absolutely pure water. The cows must be examined twice a year by a skilled veterinarian, and no cow can be added to the herd without being examined for tuberculosis. The entire herd must be groomed daily and the milkers must wear light clothes and keep themselves clean. The milk must be cooled to a temperature of 45 degrees within an hour after milking. Specimens taken at random must be sent to the research laboratory of the health department for examination weekly. The milk commission reserves the right to inspect the certified farms at any time.

OHIO.

Board of Directors of Cincinnati Hospital.—This board recently organized for the new year by electing the following officers: President, Dr. A. B. Isham; vice-president, Dr. Louis Schwab; secretary, Dr. Byron Stanton.

Laboratory Examinations by the State Board of Health.—The State Board of Health will soon open its laboratory to all certified physicians of the state. Chemical, pathologic and bacteriologic examinations will be made on request and results promptly sent to attending physician.

Cleveland Medical Library Association.—The Cleveland Medical Library Association held its annual meeting December 10. After transacting routine business Dr. George Ben Johnston, Richmond, Va., read a paper on "The Medical Men Contributed to the United States by the State of Virginia."

Personal.—Dr. C. R. Roessly has been appointed district physician by the Board of Health in place of Dr. H. J. Strack, deceased.—Dr. Frank H. Lamb, Glendale, formerly clinician in medicine, Miami Medical College, has been appointed assistant to the chair of physiology in Harvard Medical School.

Fire in the Cincinnati Hospital.—Dr. Oscar Behrman, interne to the Cincinnati Hospital, prevented, on December 21, what might have been a very serious conflagration in that institution. An alcohol lamp in one of the wards became overturned and in a moment a mass of drapery was in flames. Dr. Behrman put out the blaze with no little risk to himself.

Closure of Cincinnati Presbyterian Hospital.—At a meeting of the board of trustees of the Presbyterian Hospital it was determined that the institution should close its doors as soon as the patients under treatment could be removed and the affairs of the hospital settled. This will take about thirty days. For a long time the hospital has been supported to a very large extent by Mr. Alexander McDonald of Cincinnati, who has contributed in all about \$250,000, and in addition allowing \$7,500 a year for maintenance. In spite of this, however, the hospital has been constantly falling behind and a few years ago Mr. McDonald met a deficit of \$25,000. Recently Mr. McDonald notified the board of trustees that inasmuch as the Presbyterian church had failed to support the hospital as liberally as he felt it might, he would not make any contribution in the future. This announcement was followed a few days later by the resignation of the "board of lady managers." Some years ago the hospital was run as a teaching branch of the Laura Memorial Medical College, an institution exclusively for women, and established and maintained by Mr. McDonald in memory of his daughter. Two years ago this college was closed because the attendance was steadily diminishing so that the outlay of time and money was not justified. The Miami Medical College took over the students, many of whom have since graduated with honors.

First Councilor District Medical Society.—The first councilor district of the Ohio State Medical Association held its first annual meeting December 8-9, in Cincinnati, at the rooms of the Cincinnati Academy of Medicine. Dr. Brooks F. Beebe, councilor for the district, called the meeting together and on his suggestion the nomination of officers for the ensuing year was in order. The nomination and election of Dr. Blair, Lebanon, for president, and Dr. Magnus A. Tate, Cincinnati, secretary, followed. The following papers were then read: "Chronic Catarrhal Cholecystitis," by Dr. E. S. Stevens, Lebanon; "Theories of Immunity," by Dr. Mark Millikin. At the afternoon session these papers were read: "Appendicitis," by Dr. Joseph Eichberg of Cincinnati; "The Pathology of Appendicitis," by Dr. S. P. Kramer (lantern-slide demonstrations); "The Time for Operation in Appendicitis," by Dr. C. A. L. Reed of Cincinnati. These papers were discussed by Drs. G. A. Fackler, H. J. Whitacre, Joseph Ranshoff, C. L. Bonifield, R. B. Hall, B. M. Ricketts, J. M. Withrow, B. F. Beebe, of Cincinnati, and R. Trimble of New Vienna, Ohio. Dr. P. S. Connor read a paper on "Modern Surgery." Friday was devoted to clinics. Dr. B. F. Lyle presented two patients suffering from tuberculosis, and one of aneurism of the arch of the aorta. Dr. Edwin reported a case of resection of the ovaries. Dr. M. L. Heidingsfeld presented cases of lupus, herpes tonsurans, nevus, linear nevus and syphilis. Dr. Robert Sattler presented a case of glaucoma of both eyes in a child of 12. Dr. Samuel Iglauer presented cases of adenoids and of tuberculosis of the larynx. Dr. Walter E. Murphy presented a case of fibrosarcoma of the ethmoid. Dr. Albert Freiberg presented cases and x-ray pictures of congenital dislocation of the hip. In addition, special clinics were held at the Cincinnati, Presbyterian, Jewish, Good Samaritan, Christ's and Ophthalmic hospitals, at the Miami Medical College and at the Medical College of Ohio. The First Councilor district of Ohio contains the following county medical societies, all represented at this meeting: Adams, Brown, Butler, Clinton, Clermont, Hamilton, Highland, Warren.

PENNSYLVANIA.

Personal.—Dr. Samuel M. Crawford, Columbia, has been appointed chief medical examiner of the Pennsylvania Railroad Relief Department, with headquarters at Harrisburg, vice Dr. James M. Brown, deceased.

Accidents.—Dr. Thomas J. B. Rhoads, Boyertown, in alighting from a moving train, November 27, fell, sustaining cuts and bruises.—Dr. J. Hervey Reynolds, Bellevue, while driving, November 29, was run into by an electric car and thrown out of his buggy, breaking one rib and causing severe shock.

School Principals Held on Vaccination Case.—Five of Altoona's public school principals have had information brought against them for permitting children who had not been properly vaccinated to attend school. The action was brought against them by the Board of Health and will be taken to court for decision.

Move for Pure Milk.—Prompted by the recent epidemic of typhoid fever at West Chester, a member of the legislature from that county will introduce a bill to provide for the more careful inspection of farm buildings from which milk is distributed to the public. The bill will also provide that no milk shall be bottled or prepared for consumption in any of the cow barns.

Staff Appointment.—The following chiefs of staff and assistants have been announced by the board of managers of the Reading Hospital: Dr. John L. Bower, assistant, Dr. George W. Overholzer; Dr. Clarence M. Kurtz, assistant, Dr. Abram K. Wanner; Dr. John M. Bertolet, assistant, Dr. Thomas C. Buchanan; Dr. John F. Feick, assistant, Dr. Floyd H. Feick; Dr. Albert F. East, assistant, Dr. Harry F. Rentschler; Dr. Israel Cleaver, assistant, Dr. Heister Bucher, and Dr. Samuel L. Kurtz, assistant, Dr. Samuel B. Taylor.

New Buildings Ready.—The new buildings of the East End Hospital, Pittsburg, which name will shortly be changed to the Pittsburg Hospital, were open for public inspection December 8. The main building is fireproof, five stories in height, and will accommodate 110 patients. The two-story pathologic building which is detached from the main building, but has a communicating tunnel 100 feet long, contains the autopsy room, morgue and pathologic and bacteriologic laboratories. The buildings thus far have cost \$200,000.

To Guard Health of State.—At the coming session of the legislature a bill will be introduced providing for complete reorganization of the scheme for conserving the public health.

The bill has the indorsement of the medical societies throughout the state, and the State Board of Health has also indorsed the measure. The bill is entitled, "An act to provide for the better protection of life and health in the several counties and townships of this commonwealth, by establishment of county boards of health, and county and township health officers, and to provide compensation for the same, and to provide for the notification of the existence of contagious diseases by practicing physicians throughout the commonwealth, and providing penalties for the neglect or violation of any of the provisions of the same." This auxiliary organization to the State Board of Health will include 1,500 physicians. The bill also provides that the State Board of Health shall appoint in each county a practicing physician of at least five years' experience to be the medical officer of said county. It is required that all physicians so appointed shall have special knowledge of sanitary law and administration. County courts will name the health officer, who is to serve in each township subject to the State Board of Health.

Philadelphia.

Alleged Malpractitioner Held.—Albert M. Hollis, known as "Doctor" Hollis, who conducts the Hollis Remedy Company in Philadelphia, was arrested on the charge of administering drugs with unlawful intent to a young woman. He was held in \$1,000 bail.

Year's Suicides Decreased.—Statistics from the coroner's office show that during the year 162 persons committed suicide. Nearly one-half of this number either committed suicide by taking poison or by shooting. In 1903 there were over 200 suicides reported from the coroner's office.

Christmas in the Hospitals.—Every effort was made by the officials of the different hospitals throughout the city to make Christmas day for the inmates as pleasant as possible. In many of the institutions special services were conducted, and for those who were able to partake a Christmas dinner was served. In some of the hospitals each patient was presented with a gift. This practice was universal with the children in all the institutions.

Missionary Returns.—Dr. Anna M. Fullerton, at one time chief resident physician in the Woman's Hospital, has returned to this city after five years' medical missionary service in the Punjab, North India, where she was in charge of the missionary hospital and a member of the staff of the training school at Ludhiana. On December 15 Dr. Fullerton addressed the staff and students of the Woman's Medical College, of which she is a graduate.

Used University's Name to Defraud.—Several persons have been victimizing unsuspecting people of this city and vicinity by representing themselves as authorized agents of the University of Pennsylvania for a medical book entitled "Medicology." The authorities of the university officially deny any responsibility for the publication and desire to warn the public against the misrepresentation of unauthorized persons in any matter pertaining to the university.

Tribute to Dr. Welch.—A medical society was formed in honor of Dr. William M. Welch. The first meeting was held at Dr. Welch's residence on December 19, and twenty-five names were enrolled. The society is composed of ex-resident physicians and some of the present resident physicians of the Municipal Hospital. Dr. Welch was for many years physician in charge of this institution, being appointed in 1870 and serving continuously until 1903. At the meeting Dr. Welch was presented with a loving cup. An informal banquet followed.

Personal.—Dr. John Marshall, professor of chemistry and toxicology in the university, was the guest of honor at the annual meeting of the alumni of the University of Pennsylvania of the northwest, held in St. Paul, Minn., December 5.—Dr. Herbert Huston Bethel has returned to Philadelphia after an absence of four years in Weisbaden, Germany.—Dr. and Mrs. Charles W. Fox have sailed for Europe.—Dr. Henry Tucker has been appointed physician in the genitourinary department of the Philadelphia Hospital. Dr. Tucker graduated from Jefferson Medical College in 1894.

Donation to the University.—At the dedicatory exercises of the new gymnasium of the University of Pennsylvania, December 14, Dr. J. William White announced that \$50,000 was donated from the estate of the late William Weightman as an endowment fund. In memory of Mr. Weightman's munificence the gymnasium will be called Weightman Hall and will contain a tablet bearing the inscription, "In Memory of John

Weightman, Class of 1866, Medical, and William Weightman, Jr., Class of 1867, Medical." The fund is to be used for the furtherance of physical education.

Work of Medical Inspectors.—During November 38,578 inspections of public school children were made. There were found 1,083 children suffering from disease of sufficient gravity to warrant exclusion from school. The most important of the conditions demanding exclusion were 11 cases of diphtheria, 14 cases of scarlet fever, 50 cases of chicken-pox, 3 cases of whooping cough, 395 cases of parasitic disease of the scalp and body, 136 cases of defective vision, and 31 cases of unsatisfactory vaccination. Communications to parents recommending medical treatment for children not requiring to be excluded numbered 2,078.

Health Report.—The total number of deaths for the week was 508. This is a decrease of 11 from those of last week and a decrease of 46 from the corresponding period of last year. Of the whole number reported 161 were attributed to diseases of the respiratory tract, 76 being due to pneumonia and 56 to pulmonary tuberculosis. The principal causes of death were as follows: Typhoid fever, 8; diphtheria, 12; cancer, 2; apoplexy, 23; heart disease, 42, and Bright's disease, 35. There were 218 cases of contagious disease reported with 20 deaths, as compared with 213 cases and 26 deaths for the preceding week. No new cases of smallpox were recorded.

House Disinfection.—Particular attention has been given by the Health Bureau to the work of disinfection. At the beginning of this work the test shows that only about 85 per cent. of test objects were destroyed by the methods previously employed. From laboratory experiments the officials have learned that better results are obtained from the employment of strong solutions of formaldehyd in a fine spray. This plan consists in spraying all surfaces of the room with a mixture of equal parts of water and a saturated solution of formaldehyd gas in water, three pints of the mixture being used for each 1,000 cubic feet of air space. The result of this method shows that instead of 85 per cent. of destruction 100 per cent. has been obtained, or complete disinfection. This method is also applicable to bedding and bedclothing, and has much more penetrating power than when applied as gas. Of 900 pieces of bedding material thus exposed all were completely disinfected.

TEXAS.

Personal.—Dr. T. J. Scott, Alvin, has been appointed local surgeon for the Santa Fe System.

Smallpox.—A physician of Venus reports eight cases of smallpox in Ellis County, five miles east of Venus. Efficient quarantine has been established.

Suit and Counter-Suit.—Dr. E. J. Mellish, El Paso, formerly of Chicago, has sued a patient for \$246 for surgical treatment during an attack of appendicitis. The patient filed a cross-action, claiming \$900 damages for the loss of his appendix, which, he avers, was unnecessarily removed.

County Society Election.—Smith County Medical Society held its annual meeting December 13, at which the following officers were elected: President, Dr. J. Charles Smith, Starrville; vice-president, Dr. Richard H. Urquhart, Tyler; secretary and treasurer, Dr. Edwin A. Woldert, Tyler (re-elected); censors, Drs. Thomas J. Bell, Tyler; Jasper D. Phillips, Tyler, and William Johnson, Winona; delegate to State Medical Association of Texas, Dr. E. Albert Woldert, and alternate, Dr. Thomas J. Bell, both of Tyler.

VIRGINIA.

Smallpox.—Abingdon has seven cases.—There are several cases in Lynchburg, Eavington and Oakville.—Washington, Campbell and Charlotte counties have been infected by negro miners returning from the coal fields.—There are still several cases in the upper part of Spotsylvania County.

State Medical Board.—On December 1 the governor appointed the following State Medical Board: Drs. Rawley W. Martin, Lynchburg; Lewis E. Harvie, Danville; John H. Neff, Harrisonburg; Vernon G. Culpeper, Portsmouth; W. Wamanch Chaffin, Pulaski City; Paulus B. Irving, Richmond, and Landon B. Edwards, Richmond.

Personal.—Dr. P. Casey has been made president of the Lynchburg Board of Health, and Dr. John J. Lloyd, a member of the board.—Dr. Paul Redd, Barton Heights, has been appointed a member of the Board of Health of Henrico County, vice Dr. Cathon Archer, deceased.—Dr. Harry B. Taylor, Norfolk, will go to Hankow, China, as a medical missionary.

GENERAL.

Sanitation Fund for Cuban Cities.—It is reported that the Cuban senate has passed a bill appropriating \$326,000 to be used in improving sanitation in the principal cities in Cuba, outside of Havana.

Tuberculosis in Prisons.—In a long report on "What are the best means of combating and treating tuberculosis and of avoiding its propagation in penal institutions of every kind," which Dr. J. B. Ransom, physician at the Clinton prison, Danmora, N. Y., submitted to congress, he said that the use of whitewash as a disinfectant and a cleansing agent is a delusion. He condemns confining prisoners in a dark, a light or a solitary cell. Pardon for the convicts suffering from consumption he believes is a most pernicious way of dealing with the disease. Notwithstanding the indifferent treatment which these patients receive he says that the mortality is only 10 in a thousand, while among the general population it is about 13. His statistics of observations cover 77 prisons containing a population of 44,285. As preventatives he recommends strict isolation, outdoor life on tuberculosis farms and a thorough destruction of the sputa. Tent treatment he considers impracticable because of the great number of guards that would be required.

Marine-Hospital Service Reports on Mosquitoes.—The annual report of the surgeon general of the Public Health and Marine-Hospital Service for 1904 contains a complete and interesting account of the work done in the national quarantine service, especially that on the Mexican border. An abstract is also given of the report of the French yellow fever commission concerning the work in Brazil. The commission found that yellow fever is transmitted either by the bite of an infected mosquito, the *Stegomyia fasciata*, or by direct inoculation of serum from a yellow fever patient. They found that the blood of a convalescent yellow fever patient possesses therapeutic properties of considerable curative value. In the opinion of the commission no other mosquito found at Rio Janeiro, or in the vicinity, has any relation to the transmission of yellow fever. The following deductions are drawn in regard to the transmission of yellow fever as a result of their observations: "First, yellow fever is not transmitted in nature either by direct contact with the patient or by contact with personal effects, or by his excretions; second, the transmission is effected by the biting of mosquitoes, and the only dangerous species, at least in the region in which our researches have been conducted, is the *Stegomyia fasciata*; third, this transmission never takes place during the day while the sun is above the horizon." In regard to protection against the infection of yellow fever the commission declares that "the introduction of merchandise is unattended with danger at any time." In regard to arrivals from a territory infested with yellow fever at a port or place where the disease does not prevail, the commission declares that "it is perfectly useless" to inflict a quarantine if *stegomyias* do not exist in the country at the time of arrival, since transmission can only be effected by this intermediary." The conclusions arrived at by the commission are practically the same as have been arrived at as the result of experiment and observations in the United States.

CANADA.

Twentieth Annual Report of the Hospital for Sick Children, Toronto.—In the year ended Sept. 30, 1904, 761 patients were admitted; of these 389 or 51 per cent. were discharged as cured; 231, or 30 per cent., were improved; 69, or 8 per cent., were unimproved; 81, or 11 per cent., died. The out-patients numbered 5,623.

Veteran Medical Teacher Resigns.—Dr. Michael Sullivan has resigned from the professorship of surgery in the medical faculty of Queen's University, Kingston, Ontario. Fifty years ago Dr. Sullivan entered the medical school at the time of its foundation, and he has been connected with it ever since as tutor, lecturer and professor. He will be appointed honorary professor of surgery and will be given the degree of LL.D.

Prevention of Tuberculosis in Montreal.—The annual meeting of the Montreal League for the Prevention of Tuberculosis was held December 10. During the past year the league's inspector paid 1,667 visits and 9,000 cuspidors were supplied. The league receives an annual grant of \$700 from the city of Montreal. Since November 7 the league has had a dispensary, where physicians call every day and attend to the patients. Sir George A. Drummond was re-elected president. Dr. A. J. Richer resigned the secretaryship.

Aid for Toronto General Hospital.—Mr. George Gooderham, for many years connected with the board of trustees of the Toronto General Hospital, has resigned from the chairmanship thereof, and in doing so announced that he would make a handsome donation toward the building fund for a new hospital. This, with donations recently announced, will make a working capital on which to begin the million-dollar institution which they plan to make one of the finest on this continent.

New Notre Dame Hospital, Montreal.—Mr. Rodolphe Forget has given a site for a new Notre Dame Hospital for Montreal. It cost \$31,000. At the annual meeting last week it was announced that the number of patients receiving treatment in the hospital during the year ending June 30, 1904, was 2,226. One hundred and fifty-six patients died in the institution during the year. In the outdoor services there were 20,458 consultations; the ambulances made 1,437 calls. The cost of a patient for a day was \$1.09. The new contagious diseases hospital for this institution will be ready by May 1.

FOREIGN.

Scarcity of Physicians in Russia.—As so many hospitals, etc., are left without due medical attendance by the absence of their medical force at the seat of war, the Russian government has ordered that the commencement exercises of the medical schools be held much earlier than usual so that the graduates will be free this spring to serve where needed.

Inoculation of Horse with Syphilis.—At the meeting of the Berlin Medical Society, December 7, Piorowski exhibited a horse which he had inoculated with blood from syphilitics. It presented a papular efflorescence on the thorax and abdomen which is not known to occur spontaneously, and which bore a resemblance to human syphilitic lesions. Aronson, however, stated that he had observed similar lesions on horses after inoculation of foreign serums.

Plan to Lessen the Strain of School Life.—A German physician, Dr. H. Molenar of Munich, proposes a radical reform in high-school life which is spoken of with commendation in some medical exchanges as worthy of the serious attention of pedagogists and medical men. He thinks that the same amount of study can be accomplished in less time if work is done in the morning hours. He therefore proposes to have the school session commence earlier, and the time devoted to each class be restricted to forty instead of sixty minutes. Commencing at ten minutes past 7, the time until noon would be divided into six hours of forty minutes each, with three ten-minute and one twenty-minute recess, and the pupils then be dismissed for the day, so that the entire afternoon could be devoted to sports or work in the open air.

Senator's Seventieth Birthday.—Prof. Hermann Senator's seventieth birthday was celebrated by his friends December 6. A number of our exchanges dedicated numbers in his honor, No. 49 of the *Berliner klin. Wochenschrift* containing articles from his clinic only. He has been living in Berlin since 1858, and besides his extensive practice and being at the head of the III medical clinic, has won special fame as an instructor and in scientific research. His works on metabolism have become classic, and many of his other contributions to scientific literature have carried his name far and wide, especially those on medicolegal questions, on diabetes, liver affections, infections and neurology. He was one of the first to call attention to the possibility of intestinal auto-intoxication, and has published 30 important monographs or special articles on kidney affections. He has also been co-editor since 1872 of the *Centralblatt f. d. med. Wissenschaften*. His pupils presented him with a *Festschrift* and a portrait bust for his clinic.

Correspondence.

The Propriety, Indications and Methods for the Termination of Pregnancy.

PHILADELPHIA, Nov. 25, 1904.

To the Editor:—It is with regret that I notice in THE JOURNAL, November 19, an article with the above title. During my service of nearly three years as senior coroner's physician at Philadelphia, I made thirty-three autopsies on those whose death resulted from abortion produced (1) accidentally, (2) by

their own hands, or (3) by others for money. Since May of the present year there have been eighteen different persons brought to the bar of justice by the proper authorities for performing criminal abortion, and there are a number of others suspected of carrying on this nefarious business who are now under police surveillance or whose records are being looked up by a committee recently appointed by the Philadelphia County Medical Society to aid the proper officials in collecting evidence against, and in securing the conviction of, criminal abortionists.

With this short preface, and now that the subject is under discussion, it would be interesting to have Dr. Frank A. Higgins of Boston, the author of the above paper, answer the following questions: How many induced abortions have you performed and at what period of gestation? What was the reason for so doing in each case? Have you induced abortion on the same woman more than once? How many of the patients were married women and how many were single? How many patients applying for this form of treatment were rejected by you? Of those rejected, did any one else perform the operation? Have the rich or the poor been the more prone to seek relief? Have you ever had to revise your diagnosis after performing the operation; like those who have stated that a cesarean section had to be undertaken to save the life of the mother and before the hour set for the operation have had her give birth to a living child without instrumental aid? Do you usually perform the operation in a hospital, at the home of the patient, or in your own office? Do you perform the operation only after consultation with a confrère? Would you consider pregnancy from rape a proper indication for the prompt termination of pregnancy? If you had a death following the operation, would you state on the certificate that you had induced abortion?

In some portions of America, I am well aware, abortions are frequently performed by regular practitioners of medicine and for no other purpose than to save the reputation of an unmarried woman or to prevent too great an increase in offspring. In discussing this question recently with a physician, the chief reason assigned for the permitting of the performance of abortion was that the girl would otherwise commit suicide, or she would do the operation herself, or have it improperly done. Thus possible infection and years of suffering would be prevented by having it performed by a skilled operator. There is a tendency to give by legal enactment to the boards of health more and more power, and the opinion expressed by Dr. Higgins and others who think as he does, if generally adopted, will pave the way for the compulsory application of the physician to the health office for a permit to perform an induced abortion! What the consequences of such a requirement might be, especially if politics prevail as they do in so many of our cities, few can tell.

HENRY W. CATTELL.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ABSORPTION AND ELIMINATION OF POTASSIUM IODID.

CINCINNATI, Dec. 13, 1904.

To the Editor:—Please state in THE JOURNAL the latest theories regarding the absorption and the elimination of potassium iodid.

X. Y. Z.

ANSWER.—Potassium iodid in aqueous solution is strongly dissociated into its constituent ions, the cation (positive ion), potassium and the anion (negative ion), iodidion. Each of these ions acts for itself and has its own properties independently of the other. Thus, in solutions of sodium iodid, potassium iodid and ammonium iodid, the properties of the iodidion are identical through the properties of the several negative ions—potassium, sodium and ammonium—are quite different from one another. The differences in physiologic effects of these various iodids are therefore attributable to the differences in the effects of their constituent cations. Iodidion is, further, quite different in its nature and effects from the element iodin in the ordinary state; iodidion is colorless, while iodin is violet or purplish black; iodidion does not color a solution of starch, while free iodin yields a fine blue color with starch. In a sense, iodidion and free iodin may be regarded as being two allotropic conditions of the same element. It will be readily understood, therefore, why the iodids differ

greatly from free iodin in their physiologic action. Thus, the application of a solution of potassium iodid to the skin has scarcely any appreciable effect, while the application of free iodin has an irritant effect and may even blister. The mucous membranes are capable of absorbing solutions of potassium iodid with rapidity. Administered by the mouth the iodids are absorbed quickly by the stomach and intestine, and iodidion can be demonstrated in the secretions within a few minutes. Most of the iodidion goes through the body unchanged and is excreted as such in the urine, always, of course, along with Companion Katicus. Entering the body with potassium as its companion it may exchange its fellow in the blood or body tissues for sodium or other cations and thus be given off in the urine, partly as dissociated potassium iodid, partly as dissociated sodium iodid or other iodids. A little iodidion is excreted in the saliva, stomach juice, tears, perspiration, milk, sebum and nasal secretion. The excretion of iodids is far more rapid than that of bromids, for about 75 per cent. of an iodid is said to be recoverable in the urine within twenty-four hours after administration, and after a week nearly all has been excreted. There is evidence that a part of the iodidion is decomposed in the body with formation of free iodin, the latter uniting at once with proteid substances to form organic compounds. Sometimes a little free iodin is excreted by the stomach after the administration of potassium iodid. Some authors, in order to explain the irritant phenomena of iodism, have assumed the formation of free iodin from the iodidion along the mucous membranes of the nose and other respiratory passages and in the skin; they thus seek to explain the coryza of iodism in the one instance and the troublesome eruption in the other. The proof of this view has not yet been brought, for while iodidion has been demonstrated in the sweat, saliva and nasal secretion, free iodin, so far as we know, has not. The various theories as to the mode of decomposition of iodids in the body with formation of free iodin are well epitomized by Cushny in his "Text-book of Pharmacology and Therapeutics," third edition, Philadelphia and New York, 1903, p. 513; on p. 517 of the same volume are to be found the more important references to the bibliography of the subject.

ALBUMINURIA.

BATH, MAINE, Dec. 14, 1904.

To the Editor:—Anent the tests for albumin given in your editorial columns Dec. 3, 1904, you state, "albumin being present it is desirable to determine if it be serum albumin or globulin, or both." If it is a fact that serum globulin always occurs in the urine when serum albumin does, why test for the serum globulin, unless, of course, lardaceous disease of the kidney be suspected? When does serum globulin occur alone in the urine, and what would be its clinical significance? As regards the Spiegler-Jolles reaction, it frequently happens that filtering the urine does not clarify it. I then use strong alkalies or a magnesium fluid, warm and filter, when I get a perfectly clear urine. Now, in using the Spiegler-Jolles reagent, I take it the urine should be perfectly clear. Would the use of strong alkalies, etc., in any way interfere with the reaction, and if so, how may the urine be clarified so as not to interfere with the Spiegler-Jolles reaction? HORACE FOX.

ANSWER.—For ordinary clinical purposes it is unnecessary to differentiate serum albumin from globulin in albuminuria. Globulin is present along with serum albumin in the majority of cases. There are exceptional cases, however, where serum albumin is unaccompanied by globulin, and still more rarely instances where globulin is present without serum albumin. The test we gave for globulin is only a rough clinical test; if one wishes to be absolutely sure of the presence of globulin he should proceed as follows: Ammonia is added to the urine until the acid reaction disappears, any precipitate of phosphates removed by filtration and the filtrate mixed with an equal volume of cold saturated solution of ammonium sulphate. Let stand one hour, until the white flocculent precipitate has settled. Filter and wash residue with a half saturated solution of ammonium sulphate until the wash fluid passing through the filter ceases to yield a precipitate with acetic acid and solution of ferrocyanid of potassium. The residue on the filter may consist of globulin and albumoses. Dissolve it in water, remove most of salt by dialysis and cautiously precipitate the globulin with acetic acid; the albumoses remain in solution. The clinical significance of pure globulinuria is not well understood. In forty cases of albuminuria exactly studied by Hammersten globulin without serum albumin was met with only once. It is stated that pure globulinuria is occasionally met with in leukemia. It is necessary to have a clear urine in order to satisfactorily apply the Spiegler-Jolles test. The objection to clearing with alkali and filtering is that the albumins may be quickly denaturalized by weak alkaline solutions even at the room temperature. Nor is it safe to clear by means of warm solutions of magnesium salts, for even in relatively low concentration some of the albumin bodies may be thrown out of solution. The best way to get a perfectly clear specimen, when filtration through paper is not satisfactory, is to filter through asbestos. It is not to be forgotten that Spiegler's reagent as modified and applied by Jolles is extremely

delicate, and that the presence of non-pathologic amounts of albumin may be demonstrated by it. If the reaction is positive a second test should always be made with heat and nitric acid or with acetic acid and ferrocyanid of potassium, for with these reagents non-pathologic amounts of albumin are not precipitated. Another point to be borne in mind is that if iodids be present in the urine Spiegler's reagent may give a ring of mercuric iodid.

THE INDEX.

PUEBLO, COLO., Dec. 20, 1904.

To the Editor:—I am interested in the subject of gastric ulcer. Will you kindly refer me to a few of the recent articles on this subject.

W. H. CAMPBELL.

ANSWER.—Our correspondent may find the information he desires by referring to the index. Over 40 references on this subject are indexed, the majority of which have appeared in THE JOURNAL either as original articles or as abstracts. Reference to the index of Current Medical Literature will show the name of journal and date of issue of copy containing articles which appeared in other journals. The articles are indexed under the heads of "Gastric Ulcer," "Ulcer," "Treatment of So-called Dyspepsia," etc.

FELLOWSHIP IN ROYAL MICROSCOPICAL SOCIETY.

PHILADELPHIA, PA., Dec. 5, 1904.

To the Editor:—Please give me some information concerning the right to use the letters F.R.M.S. (England). Is it honorary only, or may it be obtained by passing an examination, competitive or otherwise?

ANSWER.—Fellowship in the Royal Microscopical Society is honorary and is conferred by the society. Applications for fellowship must be signed by three fellows of the society, who must certify that the applicant is of established standing and is a microscopist or is engaged in microscopic work.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Dec. 24, 1904:

Hoff, John Van K., deputy surgeon general, assigned to duty at Fort Leavenworth, Kan., with the Infantry and Cavalry School and Staff College.

Mathews, George W., and Turnbull, Wilfrid, asst.-surgeons, ordered to report to Major Wm. C. Borden, surgeon, U. S. Army, president examining board, Washington, D. C., Jan. 4, 1905, for examination to determine their fitness for promotion.

Peshon, George D., surgeon, promoted major and surgeon, to rank from Dec. 5, 1904.

Smart, Charles, asst.-surgeon general, relieved from further treatment at the Army and Navy General Hospital, Hot Springs, Ark., and will repair to Washington, D. C., with a view to appearing before a retiring board.

Morrow, Charles E., asst.-surgeon, granted three months' leave of absence.

Hartnett, E. H., asst.-surgeon, granted three months' leave of absence, with permission to go beyond the sea.

Siler, Joseph F., asst.-surgeon, left Fort Logan, Colo., en route to Fort Douglas, Utah, for temporary duty.

Ewing, Charles E., surgeon, leave of absence extended seven days.

Jones, Percy L., asst.-surgeon, reports from duty as transport surgeon on the *Sumner* to detached service with recruits to Angel Island, Cal.

Kendall, Wm. B., surgeon, relieved from duty at Presidio of Monterey, Cal., and ordered to sail March 1, 1905, for duty in Philippine Islands.

Winter, Francis A., surgeon, relieved from duty at Fort Huachuca, Ariz., and ordered to sail March 1, 1905, for duty in Philippine Islands.

Fisher, Henry C., surgeon, relieved from duty at Camp Geo. H. Thomas, Ga., and ordered to sail April 1, 1905, for duty in the Philippine Islands.

Gray, Wm. W., surgeon, relieved from duty at Fort McPherson, Ga., and ordered to sail April 1, 1905, for duty in the Philippine Islands.

Shillock, Paul, surgeon, relieved from duty at Fort Meade, S. D., and ordered to sail on May 1, 1905, for duty in the Philippine Islands.

Ives, Frank J., surgeon, relieved from duty at Fort Sheridan, Ill., and on expiration of present leave will proceed to Manila for duty in Philippine Islands.

Stark, Alexander N., asst.-surgeon, relieved from duty with Isthmian Canal Commission and on expiration of leave of absence will proceed to Manila for duty in Philippine Islands.

Kellogg, Preston S., contract surgeon, left Omaha, Neb., December 8, on leave of absence.

Shellenberger, James E., contract surgeon, ordered from Fort Sam Houston, Texas, to Fort Clark, Texas, for temporary duty.

Brown, Henry D., contract surgeon, granted an extension of his leave of absence to include Jan. 1, 1905.

De Kraft, S. Chase, contract surgeon, ordered from Washington, D. C., to St. Louis, Mo., for duty with the battalion of Philippine scouts.

Enders, William J., contract surgeon, granted an extension of eleven days to his leave of absence.

Greenwell, Samuel A., contract surgeon, ordered from Cleburne, Texas, to Fort Barrancas, Fla., for duty.

Freeman, Charles E., Wilson, Ezerton T., and Dickinson, Clarence P., contract surgeons, arrived at San Francisco December 15 on the transport *Sheridan*.

Navy Changes.

Changes in the Medical Corps of the U. S. Navy for the two weeks ending Dec. 24, 1904:

Babin, H. J., medical director, retired from active service, Dec. 15, 1904, on which date he reached the age of 62 years, under the provisions of Section 1444, Revised Statutes, with the rank and pay of the senior pay grade of asst.-surgeon in the Navy.

Foster, T. G., A. A. surgeon, detached from the *Michigan* and granted leave until January 3, then to report at Washington, D. C., for examination for appointment as asst.-surgeon in the Navy.

De Vallin, H., A. A. surgeon, ordered to the *Michigan*.

Harnon, G. E. H., medical inspector, detached from duty in charge of the Naval Laboratory, Brooklyn, N. Y., and ordered to duty in command of the Naval Hospital, N. Y.

Bertholet, D. N., medical inspector, detached from the Marine Barracks, Washington, D. C., and ordered to duty in charge of the Naval Laboratory, Brooklyn, N. Y.

Nelson, H. T., asst.-surgeon, ordered to additional duty at the Marine Barracks, Washington, D. C.

Kennedy, J. T., P. A. surgeon, detached from duty at the Louisiana Purchase Exposition, St. Louis, and ordered to Annapolis, Md.

McCarthy, G., surgeon, detached from the *San Francisco*, ordered home and granted leave for one month.

Evans, S. G., surgeon, detached from the *Cleveland* and ordered to the *Illinois*.

Holcomb, R. C., P. A. surgeon, ordered to the *Illinois* temporarily and thence to the *Cleveland*.

Norton, O. D., surgeon, detached from the *Illinois* and granted sick leave for three weeks.

Carter, A. J., asst.-surgeon, ordered to the *Prairie*.

Pease, T. N., asst.-surgeon, detached from the *Hartford* and ordered to the *Columbia*.

Tolfree, H. M., asst.-surgeon, ordered to the *Hancock*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Dec. 21, 1904:

Pettus, W. J., asst.-surgeon general, granted leave of absence for five days from December 27.

Stoner, C. W., surgeon, seven days' leave of absence, under paragraph 189 of the Regulations, from Dec. 16, 1904.

Carter, H. K., surgeon, detailed to represent the Service at meeting of the Pan-American Congress, to be held at Panama, R. P., Jan. 3-6, 1905.

Carrington, P. M., surgeon, reassigned to duty as medical officer in command at Fort Stanton, N. M., to date from December 15.

Holander, G. M., surgeon, granted leave of absence for one month, on account of sickness, from December 23.

Perry, J. C., surgeon, detailed to represent the Service at the meeting of Pan-American Medical Congress, to be held at Panama, R. P., Jan. 3-6, 1905.

Von Ezdorf, R. H., P. A. surgeon, granted leave of absence for four days from December 21.

Pierce, C. C., asst.-surgeon, detailed to represent the Service at meeting of Pan-American Medical Congress, to be held at Panama, R. P., Jan. 3-6, 1905.

Hall, L. P., pharmacist, relieved from duty at Cape Charles quarantine, and directed to proceed to Louisville, Ky., and report to medical officer in command for duty and assignment to quarters.

Van Ness, G. L., Jr., pharmacist, relieved from duty at Louisville, Ky., and directed to proceed to Evansville, Ind., and report to medical officer in command for duty and assignment to quarters.

Peck, H., pharmacist, services discontinued, to take effect December 16.

CASUALTY.

Echেমedia, D. M. A. A. surgeon, died at Havana, Cuba, Dec. 19, 1904.

PROMOTIONS.

Smith, Alexander C., P. A. surgeon, commissioned (permanent) as surgeon, to rank as such from Dec. 17, 1904.

Schereschewsky, J. W., asst.-surgeon, commissioned (permanent) as P. A. surgeon, to rank as such from Nov. 11, 1904.

Wille, C. W., asst.-surgeon, commissioned (permanent) as P. A. surgeon, to rank as such from Nov. 11, 1904.

Amesse, J. V., asst.-surgeon, commissioned (permanent) as P. A. surgeon, to rank as such from Nov. 4, 1904.

Wilson, R. L., asst.-surgeon, commissioned (permanent) as P. A. surgeon, to rank as such from Dec. 1, 1904.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ending Dec. 23, 1904:

SMALLPOX—UNITED STATES.

California: Stockton, Nov. 1-30, 2 cases.

Illinois: East St. Louis, Dec. 1-17, 18 cases, 2 deaths.

Indiana: Evansville, Dec. 17, 53 cases.

Louisiana: New Orleans, Dec. 10-17, 4 cases, 2 imported.

Michigan: At 20 cases, Dec. 5-10, present.

Minnesota: Dec. 5-12, Aitkin Co., 3 cases; Otter Tail Co., 2 cases; Rice Co., 1 case; Todd Co., 5 cases; Wilkin Co., 3 cases.

Missouri: St. Louis, Dec. 10-17, 12 cases, 1 death.

New York: New York City, Dec. 10-17, 2 cases.

Ohio: Canton, Dec. 3-10, 1 case.

Pennsylvania: Altoona, Dec. 10-17, 1 case.

South Carolina: Charleston, Dec. 14, 1 case imported.

Tennessee: Dec. 10-17, Memphis, 1 case imported; Nashville, 2 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Nov. 19-26, 12 cases.

China: Shanghai, Nov. 5-12, 2 cases.

France: Paris, Nov. 26-Dec. 3, 15 cases.

Great Britain: Bradford, Nov. 19-Dec. 3, 6 cases; Leeds, Nov. 26-Dec. 3, 2 cases; London, Nov. 19-26, 2 cases; Newcastle-on-Tyne, Nov. 26-Dec. 3, 11 cases, 1 death; Nottingham, Nov. 26-Dec. 3, 1 case.
 India: Bombay, Nov. 24-Dec. 22, 2 deaths; Madras, Nov. 12-18, 3 deaths.
 Italy: Catania, Nov. 24-Dec. 1, 3 deaths.
 Russia: Moscow, Nov. 19-26, 2 cases, 1 death; Warsaw, Oct. 15-Nov. 5, 15 deaths.
 Switzerland: Zurich, Nov. 19-26, 1 death.

YELLOW FEVER.

Mexico: Guayaquil, Nov. 16-23, 1 death.
 Ecuador: Cotacacanos, Nov. 26-Dec. 10, 4 cases, 5 deaths; Dec. 4-10, Juchitan, 2 cases; Tehmantepec, 1 case, 1 death; Texistepec, 1 case, 1 death.
 Panama: Panama, Dec. 5-12, 3 cases.

CHOLERA.

India: Calcutta, Nov. 5-19, 65 deaths.
 Russian Empire: Oct. 24-Nov. 19, Baku District, 20 deaths; Erivan, 254 cases, 134 deaths; Samara District, 64 cases; Serachis, 3 cases; Zaraguy, 21 cases, 17 deaths.
 Turkey in Asia: Nov. 21, 84 cases, 63 deaths.

PLAGUE.

Arabia: Aden, Nov. 3, present.
 Australia: Brisbane, vicinity of, Nov. 5, 1 case.
 Ceylon: Colombo, Nov. 3-11, 6 cases, 4 imported on steamship *Torrington* from Burmese ports.
 Egypt: Takh District, Nov. 12-19, 1 case, 1 death.
 India: Bombay, Nov. 15-22, 57 deaths; Calcutta, Nov. 5-19, 14 deaths; Karachi, Nov. 13-20, 13 cases, 8 deaths.
 Mauritius: Sept. 9-Oct. 13, 101 cases, 82 deaths.
 Peru: Oct. 24-31, Callao, 3 cases; Eten, 21 cases, 9 deaths; Pacasmayo, Oct. 31, present.

Deaths.

William Gilfillan, M.D. University of Edinburgh, Scotland, 1855, formerly house surgeon at the Royal Infirmary, Edinburgh; physician to the marquis of Bute, and surgeon on the Cunard Line; a member of the faculty of Long Island College Hospital; a member of the Kings County Medical Society, died at his home in Brooklyn, N. Y., from bronchitis, after an illness of two days, aged 71.

Clarence L. Elebash, M.D. College of Physicians and Surgeons in the City of New York, 1891, a member of the American Medical Association, a well-known ophthalmologist of New York City, for several years chief surgeon of the Brooklyn Heights Railroad Company, died at the Westminster Hotel, New York City, December 20, after an illness of three months, from typhoid fever, aged 45.

D. M. Echemendia, M.D., acting assistant surgeon, U. S. P. H. and M.-H. Service, a noted expert in yellow fever, who did good work in driving the fever from Havana, and also served during the epidemics in Florida in 1889 and 1888, died in Havana, Cuba, December 19, from a malignant fever.

Thomas S. Troxell, M.D. Jefferson Medical College, Philadelphia, 1881, of Gallitzin, Pa., a member of the American Medical Association, local surgeon for the Pennsylvania System, died at Cresson, Pa., while preparing for an operation, December 15, from apoplexy, aged 47.

Madison H. Rose, M.D. University of Buffalo Medical Department, 1861, surgeon of the Fifty-third Indiana Volunteer Infantry in the Civil War, died suddenly at his home in Thorn-town, Ind., December 16, from heart disease, aged 72.

John F. Baggot, M.D. Medical College of Georgia, Augusta, 1859, a surgeon in the Confederate service during the Civil War, physician of Bamberg County, S. C., died suddenly at his home in Bamberg, December 14, from heart disease, aged 78.

Edward J. Doud, M.D. the College of Physicians and Surgeons, Baltimore, 1880, formerly city physician of Trenton, N. J., despondent and in ill health, committed suicide at Denver, Colo., December 12, by taking morphin, aged 51.

Samuel Hemingway, M.D. Bellevue Hospital Medical College, New York City, 1875, one of the earliest ambulance surgeons in New York City, died suddenly at his home in that city, December 18, from heart disease, aged 50.

James D. Tantum, M.D. University of Pennsylvania Department of Medicine and Surgery, Philadelphia, 1878, of Trenton, N. J., died at the German Hospital, Philadelphia, December 18, shortly after a surgical operation, aged 48.

Henry B. Bessac, M.D. University of Michigan, Ann Arbor, 1873, physician of Butte County, Cal., died at his home in Oroville, December 3, from septicemia, after an illness of more than a year, aged 59.

William John L. Miller, M.D. Medical Department University of Buffalo, N. Y., 1884, who fell from a street car in St. Louis

in April last, died from his injuries at his home in St. Louis, December 19, aged 65.

Daniel E. Hartnett, M.D. Starling Medical College, Cleveland, 1897, of Toledo, died at St. Vincent's Hospital in that city, December 14, from acute gastritis, after an illness of about two weeks, aged 29.

Charles W. Manker, M.D. State University of Iowa College of Medicine, Iowa City, 1876, died at his home in Elliott, Iowa, December 7, after an illness of several months, aged 54.

Joseph A. Townsend, M.D. Baltimore University School of Medicine, 1892, member of the Board of Medical Examiners for the third district of Florida, died recently at Lake City.

John S. Brown, M.D. Kentucky School of Medicine, Louisville, 1883, died at his home in Taylor, Texas, December 17, after an illness of three months, from paralysis.

Conrad Wesselhoeft, M.D. Harvard University Medical School, Boston, 1856, of Boston, died at his home in Newton Center, Mass., December 17, aged 70.

Henry Pigeon, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1884, died suddenly at his home in Peterborough, Ont., December 7, aged 65.

John T. Merrill, M.D. Rush Medical College, Chicago, 1856, died at his home in Mount Ayr, Iowa, December 18, after an illness of several months, aged 69.

James W. P. Seller, M.D. Cincinnati, 1844, died at his home in Greencastle, Ind., from catarrhal pneumonia, November 24, after a short illness, aged 83.

Archibald H. J. Galbraith, M.D. Edinburgh, 1868, died at his home in Conway, S. C., December 13, from apoplexy, after an illness of four hours, aged 64.

Clarence Willard Butler, M.D. New York, 1872, died at his home in Montclair, N. J., December 20, from cancer, after an illness of a year, aged 56.

Thomas A. Smith, M.D. Rush Medical College, Chicago, 1876, died at his home in Kansas City, Mo., after a long illness, December 19, aged 57.

Jerome A. Boarman, M.D., a pioneer physician of Kansas City, Mo., died at his home in that city after an illness of several weeks, aged 84.

Samuel W. Shell, M.D. Baltimore Medical College, 1899, died at his home in Lenoir, N. C., December 15, from heart disease, aged 28.

D. L. S. Bland, M.D. St. Louis Medical College, 1866, died suddenly at his home in Vandalia, Mo., December 18, from heart disease.

Bruno G. Jurgensohn, M.D. Illinois, 1892, died suddenly from heart disease at his home in Manawa, Wis., December 19.

John W. Fox, M.D., one of the oldest physicians of Nevada, died at his home in Carson, December 14, aged 82.

Thomas Tanner, M.D. Ohio, 1890, was suffocated in a fire at his rooms in Saginaw, Mich., December 10.

Death Abroad.

George Vivian Poore, F.R.C.P. London, 1877, M.D. London, 1871, M.R.C.S. England, 1866, emeritus professor of medicine, University College, London, one of the best known of the London physicians, died at Andover, Hampshire, November 23, aged 61. He was born in 1843 and educated at University College. In 1872 he was appointed lecturer on medical jurisprudence at Charing Cross Hospital. At that time the electrical treatment of disease was in its infancy. Dr. Poore perceived its importance and delivered courses of lectures on medical electricity at the hospital. In 1876 he was appointed assistant physician to University College Hospital and in the same year published his "Text-Book of Electricity in Medicine and Surgery."

In 1881 he published a useful book on "Physical Diagnosis of Diseases of the Throat, Mouth and Nose," and delivered the Bradshaw lecture of the Royal College of Physicians on "Nervous Affections of the Hand." He devoted considerable attention to hygiene and various sanitary problems such as the hygiene of the street, the water supply of country districts and the prevalent ignorance of sanitary matters among the middle class in England. He advocated the earth disposal of excreta as the best method both from the sanitary and economic standpoint. In his garden at Andover he raised luxuriant crops of fruit and vegetables by manuring with a mixture of fresh feces and earth. At the same time he proved that the subsoil water remained perfectly wholesome and fit for domestic use. He was a writer of considerable ability, lucid, witty and scholarly.

State Boards of Registration.

COMING EXAMINATIONS.

Utah State Board of Medical Examiners, Salt Lake City, January 2. Secretary, R. W. Fisher, M.D., Salt Lake City.
 Board of Medical Examiners of Arizona, Phoenix, January 2-3. Secretary, Alfred M. Smith, M.D., Phoenix.
 Board of Medical Examiners of the State of Oregon, Portland, January 3. Secretary, Byron E. Miller, M.D., The Dekum, Portland.
 Minnesota State Board of Examiners, State Capitol Building, St. Paul, January 3. Secretary, C. J. Ringnell, M.D., Minneapolis.
 North Dakota State Examining Board, Grand Forks, January 3. Secretary, H. M. Wheeler, M.D., Grand Forks.
 Washington State Board of Medical Examiners, Spokane, January 3. Secretary, C. W. Sharples, M.D., Seattle.
 Rhode Island State Board of Health, Providence, January 5-6. Secretary, Gardner P. Swartz, M.D., State House, Providence.
 Wisconsin Board of Medical Examiners, Hotel Pfister, Milwaukee, January 9-11. Secretary, Philip A. Forsbeck, M.D., Milwaukee.
 State Medical Board of the Arkansas Medical Society, Little Rock, January 10. Secretary, J. R. Tanyan, M.D., Little Rock.
 Indiana State Board of Medical Registration and Examination, State House, Indianapolis, January 10-12. Secretary, W. T. Gott, M.D., Crawfordsville.
 Vermont State Board of Medical Censors, Y. M. C. A. Building, Burlington, January 11-12. Secretary, S. W. Hammond, M.D., Rutland.
 Board of Medical Supervisors of the District of Columbia, Washington, January 12. Secretary, Wm. C. Woodward, M.D., Washington, D. C.
 Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.
 New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.
 Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Oklahoma June Report.—Dr. E. E. Cowdrick, secretary of the Territorial Medical Examining Board of Oklahoma, reports the written, examination, held at Guthrie, June 29, 1904. The number of subjects examined in was 9, total questions asked, 85. No percentages are assigned by this board, but each candidate is required to attain a grade of 66.6 or over, in each branch. The total number examined was 29, of whom 9 passed and 20 failed. The following colleges were represented:

PASSED.

Barnes Medical College (1904) had 1 representative. Rush (1896) 1, (1904) 1; Kansas Medical College (1904) 1, (1896) 1; Kansas City Medical College (1904) 1; Ensworth Medical College (1904) 1; Univ. Med. Coll., Kansas City (1895) 1; Northwestern University (1900) 1.

FAILED.

Kansas Medical College (1877) 1; Barnes Medical College (1904) 1, (1892) 1; Kansas City Medical College (1904) 2; University of Tennessee (1903) 1; Medico-Chirurgical College, Kansas City, (1904) 1; Central Med. Coll., St. Joseph, (1904) 1, (1898) 1, (1899) 1; Rush, (1903) 4, (1876) 1; Jefferson Medical College (1871) 1; University of Louisville, (1891) 1; Louisville Medical College, (1897) 1; University of the South Med. Dept., (1903) 1; ten year practice act in law 3.

Illinois October Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports written examination held at Chicago, Oct. 12-14, 1904. The number of subjects examined in was 11; total questions asked, 110; percentage required to pass, 75. The total number examined was 60, of whom 53 passed and 7 failed. The following colleges were represented:

PASSED.

College	PASSED.	Year Grad.	Per Cent.
Amer. Med. Missionary Coll., Chicago	(1904)	79
Baltimore Med. Coll.	(1904)	84
Chicago Homeo. Med. Coll.	(1904)	86, 82
College of P. and S., Chicago	(1903) 80, (1904)	78
Coll. of Med. and Surg., Chicago	(1904)	77
Dearborn Med. Coll., Chicago	(1904)	84
Georgetown Univ., Washington, D. C.	(1904)	87
Harvard Univ. Med. School, Boston	(1903)	86
Illinois Med. Coll., Chicago, (1904)	the grade of 86 was reached by one, 85 by two, 84 by two, 83 by one, 82 by two, 81, 80, 79, 78 and 77 by one each.		
Jenner Medical College, Chicago	(1904)	81, 78
Johns Hopkins Univ., Baltimore	(1901)	91
Kentucky University, Louisville	(1904)	84
Marion-Sims-Reamont Coll. of Med., St. Louis	(1904)	81, 77
Med. Dept. Washington Univ., St. Louis	(1904)	84
Nat. Med. Univ.	(1904)	80, 79
Northwestern Univ. Med. School, Chicago	(1904) 86, (1903)	76
Ohio Med. Univ., Columbus	(1902) 84, (1903)	79
Rush Medical College, Chicago, (1903) 84, (1904)	the grades of 90, 91 and 89 were reached by one each, 88 and 86 by one each, 85 by three, 83 by two, 82 by three, and 77 by one.		
Univ. of the City of New York	(1885)	79
Univ. of Michigan Med. Dept.	(1903)	88
Univ. of Toronto, Canada	(1890)	90

FAILED.

American Med. Coll., Chicago	.....	(1904)	72
College of Med. and Surg., Chicago	.....	(1904)	55
Harvey Med. Coll., Chicago	.....	(1904)	67
Hospital Coll. of Med., Louisville	.....	(1904) 46, (1902)	72
Miami Med. Coll., Cincinnati	.....	(1882)	73
Rush Medical College	.....	(1875)	74

The general average attained by all graduates of the Illinois Medical College was 82. The general average attained by all graduates of Rush who passed was 84.8.

Nevada Report.—Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the number of physicians licensed by the board in 1903 and 1904. The present practice act of the state does not require examination of physicians who hold diplomas from reputable colleges in the United States, but requires it of graduates of foreign schools.

In 1903 there were 120 applicants, of whom 108 were licensed and 12 were rejected. One person, a graduate of the Royal University, Pisa, Italy, 1899, was examined and attained a grade of 90.

In 1904 there were 140 applicants, of whom 105 were granted licenses and 35 were rejected. One person, a graduate of Laval University, Montreal, 1904, was examined and passed with a grade of 75. As he only reached this average by the most generous treatment of the board he was granted only a temporary certificate till the secretary could ascertain if he passed his collegiate examinations creditably.

Idaho October Report.—Dr. Robert L. Nourse, secretary of the Idaho State Board of Medical Examiners, reports the written examination, held at Lewiston, Oct. 4-5, 1904. The number of subjects examined in was 12; total questions asked, 120; percentage required to pass, 75. The total number examined was 21, of whom 14 passed and 7 failed. The following colleges were represented:

PASSED.

College	PASSED.	Year Grad.	Per Cent.
Ohio Med. Coll.	(1892)	91.5
Gross Med. Coll., Denver	(1900) 84, (1903)	86.5, 90.8
Univ. Med. Coll., Kansas City	(1898)	77.6
Rush Med. Coll.	(1902) 77.5, (1903)	80.5
Tufts Med. Coll., Boston	(1902)	79.2
Detroit Coll. of Med.	(1904)	75
Louisville Med. Coll.	(1902)	84.8
Columbus Med. Coll.	(1882)	75
Kentucky School of Med.	(1896)	85.4
College of P. and S., Chicago	(1904)	81
Northwestern University	(1902)	90.5

FAILED.

Kansas City Med. Coll.	.....	(1899)	73
Central Med. Coll., St. Joseph	.....	(1897)	74
Hering Med. Coll., Chicago	.....	(1902)	61.5
Barnes Med. Coll., St. Louis	.....	(1898)	55.7
Mississippi Med. Coll.	.....	(1895)	54.5
Kentucky School of Medicine	.....	(1894)	47.5
Univ. of Michigan Med. Dept.	.....	(1883)	65.8

*Re-examined.

Medical Organization.

Arkansas.

THIRD DISTRICT MEDICAL SOCIETY.—On November 9 this society was organized at Brinkley. The following officers were elected: President, Dr. Philip E. Thomas, Clarendon; vice-presidents, the presidents of the component county societies; secretary, Dr. William H. Deaderick, Marianna, and treasurer, Dr. D. O. Bridgeforth, Forrest City.

Idaho.

NORTH IDAHO DISTRICT MEDICAL SOCIETY.—This district society, comprising the counties of Shoshone, Idaho, Nez Percés, Latah and Kootenai, was organized in Lewiston, December 5, on the standard plan and in co-operation with the Idaho State Medical Society. The following officers were elected: Dr. John N. Allen, Lapwai, president; Dr. John B. Morris, Lewiston, vice-president, and Dr. James M. Lyle, Peck, secretary and treasurer.

North Dakota.

TRI-COUNTY MEDICAL SOCIETY.—Physicians of Eddy, Foster and Wells counties met in New Rockford, December 13, and formed this society, with the object of bringing into organization the physicians of the three counties; to be a part of the North Dakota State Medical Association, and to be auxiliary to and subject to the rules of the American Medical Association. The standard constitution and by-laws were adopted and the following officers elected: President, Dr. Charles McLachlan, New Rockford; vice-president, Dr. John G. Johns, Bowdon; secretary-treasurer, Dr. Murdock MacGregor, Fessenenden; delegates to state association, Drs. John R. MacKenzie,

Carrington, and Guy D. Murphy, New Rockford, and censors, Drs. Charles McLachlan, New Rockford; Murdock MacGregor, Fessenden, and Edwin L. Goss, Carrington.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Pan-American Medical Congress, Panama, Jan. 2-6, 1905.

American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, Oct. 4, 1904.

Dr. Samuel Wolfe in the Chair.

Symposium on Chronic Bright's Disease.

ETIOLOGY AND DIAGNOSIS.

DR. SAMUEL WOLFE stated that there is usually as an underlying cause either inflammation or degeneration, probably both, and that it is a mooted question whether there is ever degeneration without inflammation. He referred to the fact that in many cases back of the inflammation and degeneration there is a toxin or specific infection, and cited among the causative factors malaria, tuberculosis, amyloid degeneration, syphilis, exposure and excessive use of alcohol, particularly beer. The disease is more frequent in males than in females and generally occurs before the fortieth year. He confined his remarks to the chronic parenchymatous variety and stated that the condition occasionally is associated with a slight form of pyemia, especially after pregnancy or with anemia. The urine is scanty, with a specific gravity normal or slightly higher than normal; a low specific gravity being indicative of the interstitial variety. The histologic elements are more scanty in the chronic interstitial variety and the edema is more marked. He referred to the diagnostic value of accentuation of the aortic sound, which, while not indicative of any specific form of Bright's disease, is very suggestive of renal trouble. Careful chemical and microscopic study of the urine, the condition of the heart, and the slowly progressive blood deterioration must remain the cardinal points in diagnosis.

PROGNOSIS AND TREATMENT OF CHRONIC NEPHRITIS.

DR. A. C. MORGAN stated that, as it is impossible to repair the damage done to the kidney, the treatment must necessarily be of an inhibitory character. The prognosis, he stated, is difficult to determine owing to the uncertain time the disease has existed, and the complications which may arise; the younger the patient the more serious is the prognosis, the variety in such cases being usually the parenchymatous. He referred to the fact that death is not always caused by the disease alone, and cited as chief among the terminal complications pneumonia, particularly bronchopneumonia, la grippe, cerebral hemorrhage, cardiac dilatation, and inflammation of the serous membranes, pericarditis being the gravest of the latter conditions. In uremia accompanied by convulsions, he stated that the prognosis is grave. In the treatment special attention should be directed to the removal of the cause, and much can be accomplished by the treatment of the patient as well as of the disease. Careful attention should be given to the general condition and hygiene, flannel should be worn the year round in order to stimulate the activity of the skin, and, if possible, the winter should be passed in a warm, equable climate. Mental labor must be cut down and exposure avoided. Cold bathing should be avoided, and benefit is derived from massage, rest in bed for 10 hours out of 24, or the entire time when the paroxysms are severe; malt liquors and spirits should be avoided and carbonated waters used freely. Nitrogenous foods should be reduced and milk may form an important part of the dietary. The treatment should be directed to arresting the sclerotic or degenerative changes and to overcoming the anemia. For the former condition potassium iodid, hydriodic acid and mercuric chlorid may be used, and for the

latter arsenic and iron. He then discussed in detail the treatment of high tension, low tension, effusions, drowsiness, dropsy, asthma, edema of glottis, epistaxis, obstinate vomiting and diarrhea, pruritus, palpitation and uremia; for the latter condition he recommended venesection, chloroform, chloral and the bromids. In the parenchymatous variety morphin in good doses may be used, but in the interstitial form they should be used but sparingly, although the author cited a case in which for five years he had employed morphin hypodermically for the asthma which had resisted all other measures, followed by pilocarpin the morning following without any untoward results.

DISCUSSION.

DR. JAMES TYSON said that while it has been stated that the pathology of chronic nephritis is so indefinite that no treatment can be based on it, he feels that this is going too far. He stated that there is no known agent by which the restoration of the structure of the kidney could be accomplished, and that the treatment naturally divided itself into two parts: 1. The placing of the patient in the condition most favorable for Nature to assert herself and to favor change in the structure, if possible; 2, the treatment of the symptoms. He referred to the former enormous use of drugs to diminish the albuminuria, and stated that there is no remedy which will prevent the transudation of albumin when conditions favor it. He recommended rest in bed for a few hours in the middle of the day in the mild cases, and longer if the case is severe. He said that he believes that the distinctions between white and red meats are unfounded, and recommended, instead of prohibiting red meats, the moderate use of all meats, and said that except in the acute exacerbations a moderate quantity may be allowed.

Climatic treatment is of value and the winters, if possible, should be passed in a warm climate. The treatment of the symptoms should be directed to the diminution of arterial tension. In the severer forms rest in bed is absolutely necessary; massage is also of value. The general practitioners frequently make a mistake in advising the too free use of water. Puncture under aseptic precautions is recommended in dropsical cases, and the danger from sepsis is practically nil. He recommended venesection and intravenous injections of normal salt solution in cases of uremia. If iodid of potassium can be used without producing unpleasant symptoms, it may be of value, but the chlorid of mercury he does not look on as of any use.

DR. WENDELL REBER stated that the ophthalmologic changes are of two kinds, degenerative and hemorrhagic; the inflammatory changes being most likely to occur in the acute forms, while in the chronic conditions there are more likely to be degenerative changes. He referred to the work of Dodd, who some years ago collected 700 or 800 cases and submitted statistics showing the value of these observations in computing the probable duration of life. He referred to the observation of a number of cases made by himself at Blockley, and stated that while about 45 per cent. showed albuminuria, very few revealed eyeground changes, and this had been further confirmed by the observations he had made at the Polyclinic Hospital. He reported the case of a male, 32 years of age, who has had albuminuria for at least 12 years, although he has been giving careful attention to hygiene and his habits are almost ideal. At one time he was able to find a few fine yellow spots, but they disappeared and have not recurred. He also referred to another case which had been watched closely for a long time, and in which there were no changes observed until shortly before death, when violent degenerative changes occurred.

DR. WILLIAM H. GOOD referred to the fact that, according to physiologic chemistry, the osmotic pressure of fluids depends not so much on the kind of molecule present as on their number, and said that perhaps the same line of reasoning will explain the effect of large quantities of proteins, by increasing the osmotic pressure of the blood, and also discussed the question as to whether this action is due to a chemical substance or to the lack of some chemical secretion.

DR. W. HERSHEY THOMAS mentioned the various surgical procedures which have been resorted to for the relief of this condition and stated that here, as elsewhere, much more valuable information could be learned regarding the pathology of the condition during operation than after death.

DR. MORGAN cited a case of chronic interstitial nephritis in which potassium iodid three times a day had been used with much benefit.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns without allusion to inquirer.]

Chronic Prostatitis.

In the treatment of chronic prostatitis, E. G. Ballenger, in *Amer. Medicine*, states that careful attention should be given to:

1. Hygiene, including the regulation of sexual intercourse, alcoholics, food, bathing, exercise, etc.
2. The treatment of complications such as posterior urethritis, stricture, inflammation of the seminal vesicles, anemia, constipation and to general health.
3. Treatment directed to the prostate itself.

HYGIENE.

Moderate sexual intercourse is rather beneficial than otherwise, unless attended by too great excitement or too much prolonged. In cases of single individuals this, of course, should not be encouraged because of the danger of another infection, if for no other. Alcohol in excess should never be permitted, for occasional spree hindrs the progress of the case, although light wines or beer taken at meal-times may be of benefit in increasing the appetite and digestion. The food should be plain and simple and not highly seasoned nor taken in too great quantities. Small amounts of tea and coffee will not harm the patient. Smoking should always be in moderation, but not necessarily entirely forbidden. Cold baths in the morning should be recommended, especially applied to the genital organs. Walking is better than riding and driving as an exercise on account of the jarring of the latter forms. Constant sitting is injurious, especially during long journeys in railway cars.

COMPLICATIONS.

Constipation, anemia and indigestion demand correction. Strictures should be dealt with in accordance with their nature, location and caliber. A meatus below 18 F. or 20 F. must be enlarged to more than 26 F. or 28 F. Cystitis, if present, should be treated by the administration of urotropin, grains 5 to 10 (.30-.65) three times a day, along with irrigations of mild warm solutions of mercuric chlorid, potassium permanganate or silver nitrate. If inflammation of the seminal vesicles and ampullations is present their lower extremities may be gently massaged and their contents expressed during treatment of the prostate by deep pressure. This treatment of the chronic posterior urethritis is most important and should consist of instillations, irrigations, sounds, cold, etc.

Massage is indicated when the prostate is large, soft and boggy or nodular, uneven or contains abscess cavities. It is contraindicated when the prostate is tender or hyperæsthetic; in tubercular prostatitis or when the treatment increases the irritability.

The author recommends instillations of silver nitrate of from 5 to 10 per cent. solutions in water in doses of from 10 to 20 minims (.65-1.30), deposited in the prostatic urethra with a

deep urethral syringe. These injections may set up an acute inflammation which passes away in a few days and absorbs part of the chronic exudate. The injection must be carried beyond the compressor urethræ muscle, otherwise the solution will run back along the syringe into the anterior urethra. These injections should be made from three to ten days apart. A small amount of urine should be in the bladder when they are made. Irrigations of the hot antiseptic solutions are indicated when abscesses or suppurating follicles are present.

Sounds chilled in ice water and left in the urethra from three to five minutes are often very beneficial on account of the pressure and the cold tones up the blood vessels and anesthetizes, so to speak, the nerve endings. The following method is also recommended by the writer:

Sterilize a sound one or two sizes smaller than the cold one passed (which should be as large as can be used) and dip it into the following ointment, brought to a melting point:

R. Argenti nitratiss	gr. v-x	| 30-.65
Olei theobrom.	ʒi	30
M. Sig.: As directed. Or:		
R. Argenti nitratiss	gr. v-x	| 30-.65
Cereæ albæ	gr. x	| 65
Balsami Peruv.	m. xxx	| 2
Olei theobrom.	ʒi	30

M. Sig.: Apply on a sound as directed.

The following ointment introduced into the deep urethra is also recommended:

R. Argenti nitratiss	gr. v-x	| 30-.65
Olei olivæ	m. xv	| 1
Liq. petrolati	ʒi	30
M. Sig.: Apply to the deep urethra on a sound.		

MASSAGE.

In giving massage the patient should be directed to stoop over with hands resting on a chair or placed in the knee-chest position on a table, or in the position to make a vaginal examination. The latter position is preferred by the author, as in this position the muscles are more relaxed and counter-pressure can be made over the symphysis pubis in massaging the seminal vesicles. The finger is protected with a finger cot or condom and anointed with glycerin and introduced. It is then carried from side to side toward the center and from above downward for about five minutes, paying special attention to nodules. By this means the secretion is milked out. Massage increases the tone of the vessels, stimulates the lymphatics and empties the distended follicles and cavities.

SUPPOSITORIES.

Suppositories should be used to meet the indications in the individual case. They may contain the following:

R. Potassii iodidi	gr. v-xx	| 30-1.30
Ext. belladonnæ	gr. ¼	| 015
Cereæ albæ	gr. v	| 30
Olei theobrom. q. s. . . . .		|

M. Fiat suppos. No. i. Sig.: To be introduced into the rectum on retiring at night or every second night.

Hot and cold water applied to the prostate through a rectal irrigator is of service, as this treatment stimulates absorption and increases vascular tone. This may be repeated once every second day.

TONICS.

As tonics, iron, quinin and strychnia are of benefit. When a sedative is indicated, hyoseyamin is recommended in doses of from 1/100 to 1/60 gr. (.0006 to .001).

As to the employment of irrigation in chronic prostatitis, Lydston regards potassium permanganate as first in importance, used in strength of from 1 to 10,000, as 1 to 5,000, not stronger. The water should be warm and not hot, and used in quantity of not more than two quarts at a time. In cases where the use of the permanganate solution does not prove effectual the author recommends as the second remedy in importance, a silver nitrate solution in .5 to 1 per cent. solution, as the urethra will not, as a rule, bear a stronger solution. Weak solutions of mercuric chlorid is the third remedy recommended by this writer. He also advises antiseptic and astringent remedies

locally applied through the rectum. Iodoform, europhen and ichthylol in combination with anodynes are regarded as very efficacious applied in this way.

Counter-irritation applied to the perineum in the form of blisters is a very valuable form of treatment. Hepatic torpor must be corrected and the pelvic circulation kept active. In very serious cases of diffuse chronic inflammation the prostate and neck of the bladder should be put to complete rest by a combined suprapubic and perineal section with through drainage. The author cautions against the use of the sound before the acute inflammation has subsided, otherwise a recurrence of the subsiding acute inflammation may take place.

Pain in the Ear.

To relieve pain in the ear where the patient's condition demands immediate attention before a diagnosis can be positively made, the *Sour. des Pract.* recommends warm boric acid solution dropped into the ear and allowed to remain a few minutes and repeated every hour. During the intervals warm carbolized oil (1 to 20), placed on absorbent cotton, should be introduced into the ear and the organ covered with hot compresses. At bed time the following solution may be placed on absorbent cotton and introduced into the passage:

R. Morphine hydrochlor. ....gr. viiiss	|50
Cocaine hydrochlor. ....gr. xv	|1
Aque dest. ....3vi	24

M. Sig.: Six drops placed on a little absorbent cotton and introduced into the ear. Or:

R. Atropine sulph. ....gr. iss	|09
Morphine hydrochlor. ....gr. v	|30
Aque dest. ....3ss	15

M. Sig.: Six drops at night, on warmed absorbent cotton, and introduced into the ear.

If abscess formation should take place the abscess should be properly incised.

A combination of belladonna and opium frequently gives relief in neuralgic conditions of the ear as follows:

R. Tinct. belladonnæ	|
Tinct. opii, aa. ....3ii	8

M. Sig.: Instill five drops warm into the auditory canal and repeat three or four times daily.

Ichthylol is frequently of service combined as follows:

R. Ichthylol	|5i	4
Ung. aquæ rosæ	|3ss	2
Liq. petrolati	|3iiss	6

M. Sig.: The auditory canal should be thoroughly washed with a warm sodium bicarbonate solution, dried and the passage anointed with the preparation two or three times daily.

Medicolegal.

Sufficient Evidence That Varicocele Resulted from Injuries.

—The Appellate Term of the Supreme Court of New York says that, in the personal injury case of Bial vs. the Interurban Street Railway Co., the plaintiff testified that prior to the accident in question he did not suffer from varicocele, and, according to his physician's testimony, this condition did not become apparent until a day or two after the accident. The physician further testified that, while varicocele is not ordinarily of traumatic origin, it is so in about 10 per centum of the cases, and in this he was corroborated by another physician, a witness for the defendant, who testified that varicocele might result from injuries, but fixed the proportion of such instances at about 5 per centum of all the cases. The court says that argument appeared to be unnecessary to demonstrate that this testimony warranted a conclusion that the plaintiff's condition was attributable to injuries sustained in the accident complained of.

Damages Allowed in Personal Injury Cases.—The Third Appellate Division of the Supreme Court of New York says, in *Jones vs. New York Central and Hudson River Railroad Co.*, that in cases of personal injury there is no rule by which compensatory damages may be computed with accuracy. The plaintiff is entitled to recover his reasonable expenditures for

medical services, medicines and attendance, and also a reasonable amount in compensation for the pain and suffering occasioned by his injuries, and for the scars and deformities resulting therefrom, to which amount must be added a sum sufficient to compensate him for his loss of power to earn money. The verdict of juries and determination of courts in other cases can not be safely relied on as a rule or guide in determining whether a verdict is excessive, as each case necessarily depends on facts and circumstances applicable to or surrounding it. It is the province of the jury to fix the amount of the damages in each case, and it has been repeatedly stated by the courts that a verdict should not be set aside unless the jury has been misled by passion or prejudice, or coerced by some improper influence in fixing the amount of their verdict. Where it is plain that the amount of the verdict is out of all proportion to the injuries received, the court will assume that the jury misunderstood the rights of the parties or the effect of the evidence before them in determining the amount of their verdict, or that the verdict was affected by overpowering sympathy or improper influences.

Power of Society to Furnish Care of a Physician.—The Supreme Judicial Court of Maine holds, in the case of *Flaherty vs. the Portland Longshoremen's Benevolent Society*, that if a corporation or mutual association has for one of its lawful purposes the mutual aid and protection of its members, and has the power to raise and expend money for the payment of sick benefits to members, the power to afford relief to its members by furnishing them the care of a physician in time of sickness may be fairly implied from the general scope of the corporate purposes. But when one of the by-laws of a benevolent and protective society provides that "the funds of this society shall be appropriated for no other purpose than that necessarily incurred for the maintenance of wages, burying the dead and other incidental expenses," the payment of a salary to a physician is not thereby authorized, but is forbidden, although another by-law provides for the payment of sick benefits. When such a society by another by-law provides that "resolutions adopted at any general or special meeting of this society for any special purpose shall be as binding on its members as if they were embodied in its by-laws," it is held that by fair construction such resolutions are intended to have, and do have, the effect of by-laws only when they are inconsistent with the by-laws, and do not have the effect of amending or repealing them. A society having such by-laws as those stated can not lawfully vote to pay a salary to a physician for the benefit of its members. To hold otherwise would be to give to such a vote the effect of amending the by-laws.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 17.

- 1 *Hypernephroma. W. W. Keen, G. E. Pfahler and A. G. Ellis.
- 2 The Value of the Physiologic Principle in the Study of Neurology. James J. Putnam.
- 3 *The Eye and the Digestive System. Mark D. Stevenson.
- 4 Early Recognition of the Therapeutic Virtues of Iron. John Knott.
- 5 *Some Results of Röntgen Ray Treatment. A. R. Ralnear.
- 6 *Röntgen Rays in the Treatment of Tuberculosis. J. Rudis-Jicinsky.

1. **Hypernephroma.**—This paper is based on two cases, both being absolutely well one year after operation, a nephrectomy having been done at that time. The cases recorded in the literature are also studied and analyzed. The pathology of the condition is considered by Dr. Ellis.

3. **Eye and Digestive System.**—Stevenson attempts to show that improperly fitted glasses may be responsible for digestive disturbances and vertigo. He is also of the opinion that the nausea and vomiting of seasickness are chiefly due to reflexes of the eyes and semicircular canals rather than from anything in the stomach itself. He describes the anatomic nerve relationship between the digestive system and the eyes.

5. Roentgen Ray Therapy.—Rainear discusses this subject in general and narrates the results obtained in several cases, such as lupus, nevus, epithelioma, mammary cancer and leg ulcers. He considers the ray an important therapeutic agent, one that must appeal to the surgeon as one of his best adjuncts as a surgical synergist, apart from its diagnostic function.

6.—See abstract in THE JOURNAL of September 24, page 907.

Medical News, New York.

December 17.

- 7 Diagnosis of Disease in Children. J. Madison Taylor.
- 8 Case of Symmetrical Enlargement of Parotid and Lachrymal Glands.—Nodular Iritis. Colman W. Cutler.
- 9 *Overlapping the Aponeuroses in the Closure of Wounds of the Abdominal Wall. Charles F. Noble.
- 10 *Association of Cancer and Tuberculosis. W. A. Bastedo.
- 11 *The Minin Ray. Wm. G. Schaulfer.
- 12 *Tropical Malaria. John V. Shoemaker.

9.—See abstract in THE JOURNAL of October 29, page 1330.

10. Association of Cancer and Tuberculosis.—Bastedo shows that these two affections not infrequently occur together in an active state and may be intimately associated in the same tissue. A few reported cases tend to show that one of the affections seems to have exerted a modifying influence on the course of the other. Cancer is more common among those with latent tuberculosis than among others at the cancer period of life. But there is probably neither specific favoritism nor specific antagonism between the two types of disease. However, a family history of tuberculosis is more frequent in the cancerous than in the general community, and there may be some hereditary relation between the two. Bastedo found that a latent tuberculous process in a lymph gland may become active when a cancer develops in the neighborhood, although lymph gland enlargement in the vicinity of the cancer is not always cancerous and may be solely tuberculous.

11. The Minin Ray.—Schaulfer has been using these rays in the treatment of a number of cutaneous affections and asserts that it may be regarded as a safe and reliable means of treating many inflammatory conditions, including joint affections.

12. Tropical Malaria.—The principal points in the series of cases recorded by Shoemaker are their gravity, the very marked and prolonged debility produced by the disease, the resemblance of some cases to yellow fever and of others to typhoid, the diagnostic value of the scientific tests, and the efficacy of quinin administered in the form of suppositories, from 5 or 10 grains, every two or three hours.

New York Medical Journal.

December 17.

- 13 *Scarlet Fever in New York and Some of Its Therapeutic Possibilities. A. Selbert.
- 14 *Clinical Observations in Scarlet Fever with Special Reference to the Heart and Other Complications, and Therapeutic Suggestions. Louis Fischer.
- 15 *Venesection. George F. Souwers.
- 16 Traumatic Hematoma with Evanescent Aphasia and Hemiplegia. Followed in the Course of Years by Invertebrate and Severe Headache; Operative Recovery. J. Leonard Corning.
- 17 *Relation of Disease of the Stomach to Affections of the Mouth, Nose and Throat. Robert Levy.
- 18 Case of Torsion of an Ovarian Cyst in a Child 13 Years Old. John F. Erdmann.

13. Scarlet Fever in New York.—This is a statistical study of scarlet fever in the old city of New York, extending over a period of thirty years, and confirms the opinions previously held with reference to the clinical history and distribution of the disease.

14.—See abstract in THE JOURNAL of November 5, page 1411.

15. Venesection.—Souwers emphasizes that this therapeutic procedure is not applicable to every ail, and that wise discrimination in its use is absolutely essential.

17.—See abstract in THE JOURNAL, xlii, page 1583.

Boston Medical and Surgical Journal.

December 15.

- 19 *Case of Diffuse Encephalitis Showing the Pneumococcus. W. N. Bullard and F. R. Symes.
 - 20 *Flies and Tuberculosis. F. T. Lord.
 - 21 Innocent Cases Reported as Diphtheria. H. W. Hill.
 - 22 Remarks on the Jurisprudence of Civil Malpractice, Based Principally on the Decisions Rendered by French Courts. (Concluded.) C. G. Cumston.
19. Diffuse Pneumococcus Encephalitis.—After a month of

severe bronchitis in a man of 50 there developed a group of cerebral symptoms, weakness and mild delirium, followed by flaccid paralysis of the left side, with rigidity on the right and incontinence. Death ensued on the seventh day, after gradual failure and coma, with elevated temperature. The autopsy disclosed an extensive diffuse encephalitis and bronchitis with bronchopneumonia. The pneumococcus was found free in the tissues and within the phagocytes of the cerebral lesion. The lesions were related to branches of the cortical arterial system of both hemispheres and consisted of accumulations of phagocytic cells and small numbers of lymphoid and plasma cells. There was no evidence of acute leptomenigitis or of ependymal changes.

20. Flies and Tuberculosis.—Lord says that flies may ingest tubercular sputum and excrete tubercle bacilli, the virulence of which may last for at least fifteen days. The danger of human infection from tubercular fly specks is by the ingestion of the specks on food. Experiments lead Lord to believe that the spontaneous liberation of tubercle bacilli from fly specks is unlikely. If mechanically disturbed, infection of the surrounding air may occur. The author suggests that tubercular material (sputum, pus from discharging sinuses, fecal matter from patients with intestinal tuberculosis, etc.), should be carefully protected from flies lest they act as disseminators of the tubercle bacilli. During the fly season greater attention should be paid to the screening of rooms and hospital wards containing patients with tuberculosis and laboratories where tubercular material is examined.

Medical Record, New York.

December 17.

- 23 Alcohol in the Tropics. Charles F. Woodruff.
- 24 *Twenty Years' Experience with Manual Dilatation of the Os and Cervix Uteri to Effect Immediate Delivery in the Latter Months of Pregnancy. A New Obstetrical Uterine Dilator. Philander A. Harris.
- 25 *An Interesting Case of Tuberculosis of the Larynx. E. Harrison Griffin.
- 26 *The Transmission of Syphilis by Barbers. Wm. T. Belfield.
- 27 Report of a Case of Tetanus Following Labor. A. Strachstein.

24. Dilatation of Os.—Harris details his experience, extending over a period of twenty years, with his method of manual dilatation of the os and cervix uteri. He cautions that the strain on the cervical ring should be equable and constant and not too strong. The greatest strain is needful in acquiring the first four or five inches of dilatation, after which the strain is gradually diminished, for it is at this time that the danger of producing lacerations is greatest. Fifty minutes is the average time required to dilate safely from the size of one's finger to a circumference of twelve inches. Twenty-five minutes should be the average time for rupture of the membranes and delivery of the child and placenta. Harris describes a simple multi-lever dilator which possesses some advantages over the manual procedure. The hand becomes fatigued; its action is more or less irregular; it can not be sterilized by boiling; the hands must frequently be alternated to rest them, thus entailing loss of time and some risk of infection. Although the instrument may not be used very often by the general practitioner yet its use is of advantage because it is ample in force, continuous in action, it may be boiled, usually requires but a single introduction, every vagina will admit it without injury, and the danger of laceration of the cervix is somewhat less with the instrument than with the hand.

25. Tuberculosis of the Larynx.—Griffin's case was remarkable because of the fact that three attacks of the local lesion, each time going on to the stage of ulceration, were promptly relieved by sending the patient to Colorado or to the Adirondacks. The internal treatment consisted in the use of a creosote preparation and small doses of morphia, 1/20 of a grain, in tablet form, the tablet being allowed to dissolve in the mouth. Open windows day and night, proper clothing, cold bath every morning, and sponging with alcohol or cold water when the patient is thirsty, eggs, beef juice, blood, anything that will support the impoverished system and help nature is important in combating this affection. [The author does not mention the preparation of creosote used nor how used.—Ed.]

26. **Transmission of Syphilis.**—The returns obtained from inquiries addressed to twenty-five prominent syphilographers by Belfield seemed to indicate that the transmission of syphilis by barbers must be a rare incident. However, says Belfield, the prevalence of syphilis among barbers and their patrons, and the general neglect to sterilize their tools, warrant a doubt of the extreme rarity of such transmission. The razor seems, for obvious reasons, least likely to convey the infection, while the alum stick, forceps and clipper are the most frequently culpable. Belfield also calls attention to the fact that sore throat and fever are not infrequently, especially in women, the first discovered symptoms of syphilis. Syphilis could be minimized, if not virtually eradicated, far more quickly, surely and easily than can tuberculosis; not by licensing prostitutes, nor by educating youth to chastity, but by making the acquisition of syphilis practically impossible through the general practice of circumcision. The later evils of syphilis can be restricted by impressing on the subjects of the disease two injunctions: to take antisyphilitic remedies for two months in every year after the termination of active treatment, and (especially) to inform any physician consulted for relief from an obscure, chronic ailment of the earlier syphilitic infection.

Lancet-Clinic, Cincinnati.

December 17.

- 28 *Suppuration of the Nasal Accessory Sinuses. J. A. Stucky.
29 *Two Cases of Pancreatic Cryst. Van Buren Knott.
30 Diagnosis and Cure of Chronic Dyspepsia. J. Henry Schroeder.
31 Artificial Hyperemia in Surgery. Alexander C. Wiener.

28.—See abstract in THE JOURNAL of November 5, page 1409.
29.—Ibid., October 29, page 1327.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Semaine Médicale, Paris.

- 1 (XXIV, No. 48.) *La tension artérielle dans le saturnisme aigu et chronique. H. Vaquez.
2 *Simple Means of Reducing Fever in Infants. V. Thévenet. Abstract.
3 The Special Parasite of Malaria in Colombia. Montoya y Florez. Abstract.

1. **Arterial Pressure in Lead Poisoning.**—Vaquez points out that from the diagnostic and prognostic points of view the variations in the blood pressure are of more importance than its absolute figure. Gaertner's tonometer is a simple and reliable instrument for determining these variations. In lead poisoning the arterial pressure is unusually high during the attacks of colic. It rises still higher during the paroxysms, and does not subside to normal during the intervals, but persists as long as the colic lasts. It parallels the course of the abdominal contractile vascular spasm which he has found constant in lead colic. Among the signs of it are the retraction of the liver and the flatness or depression of the abdomen. This long persistence of hypertension is remarkable, as hypertension due to vasoconstriction was always supposed to be more briefly transient. The hypertension does not commence to subside until after the bowels move, and then it gradually drops to the previous figure. In 4 subjects under observation the arterial pressure rose to 19 to 22 cm. (Potain apparatus). During the paroxysms the rise was 5 to 10 cm. The rapidity and the intensity of these variations in the pressure is a feature of lead poisoning. The vascular spasm is the forerunner and maintainer of the hypertension. The vasocontractile action of the poison is at first limited to the splanchnic region, and it here induces the intestinal spasm and the colic. When the vascular spasm and consequent hypertension become generalized, the circulation in the brain suffers and the encephalopathy follows. The existence of the vascular spasm can be read in the eye fundus, in the blanching of the papilla and the contraction of the vessels. These signs do not require the assumption of chronic nephritis to explain them. They may exist before the development of the nephritis, and the latter throws no light on the predilection of lead poisoning for the brain.

2. **Local Cold to Reduce Fever in Nurslings.**—Thévenet has been much pleased with the benefit derived from the applica-

tion of a coil of tubing, containing cold water, in several cases of febrile enteritis in infants of four to fourteen months. The abdomen is comparatively much better developed in infants than in adults, and it contains a larger proportion of the total blood. By prolonged local refrigeration it is possible to lower the temperature in fever. In his experience, all the symptoms, both local and general, were much improved in non-moribund cases. The water was kept at a temperature of 18 to 20 C.

Archiv f. Verdauungskrankheiten, Boas', Berlin.

Last indexed page 1377.

- 4 (X, No. 5.) What Riegel Did for the Pathology of the Stomach.—Riegels Bedeutung für die Magenpathologie. G. Volhard.
5 Two Cases of Apparent Well's Disease with the Temporary Development of Small Tumors in the Liver.—Ueber 2 unter dem Bilde der Wellischen Krankheit verlaufende Fälle mit temporärem Auftreten von kleinen Tumoren in der Leber. M. Elnhorn (New York).
6 *Enteralgie und Kolk. II. Das arteriosklerotische Leibweh. (Continued.) M. Buch (Helsingfors).
7 *Ueber die Anwendung der Nebennierenpräparate bei Erkrankungen des Oesophagus (suprarenal preparations in esophageal affections). G. Janowski (Kiev).
8 Zur Semelologie des oesophagoscopischen Bildes. (Kollaterales stenosierendes Oedem der unteren Speiseröhre bei Magenkrebs). W. Bauermeister.

6. **Arteriosclerotic Abdominal Colic.**—Buch describes 11 cases, including 5 personally observed, in which attacks of severe colic above the umbilicus developed in persons of over 40 and 50 years old. The attacks were always brought on by some emotion or extra exertion or by lying down. The abdominal aorta was usually sensitive to pressure, as were also the parts over the spine and on either side of the aorta. The arteriosclerotic origin of the pain is best corroborated by the remarkable efficiency of theobromin, 1.5 to 2 gm. a day; diuretin, 3 to 4 gm. a day, or tinct. strophanthi, 5 to 8 drops, three times a day. These will alleviate or entirely relieve the attacks, especially if supplemented by rest in bed. No other form of abdominal colic is thus amenable to these drugs, and this success is pathognomonic of arteriosclerotic colic. The attacks lasted usually only a few minutes, but, exceptionally, fifteen to thirty, and still longer in a case of hyperchlorhydria. He has further observed 2 cases and found one on record in which this colic accompanied contracted kidney. The signs of general arteriosclerosis were more pronounced than in the first group. A remarkable feature of this group was that the pain was relieved by moderate pressure on the aorta and over the sympathetic, the points most sensitive in the first group. In a third group of 7 cases, including 4 personally observed, epigastric colic was an accompaniment of angina pectoris, although it sometimes occurred alone. Intermittent limping was suggested in one case, and arteriosclerosis of the brain was probable in some of the others. The heart was usually enlarged and the accentuation of the second aortic sound was a constant phenomenon. Ingestion of food had little influence on the attacks. The subjects were usually well nourished and sometimes corpulent, which aids in the differentiation of this splanchnic colic from cancer. Nervous gastralgia and pseudo-angina pectoris generally affect persons under 40, except possibly during the menopause. They are not brought on so constantly by physical exertion, and they usually occur on going to bed, while the splanchnic colic generally wakes the subject from sleep. In case it occurs in a neurasthenic, diuretin and strophanthus will aid in the diagnosis.

7. **Suprarenal Preparations in Affections of the Esophagus.**—Janowski found that patients with esophagitis from swallowing some caustic substance were much benefited by frequent, small doses of some suprarenal preparation. Some who were unable to swallow found that they could easily do so five to ten minutes after taking the preparation, and dysphagia was always much relieved. Three or four days caused permanent improvement, evidently shortening the course of the inflammation and also alleviating the concomitant gastric inflammation. The effect on the latter was less decided than on the process in the esophagus. In 3 cases of cancer of the esophagus the patients could swallow much more easily after taking the suprarenal extract, the improvement being in great contrast to the failure of all preceding measures. This improvement

was not constant in all the cases of esophageal cancer, but it occurred often enough to warrant its tentative use in all cases. In another instance, a supposed cancerous stricture of the esophagus was very much improved by the suprarenal extract, as also in a similar case reported by Peters. But in both these cases the progress of the affection revealed that it must have been a nervous stricture. Janowski knows of no cases recorded in the literature of undeniable cancer of the esophagus treated by suprarenal extract.

Centralblatt f. Gynäkologie, Leipzig.

Laat indexd page 1904.

- 9 (XXVIII, No. 44.) Manual for Midwives.—Hebammenlehrbuch. M. Ruge.
- 10 *Die erste Spontan-Ruptur des graviden Uterus im Bereiche der alten Kaiserschnittnarbe nach quere Fundamentalschritte nach Fritsch. E. Ekstein.
- 11 *Paralyse des nicht graviden Uterus. R. Kossmann.
- 12 (No. 45.) *Ueber Lumbal-Funktion bei Eklampsie. M. Henkel.
- 13 *Eine kurze Randhemerkung zu B. Krönig's "Ueber Lumbal-Funktion bei Eklampsie." L. Kleinwächter.
- 14 2 Kaiserschnitte bei Eklampsie (und Uterusarrest). Wanner.
- 15 *Die Nephrotomie bei Anurie Eklampischer. A. Sippel.
- 16 Digitale Cervix-Dilatation. O. Koppe.
- 17 Prevention of Puerperal Morbidity.—Die Prophylaxe der Wochenbettmorbidity an der Glessener Entbindungsanstalt. Kroemer.
- 18 *Ueber die Bedeutung der Subkutanen Injektionen von Serum artificiale bei der Puerperal-Infektion. J. Jaworski.
- 19 *Zur Behandlung des Vaginal- und Uteruskatarrhs mit Rheol-Hefe-Präparat (yeast). E. Cronbach.

10. Rupture of Gravid Uterus After Cesarean Section.—Ekstein reports a case, the first on record, of spontaneous rupture during a pregnancy following a cesarean section done according to Fritsch's technic. The ovum had settled exactly at the point of the cicatrix, and the growth of the placental tissue through the latter had produced conditions which invited rupture. The possibility of this location of the placenta must be borne in mind as one of the disadvantages of conservative cesarean section. It might possibly be guarded against by using for the second of the four tiers of sutures a ribbon-like strip of lead from .5 to 1 cm. wide and .3 to .5 mm. thick. Experience has demonstrated that a suture of this kind lies in the tissues without reaction, owing to its softness and flexibility. The interposition of this inassorbable suture would provide a solid foundation for natural resistance. The number of stitches should be restricted to the minimum, in order not to interfere with the involution of the uterus.

11. Paralysis of Non-Gravid Uterus.—Kossmann has observed several instances in which the uterus allowed the insertion of a broad curette to a distance of 14 cm. Afterwards the organ contracted so that it was impossible to insert any instrument farther than the normal few inches. Laparotomy showed the uterus intact, without a trace of perforation. He thinks that we must accept the possibility of paralysis of the non-pregnant uterus in explanation.

12 and 13. Lumbar Puncture in Eclampsia.—Henkel relates 16 cases of eclampsia treated by lumbar puncture in 1901. The results were apparently negative and discourage further attempts in this line. The cerebrospinal fluid showed the usual pressure, or below, in all but 4 cases; one of the latter terminated fatally. Kleinwächter criticises Krönig's recent publication on the treatment of eclampsia by lumbar puncture as non-conclusive in several respects, and as also showing disregard of what had previously been published on the subject. He remarks that it would be desirable if young confrères would take the trouble to look up the literature before publishing a supposedly new idea or discovery. They might find that others had suggested, and perhaps tried, the same thing before them.

15. Nephrotomy in Anuria of Eclampsia.—Sippel advises that the new conceptions in regard to surgical treatment of kidney affections should be extended to the anuria of eclampsia, but not until better foundations can be provided by careful and extended observation from this standpoint. The question to be decided is whether the nephritis of pregnancy is capable of inducing such acute intracapsular pressure as to compromise the circulation and function of the kidney. In certain cases the increased pressure may be the primary, and the changes in the kidney the secondary phenomena. The presence or accumulation of specific metabolic products in the blood of pregnant

women may raise the pressure in the kidney capsule, and entail altogether different consequences than occur in the case of non-pregnant women. [Pestalozza remarks editorially in *Ginecologia* (Florence, Italy), that Sippel's communication is a curious commentary on Kleinwächter's criticism of Krönig, mentioned above. Sippel confesses that he was unaware of Edebohls' previous announcements on the subject of nephrotomy in the anuria of eclampsia, and even at the date of this writing seems to know of Edebohls' first case alone. The second, a comparatively more important case, was duly chronicled in Pestalozza's journal, *Ginecologia*, soon after it was published in America. He adds that it is hard to keep up with the dizzy onward rush of the scientific publications of the day, but at least those who propose new and hazardous procedures should not restrict their outlook to the literature of their fatherland alone. They should remember that science is the patrimony of the world at large.—Ed.]

18. Saline Infusion in Puerperal Infection.—Jaworski presents data which unmistakably establish the favorable action of saline infusion in puerperal infection, showing that the course is modified for the better and the patient displays slow but constant improvement. In order to be effectual the emunctories must be still functioning. When the kidneys and the glands are no longer working properly, then saline infusion can do comparatively little good. A large amount of fluid should be removed from the intestines or the blood pressure should be reduced by venesection. In this way we free the body from a certain amount of toxins, reduce the blood pressure and favor the diffusion of the artificial serum through the vascular system when it is injected later. In the chronic forms of puerperal infection, saline infusion is especially valuable, on account of its stimulating, cleansing and eliminating action.

19. Yeast in Treatment of Vaginal and Uterine Catarrh.—Cronbach remarks that yeast has a promising future in the treatment of vaginal and uterine catarrhal affections, especially for gonorrhœa in pregnant women and in children. He does not know that it has ever been used in the treatment of gonorrhœa in males. It is an entirely harmless and active antiseptic, but there is still room for improvement in the mode of its preparation.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PROGRESSIVE MEDICINE, Vol. IV, December, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Robert Amory Howe, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With 79 Illustrations. Paper. Price, \$6.00. Philadelphia and New York: Lea Brothers & Co.

FIRST REPORT OF THE WELLCOME RESEARCH LABORATORIES AT THE GORDON MEMORIAL COLLEGE, KHARTOUM. By the Director, Andrew Balfour, M.D., B.Sc., M.R.C.P. Edin., D. P. H. Camb., Fellow of the Royal Institute of Public Health. Cloth. Pp. 85. Department of Education, Sudan Government, Khartoum, 1904.

PHYSIOLOGICAL ECONOMY IN NUTRITION, with Special Reference to the Minimal Protein Requirement of the Healthy Man. An Experimental Study. By Russell H. Chittenden, Ph.D., LL.D., Sc.D., Director of the Sheffield Scientific School of Yale University. Cloth. Pp. 478. New York: Frederick A. Stokes Co. 1904.

HOW TO STUDY LITERATURE. A Guide to the Intensive Study of Literary Masterpieces. By Benjamin A. Heydrick, A.B. (Harv.), Professor of English Literature, State Normal School, Millersville, Pa. Third Edition, Revised and Enlarged. Cloth. Pp. 150. Price, 75 cents. New York: Hinds, Noble & Eldredge.

A LABORATORY GUIDE IN ELEMENTARY BACTERIOLOGY. By William Dodge Frost, Ph.D., Assistant Professor of Bacteriology, University of Wisconsin. Third Revised Edition. Cloth. Pp. 395. Price, \$1.60. New York: The Macmillan Co. 1903.

TWENTY-THIRD ANNUAL REPORT OF THE STATE DEPARTMENT OF HEALTH OF NEW YORK FOR THE YEAR ENDING DEC. 31, 1902. Transmitted to the Legislature, Feb. 2, 1903. Part I. Albany: The Argus Co. 1903. PARTS. State Department of Health for the Year 1902. Parts I and II.

LECTURES ON DISEASES OF CHILDREN. By Robert Hutchison, M.D., F.R.C.P., Assistant Physician to the London Hospital. Cloth. Pp. 338. London: Edward Arnold. New York: Longmans, Green & Co. 1904.

POVERTY. By Robert Hunter. Cloth. Pp. 382. New York: The Macmillan Co. 1904.

GENERAL INDEX

The general index includes references to all the reading matter that has appeared in the pages of THE JOURNAL for the past six months. Use of the index will be facilitated by bearing in mind that subjects are frequently given under two or more headings; for example, brain, cerebral, tumor, etc.; heart and cardiac; cirrhosis, liver, hepatic, etc. Often, too, writers treat of the eye, ear, nose and throat under one title. There is no longer a department index such as used to follow the general index, but all the "Deaths" are together at the end of the letter "D." Similarly, all societies are under the heading of "Societies" at the end of the letter "S." All matter pertaining to the American Medical Association is placed together under "Association News." All books are listed under "Book Notices." The following letters are used to indicate the nature of the matter referred to: "E" indicates editorial, "O" original article, "T" therapeutic item, "M" an item in the medicolegal department, and "ab" an abstract of an article that has appeared in full elsewhere. The titles and the authors of the articles which are listed each week as having been published in other journals are given under the Current Medical Literature Index on pages 2076 to 2118.

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CURRENT MEDICAL LITERATURE

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Explanation: This index includes the titles and the subjects of original articles published in the leading medical journals of the world during the past six months. The titles and the names of the journals in which they appeared were published weekly in the Current Medical Literature Department, to which references are made. The figures in parentheses refer to the paragraph; the number following, to the page in THE JOURNAL. For instance, "Abdomen, firearm wounds of the, (84) 437—ab," refers to page 437 of THE JOURNAL, on which is found opposite paragraph 84 the title of the paper and the name of the author, viz.: "Firearm Wounds of the Abdomen, B. K. Finkelstein." This title is listed under the journal in which the article appeared, "Rousskii Vrach, St. Petersburg, ii, No. 39." The "ab" indicates that an abstract of the article appeared in THE JOURNAL, which will be found below the title. Titles of articles which appeared in THE JOURNAL are indicated in the index below by an asterisk (*) before the page number. Index to authors of all the articles below is on pages 2105 to 2118 of this index. The reading matter which appeared in THE JOURNAL is indexed in the General Index on pages 2057 to 2070.

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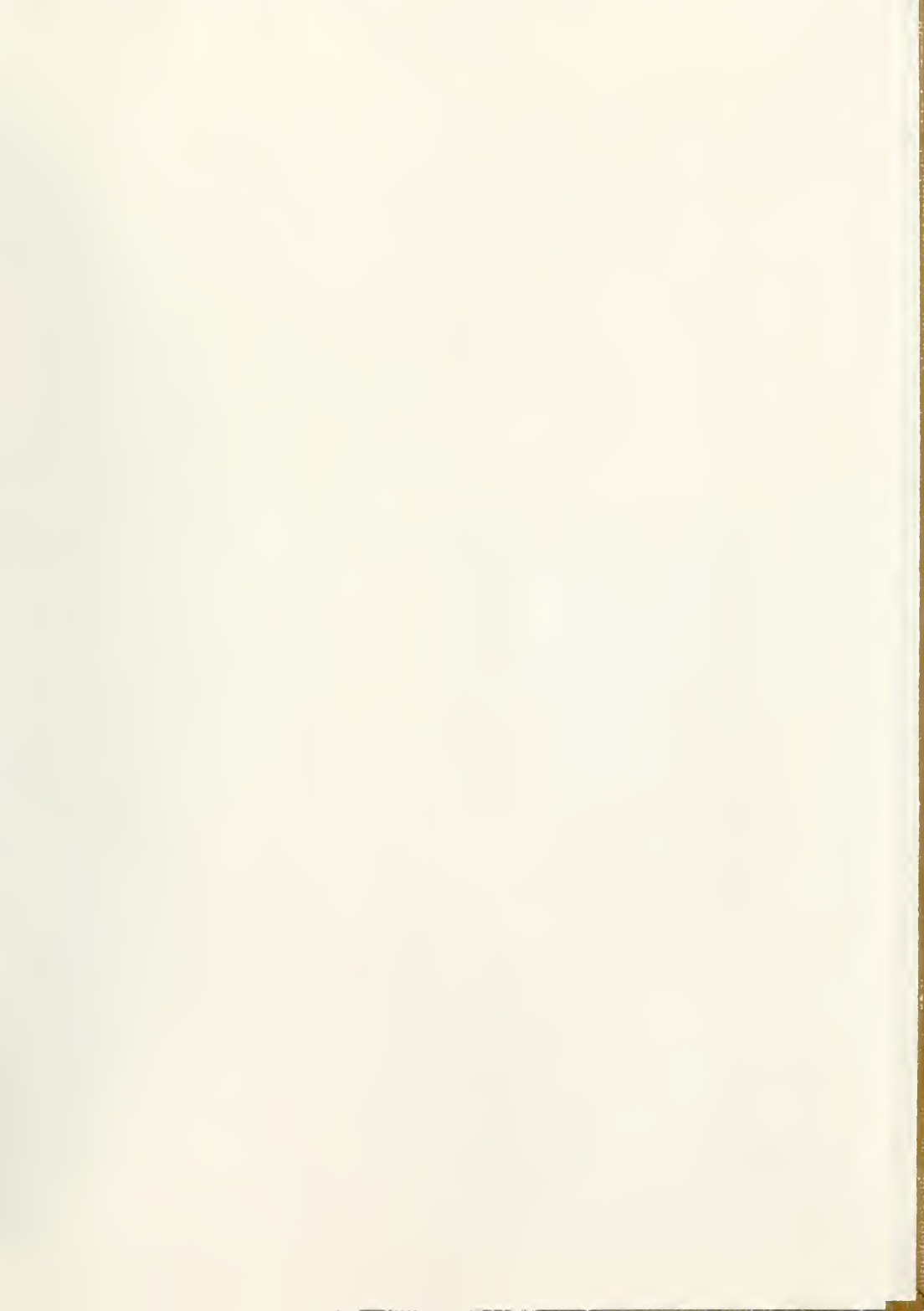
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